



JAMAICA'S  
NOMINATION OF  
THE CULTURAL AND NATURAL HERITAGE OF THE  
BLUE AND JOHN  
CROW MOUNTAINS

FOR INSCRIPTION  
ON THE  
WORLD HERITAGE LIST

Jamaica's  
nomination of the  
Cultural and Natural Heritage of the  
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# *Convention Concerning the Protection of the World Cultural and Natural Heritage*

Under the terms of the Convention concerning the Protection of the World Cultural and Natural Heritage, adopted by the General Conference of UNESCO in 1972, the Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage, called 'the World Heritage Committee', shall establish, under the title of 'World Heritage List', a list of properties forming part of the cultural and natural heritage which it considers as having Outstanding Universal Value in terms of such criteria as it shall have established.

The purpose of this nomination is to enable States Parties to submit to the World Heritage Committee nominations of properties situated in their territory and suitable for inclusion in the World Heritage List.

This Nomination Document has been prepared in accordance with the 'Format for the nomination of cultural and natural properties for inscription on the World Heritage list' issued by UNESCO.

The form has been completed in English and is sent in four identical copies to:-

*The Secretariat  
World Heritage Centre  
UNESCO  
7 Place de Fontenoy  
75352 Paris 07 SP  
France*



# Message

*The Honourable Lisa Hanna, M.P., Minister of Youth and Culture*



Jamaica has been a beacon and inspiration to the world by our creative genius in music, our tenacity in sport, and our ingenuity in science and agriculture. We have given to the world Bob Marley and Reggae Music, the world's fastest man, Usain Bolt and freedom fighter Marcus Garvey.

Today, our culture is powerful and dynamic, not by accident, but through the shaping of our people's confidence from our history of resilience and victory.

This year we celebrate 276 years of the signing of the Treaty between the Leaders of the Maroons and the English Governor that gave sovereignty to the Jamaican Maroon people. This recognizes in Jamaica and across the world, full freedom from enslavement at least 100 years before complete abolition was granted to all enslaved persons by the British in 1838.

The Blue and John Crow Mountains property was instrumental to this outcome. This was the site where many of our people were faced with challenges and fought for their survival. It was in these mountains that partnerships were forged to create and protect a new way of life and where mastery in agriculture, medicine and governance influenced harmonious existence and offered protection to our enslaved ancestors.

It was in this Mountain range that Queen Nanny of the Maroons displayed exceptional leadership skills to guide the fearless determination of the Maroons against the English Forces, advancing the acknowledgement of their right to freedom and independence. Immortalised in songs and legends, Queen Nanny is the only female listed among the Jamaica National Heroes. Since the 18th century, she has served to inspire civil, political, and social rights for many women around the world.

Today at this expansive site, our African heritage is alive throughout the villages with ritualistic dancing and drumming recognized globally through the declaration of Maroon musical heritage as a 'Masterpiece of the Oral and Intangible Heritage of Humanity'. Also active is the tradition of using the "village" to raise a child. As such, many of their communities record zero incidences of crime and violence.

An inscription on the World Heritage List would allow us to extend our national commitment to the preservation and advancement of our cultural and natural heritage to the rest of the world. We commend all, and the World Heritage Centre for the hard work that it has entailed to take us this far in the process.

# Message

*Dr. Hon. Wykeham Mcneill, M.P., Minister of Tourism and Entertainment*



Jamaica continues to be the Caribbean's premier destination of choice. This has not only been accomplished because of our breathtaking attractions, unique events and the indulgence of our accommodations, but primarily through warm and friendly interaction with our people. Visitors return time and time again, because of the lifelong friendships they make and to create additional experiences to complement the ones already etched in their memories.

The Blue and John Crow Mountains are integral to this process, providing a site for adventure, artistic discovery, awe-inspiring ecotourism and wholistic wellness. The site also exemplifies the impact on and contribution of tourism to national development. This is exhibited through the integration of the daily activities of the Maroon communities interlaced with sectors such as agriculture, manufacturing, and entertainment.

Millions have already come to know the experience of our heritage and culture, exceptional natural beauty and passionate people, an inscription on the World Heritage List would reinforce our efforts to extend that opportunity to millions more. The Ministry of Tourism and Entertainment is therefore delighted to pledge our full support and looks forward to working with UNESCO and the World Heritage Committee in sharing The Blue and John Crow Mountains with the rest of the World.

# Message

*The Hon. Robert Pickersgill, M.P., Minister of Water, Land, Environment and Climate Change*



Listed among the world's hotspots for biological diversity, the Blue and John Crow Mountains serve as a habitat for a large percentage of the island's endemic species of international scientific interest and is a vital supply of water for domestic, agricultural, industrial and commercial usage. The area's global significance is also evidenced in the numerous policies and programmes implemented, which not only speak to preservation and conservation, but also address issues of compliance, monitoring and evaluation, as well as public education and involvement.

An inscription on the World Heritage List will not only serve to earn recognition for the area as an outstanding example of ecological and biological processes, but in doing so, will enhance existing programmes and policies in our ongoing commitment to promote environmentally sustainable livelihoods as well as sustained, appropriate management of the area's natural and cultural resources.

The Ministry of Water, Land, Environment and Climate Change has demonstrated its endorsement of this nomination through the contributions of its various agencies to the process. Our pledge is to continue these partnerships in order to ensure that once The Blue Mountains and John Crow Mountains are inscribed, we will uphold the standards and requirements as specified by the UNESCO, so that their natural and cultural significance are maintained.

# Message

*Mr. Ainsley Henriques, C.D. Chairman, Jamaica National Heritage Trust*

The Jamaica National Heritage Trust (JNHT) considers it a privilege to be associated with the preparation of the nomination Dossier for the 'Cultural and Natural Heritage of the Blue and John Crow Mountains' for possible inscription on the World Heritage List.

The JNHT, a statutory agency of the Government of Jamaica, has been charged with the responsibility to lead the process for preparing this application. Our dedicated staff members have worked tirelessly with the cooperation of many people both within and outside of government; also with the full endorsements of the Maroon community. This is a tribute to the growing recognition of the desire of our people to preserve our heritage –cultural, natural, and intangible.

At this time we give our profound gratitude to the pioneers of liberation and the keepers of our heritage, as well as all the entities and persons who have made available the resources for the on-going management of the Property towards the preparation of this Dossier.

I wish to leave with you our mantra that we will continue to work for the “future of our past”.

On behalf of all the trustees of the JNHT, I wish to commend the World Heritage Centre for the inspiration and full assistance that we have received, and thank you for your kind consideration of our submission.



*"Red-Billed Streamer Tailed  
Humming Bird"*  
Photo By: P. Jones



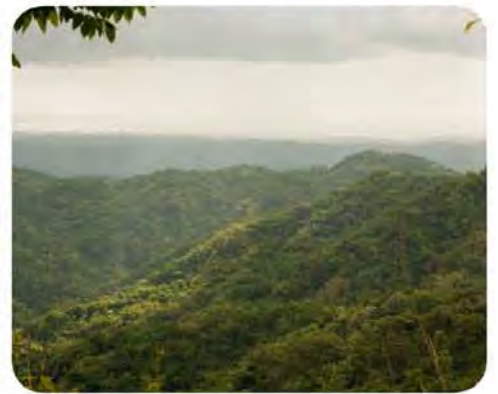


*"Misty Corn Puss Gap Trail"*  
Photo By: M. Morgan





## Cultural Centre



### Executive Summary

#### Part 1. Identification of Property

- 1.a Country
- 1.b State, Province or Region
- 1.c Name of Property
- 1.d Geographical Coordinates to the nearest second
- 1.e Maps and Plans
- 1.f Area of nominated property and proposed buffer zone

#### Part 2. Description

- 2.a Description of Property
- 2.b History and Development

#### Part 3. Justification for Inscription

- 3.1.a Brief synthesis
- 3.1.b Criteria under which inscription is proposed
- 3.1.c Statement of Integrity
- 3.1.d Statement of Authenticity

- 3.1.e Protection and management requirements
- 3.2. Comparative analysis
- 3.3 Proposed Statement of Outstanding Universal Value

#### Part 4. State of Conservation and Factors Affecting the Property

- 4.a Present state of conservation
- 4.b Factors affecting the property
  - (i) Development Pressures
  - (ii) Environmental Pressures
  - (iii) Natural disasters and risk preparedness
  - (iv) Responsible visitation at World Heritage sites
  - (v) Number of inhabitants within the property and the buffer zone

## Part 5. Protection and Management of the Property

- 5.a Ownership
- 5.b Protective Designation
- 5.c Means of implementing protective measures
- 5.d Existing plans relating to municipality and region in which the proposed property is located
- 5.e Property Management Plan
- 5.f Sources and levels of finances
- 5.g Sources of expertise and training in conservation and management techniques
- 5.h Visitor facilities and infrastructure
- 5.i Policies and Programmes related to the presentation and promotion of the property
- 5.j Staffing levels and expertise

## Part 6. Monitoring

- 6.a Key indicators for measuring state of conservation
- 6.b Administrative arrangements for monitoring the property
- 6.c Results of previous reporting exercises

## Part 7. Documentation

- 7.a Photographs and audiovisual image inventory and authorization form
- 7.b Texts relating to the protective designation
- 7.c Form and dates of most recent records or inventory of the property
- 7.d Address where inventory, records and archive are held.
- 7.e Bibliography

## Part 8. Contact Information of Responsible Authorities

- 8.a Preparer
- 8.b Official Local Institutions/Agencies
- 8.c Other Local Institutions
- 8.d Official web address

## Part 9. Signature on behalf of state party

Part 1

Part 2

Part 3

Part 4

Part 5

Part 6

Part 7

Part 8

Part 9



"Maroon blowing abeng"  
Photo By: M. Morgan

# Executive Summary

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## State Party

Jamaica

## State, Province or Region

The proposed nominated property is situated in the eastern portion of the island in the county of Surrey. It occupies portions of the parishes of Portland, St. Andrew, and St. Thomas.

## Name of Property

Blue and John Crow Mountains

## Geographical Coordinates to the nearest second

A point central to the nominated property has geographical coordinates of 76° 32' 54.252" W and 18° 4' 25.096' N

## Textual description of boundary (ies) of nominated property

The Blue and John Crow Mountains is located in the eastern part of Jamaica. It encompasses an area approximately twenty percent of the island's total landmass. The nominated property and the buffer zone have been adjusted and mapped since the first submission.

The nominated property is the core of the Blue and John Crow Mountains National Park where the natural forest is most serene and majestic. It nurtures a habitat

for a rich diversity of endemic flora and fauna and is the sanctuary of the Windward Maroons' most sacred resting place of their ancestors.

It is demarcated by land parcels and has an area of approximately 246 kilometers square and a perimeter 159 kilometers in length. It includes the Grand Ridge of the Blue Mountain in the parishes of St Thomas, Portland and St Andrew for the most part and plateau of the John Crow Mountain in the parishes of Portland and St. Thomas. The property boundary starts in the west just south of Leighfield District in the Parish of Portland. At this point the boundary travels 3.3 kilometers southwest before turning southeast to Silver Hill Peak on the Blue Mountain Ridge. About 800 meters south of Silver Hill Peak it assumes an eastern direction passing through John Crow Peak and Morces Gap before turning on a south east trajectory passing through Markham and sections of Woodlands, Old England, Main Ridge Gap, Mossmans Peak and Queensbury Ridge. After Queensbury Ridge it turns on a rough eastward orientation circumventing Half-a-Bottle and passing Big Hill to the North and Dinner Time, Macca Suker, Gossamer to the south before traversing Cunha Cunha Pass and Corn Puss Gap. North of Johnson Mountain it

swings north to Big Level in the John Crow Mountain, then continues in a northwestern direction to Rose Garden Mountain and Cambridge Backland at which point it assumes a southern direction to Moore Town. At Moore Town it deviates south-eastward passing Cornwall Pen and Holland Mountain to the east and where the boundary turns west northwest passing through four feet and sections of Bungo Hill, Mango Gap and John Crow Hill where it diverts northwesterly to Hog Grass Bump and Mammee Hill. At this juncture it assumes a general westward orientation back to Leighfield.

The buffer zone represents the boundary of the Blue and John Crow Mountain National Park and the Rio Grande Valley. Most Maroon villages and archaeological sites are situated within the confines of the buffer zone.

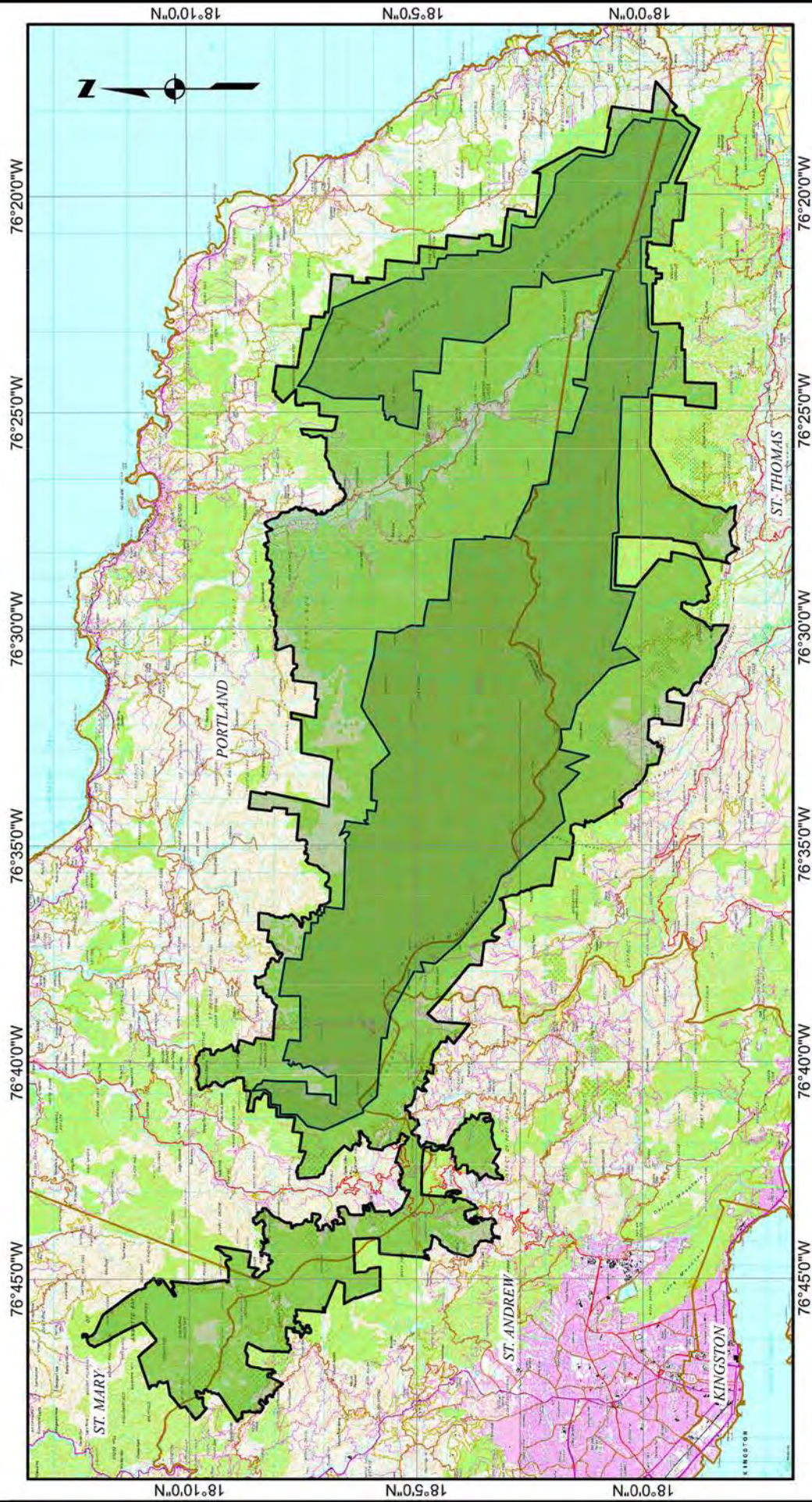
The nominated property and buffer zone are designated Protected National Heritage under the Jamaica National Heritage Trust Act, 1985. Six Windward Maroon sites fall outside the buffer zone. By virtue of their distance from the cluster designation, and in avoidance of egregious management issues, these sites are being treated as satellite Protected National Heritage under the JNHT Act (1985).

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*“The nominated property is the core of the Blue and John Crow Mountains National Park where the natural forest is most serene and majestic.”*



*“Three Finger Spring”*  
Photo By: M. Morgan



The Cultural and Natural Heritage  
of the  
**Blue and John Crow Mountains**  
Map of Jamaica showing: Nominated Property  
and Buffer Zone

January 2014  
prepared by:  
**The Jamaica National Heritage Trust**  
in association with  
**The National Land Agency**

Scale 1:50,000

Legend

- Nominated Property
- Buffer Zone

Logo



## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List



"Jamaican Tody"  
Photo By: R. Miller



### *Criteria under which the Property is being nominated*

The nominated property satisfies the requirements of criteria (iii), (vi), (ix) and (x) from paragraph 77 of the UNESCO World Heritage Convention Operational Guidelines of 2008 which states that World Heritage properties must meet one or more of the stated ten criteria. The criteria the Blue and John Crow Mountains is nominated under are:

- (iii) 'bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.'
- (vi) 'be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.'
- (ix) 'be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals.'
- (x) 'contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.'



## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

# Draft Statement of Outstanding Universal Value

### (a) *Brief Synthesis*

The property containing the Cultural and Natural Heritage of the Blue and John Crow Mountains (CNHBJCM) is located within a Small Island Developing State (SIDS) environment, on a high elevation over 2,256 metres above sea level, with steep slopes, rugged terrain and widely varying climatic conditions. It represents one of the world's most invaluable refugia of cultural and scientific importance. Historically, this became the haven of the Maroons, indigenous Taínos and runaway enslaved Africans, who nestled themselves in the heart of the Blue and John Crow Mountains. They took advantage of this territory to establish a system of routes and world-renowned resistance, and utilized the endemic flora and fauna as an integral part of their lifestyle. In 2003, the culture of this Maroon community was proclaimed as a UNESCO Masterpiece of the Oral and Intangible Heritage. These Maroons have continued to sustain, preserve, and protect the Blue and John Crow Mountains as a diverse, highly endemic flora and fauna habitat supporting ongoing adaptive radiation and evolution of species of Outstanding natural heritage and universal significance and the mountains, in that symbiotic cycle, have in turn

supported the heritage of the Maroons.

The property contains the "Nanny Town Cultural Heritage Route" (NTCHR), representing a dynamic movement for the war of liberation of enslaved people against colonial oppression within the first quarter of the 18th century that eventually led to the formation of two separate autonomous states within Jamaica - the Maroon state and the English state. It comprises a route with a number of interconnected trails and battle sites that commemorate this event between the Maroons, led by Maroon Queen Nanny and the English. This war culminated in the signing of a treaty on June 23, 1739 between the leaders of the Maroons and the English Governor honouring the sovereignty of Maroon lands. Today, this Maroon state continues to exist. The nucleus of the NTCHR is the imperial seat of this Maroon power, Nanny Town. A number of secret Maroon trails and settlements inside the physical terrain of the Blue and John Crow Mountains were infiltrated by the English forces during the war, and the NTCHR identifies the significance of four of these as the "English Route" with a selected four, as the "Maroon Route" from the network. This war had inspired and formed the backbone of other liberation movements of enslaved people against the system of colonialism and had affected worldwide political, trading, and economic activities during the period of enslavement that eventually brought about the abolition of the 'slave trade', and the emancipation of enslaved people. The maroon experience in Jamaica was revolutionary and highly influential, as it served as the earliest example of the triumph of a Maroon society

against the exploits of the British slavery system within the 18th century.

The scenic beauty of the nominated property with its majestic and mist-capped mountain range is located within the Blue and John Crow Mountains National Park. This natural heritage engenders several distinct types of endemic species and habitats, with a contrasting geology of the two mountain ranges containing highly endemic flora and fauna while supporting the evolution of species, all forming an outstanding natural heritage of universal importance. This natural heritage created several distinct types of forest communities, providing critically important habitats for the continued conservation of many endangered or threatened species of global interest.



"Cunha Cunha Pass Trail"  
Photo By: M. Morgan

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### *(b) Justification for Criteria*

The Blue and John Crow Mountains is nominated under criteria:

#### Criterion iii)

The property containing the Cultural and Natural Heritage of the Blue and John Crow Mountains bears a unique and exceptional testimony to a cultural heritage route that is embodied in the archaeological sites. These sites have been identified from the oral traditions of the Maroons in this mountain range as a protective and defensive network of secret trails and settlements that were used in the war of the first quarter of the 18th century for liberation against colonial oppression.

The exceptional testimony of this cultural route centres on “Nanny Town”, the imperial centre, now destroyed but which stands as an archaeological site of significance to the wider international community, and a pilgrimage Site of Memory related to the transatlantic slave trade and the resilience of freedom movement.



“Nanny Town Excavation”  
Photo By: K. Agorsah



“Steps to Corn Puss Gap”  
Photo By: M. Marlon

#### Criterion vi)

The property containing the Cultural and Natural Heritage of the Blue and John Crow Mountains is directly and tangibly associated with the historical events and living traditions of Nanny, Queen of the Maroons whose imperial town, Nanny Town is located in the heart of the nominated property.

The notion of freedom has dominated global political rule and Nanny as commander-in-chief and spiritual icon dominated the 18th Century as a female warrior in the liberation movement against enslavement whose influence bore global significant.

Today, the Jamaican government has designated ‘Nanny of the Maroons’ as a ‘National Hero’. Nanny Town is a major Jamaican sacred site. Its cultural heritage route is a pilgrimage for many in the global African Diaspora and the wider public internationally.



“Traditional dancing by Moore Town Maroons”  
Photo By: M. Morgan



“Nanny - Queen of the Maroons”  
Photo By: (Unknown)



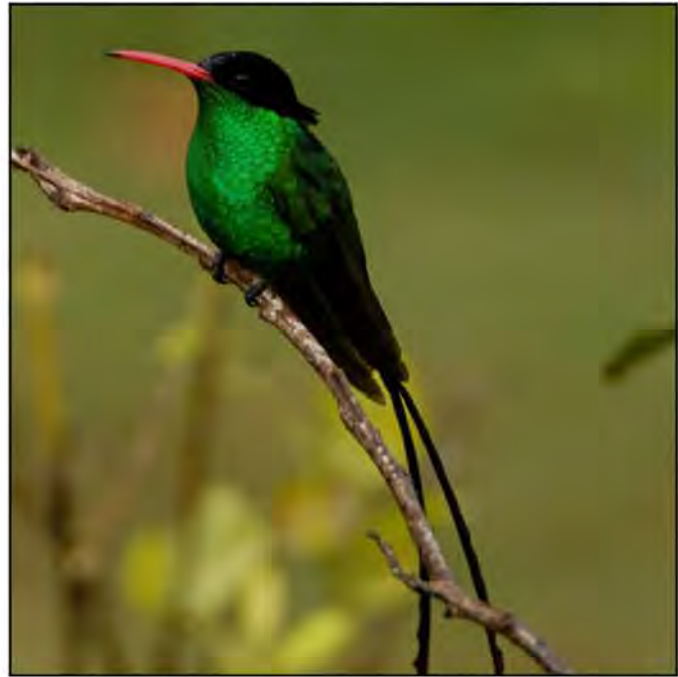
## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### Criterion ix)

The Nominated site exhibits outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial and freshwater ecosystems and communities of plants and animals. There are several examples of endemic groups including invertebrates, amphibians, reptiles and birds which are still under-going speciation and new species are still being discovered.



*"Black-billed Streamer tail"*  
Photo By: Ricardo Miller



*"Red-billed Streamer tail"*  
Photo By: Rolf Nussbaumer-Getty

### Criterion x)

The wide range of habitats associated with an extensive variation in elevation, rainfall and the geological origins of the Blue and John Crow Mountains have resulted in a high degree of endemism in terrestrial and freshwater flora and fauna. The site has been listed as one of the 78 most irreplaceable protected areas for the conservation of the world's amphibian, bird and mammal species – the only such site in Jamaica and one of only five in the Caribbean (Bertzky et. al., 2013).



*Pterourus homerus*  
(Giant Swallowtail Butterfly)  
Photo By: V. Turland



*Geocapromys brownii*  
(Coney, Jamaican Hutia)  
Photo By: R. Miller

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### *(c) Statement of Integrity*

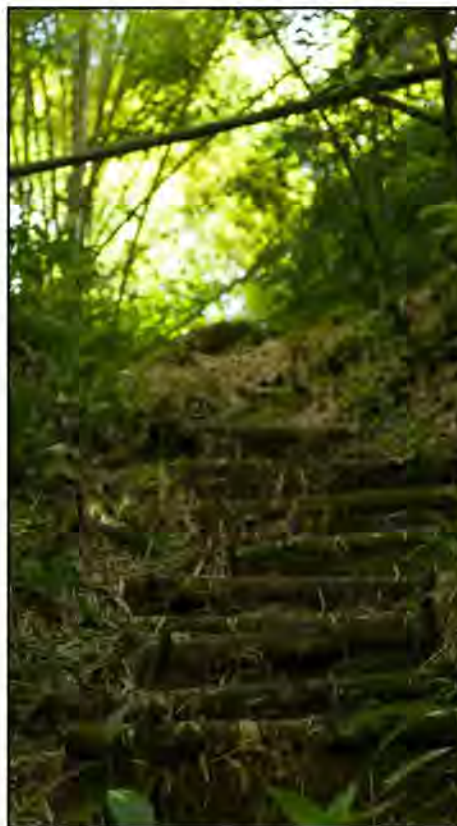
Covering 26,251.60 ha, the nominated area and its buffer zone are of adequate size and encompass all the natural and cultural values that form the basis for the claim of Outstanding Universal Value of the Cultural and Natural Heritage Blue and John Crow Mountains.

Scientific research has verified the nominated area as being a critically important and invaluable habitat for significant ongoing ecological and biological processes in the evolution and development of terrestrial and freshwater ecosystems, and within the boundaries of the site, supports a high level of species endemism in terrestrial and freshwater flora and fauna.

Archeological deposits are primary, and remain in situ, and the most sacred sites are protected deep within the forested core, with limited accessibility. The inaccessibility of the property and its early protected status and management has resulted in a property that is generally free from adverse human impacts, with a very good state of conservation. Consultations with local Maroon communities as well as ongoing field assessments have ensured that the sites are preserved for future scholarship. The present status of the sites have revealed a considerable amount of data which has been included within the boundaries of the site and/or its buffer zone. Policies, monitoring and activities have been implemented to continue the protection and documentation of the site in cooperation with local communities.

The Government of Jamaica in displaying

its commitment to preserving the integrity of the site has continued with the implementation and enforcement of various legal measures to protect the site's natural and cultural components. The nominated property and the buffer zone have been designated as Protected National Heritage under the Jamaica National Heritage Trust Act (1985). The natural heritage of the Blue and John Crow Mountains is recognized as a Forest Reserve under the Forest Act (1996) and a Protected Area under the National Resource Conservation Authority Act (1991). The nominated property also benefits from a management system which factors both natural and cultural components of the property.



*"Steps to Corn Pusss Gap"*  
Photo By: M. Morgan

### *(d) Statement of Authenticity*

The cultural and natural heritage comprising the nominated property has demonstrated a high degree of authenticity. In terms of location and setting, the Blue and John Crow Mountains is the original location and setting of the Maroon wars that resulted in the signing of the Treaty between the Maroons and the British colonial powers, which paved the way for the creation of an autonomous Maroon state. It is a place of resistance and refuge for the Windward Maroons who defended their freedom and developed their distinctive culture within this environment, and continues to do so today in a sustainable way with the natural environment. The established cultural heritage route with its historic trails, rivers, waterfalls, caves and sacred Maroon sites such as Nanny Town, continue to be used and venerated today. These sites have retained their original alignment, name and place over the past five hundred years. The communal lands have remained in the hands of the Maroons, and are maintained and administered by the traditional Maroon Council.

In terms of spirit and feeling, the mountains and the various sites such as waterfalls, caves etc. continue to be spiritually entwined in the belief system of the Maroons, who are strongly connected to the spirits of their ancestors, who are believed to remain in the immediate surroundings. Archeological sites such as Nanny Town, central to the defensive network of trails and settlements, retain its historical and spiritual values to the Maroons as it did in the past and is now a global pilgrimage site for the African Diaspora. The network of secret trails, although no longer being used for resistance purposes, continues to

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### *(e) Requirements for protection and management*

function as trails used by the Windward Maroons to connect them with other Maroon communities and the remainder of the island.



"Trail to Quao River"  
Photo By: M. Morgan

The wealth of documentary and archaeological evidence, oral histories, and stories relating to the Windward Maroons and the Blue and John Crow Mountains, serve to confirm the authenticity of this

heritage, its context and importance as Outstanding Universal Value.

The nominated property is a part of the Blue and John Crow Mountains National Park and as such is governed by all applicable regulations and laws.

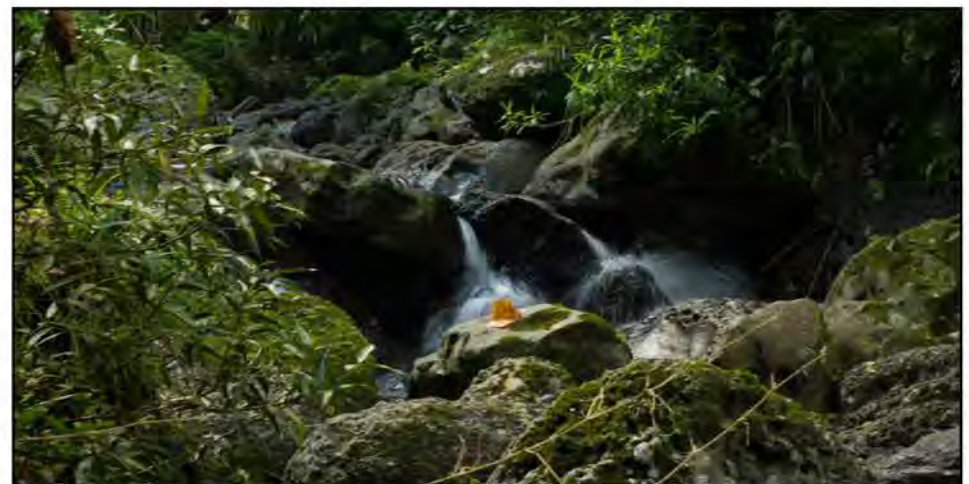
In keeping with section 132.5 of the 2013 Operational Guidelines for the implementation of the World Heritage Convention, the Blue and John Crow Mountains nominated property features both natural and cultural heritage values which are governed by three main pieces of legislation under three separate government agencies. The three main laws which protect both the nominated property and the buffer zone are:

- The Forestry Act (1996) – Forestry Department
- Natural Resources Conservation Authority Act (1991) – National Environment and Planning Agency (NEPA). NEPA has delegated management authority of the BJCMNP to the Jamaica Conservation and Development Trust (JCdT), a

non-government organization.

- The Jamaica National Heritage Trust Act (1985) – JNHT protects all cultural heritage resources within the nominated property and the buffer zone, with the establishment of a preservation scheme which dictates levels of interaction with the site.

This collaborative approach is facilitated by the cooperation between government agencies through, a co management agreement and the Blue and John Crow Mountains Advisory committee, of which the Windward Maroon council is a part. Traditional management is carried out by the Maroon councils in collaboration with the Jamaica Conservation and Development Trust and other stakeholders. The nominated site is also protected by an extensive management plan which facilitates preservation, enforcement, and monitoring activities.



"Quao River"  
Photo By: M. Morgan

**PART 1.**  
**IDENTIFICATION OF**  
**THE PROPERTY**

# 1. *Identification of the Property*

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1.a **Country**

Jamaica

1.b **State, Province or Region**

The proposed nominated property is situated in the eastern portion of the island of Jamaica. It occupies portions of the parishes, Portland, St. Andrew, and St. Thomas.

1.c **Name of Property**

Blue and John Crow Mountains

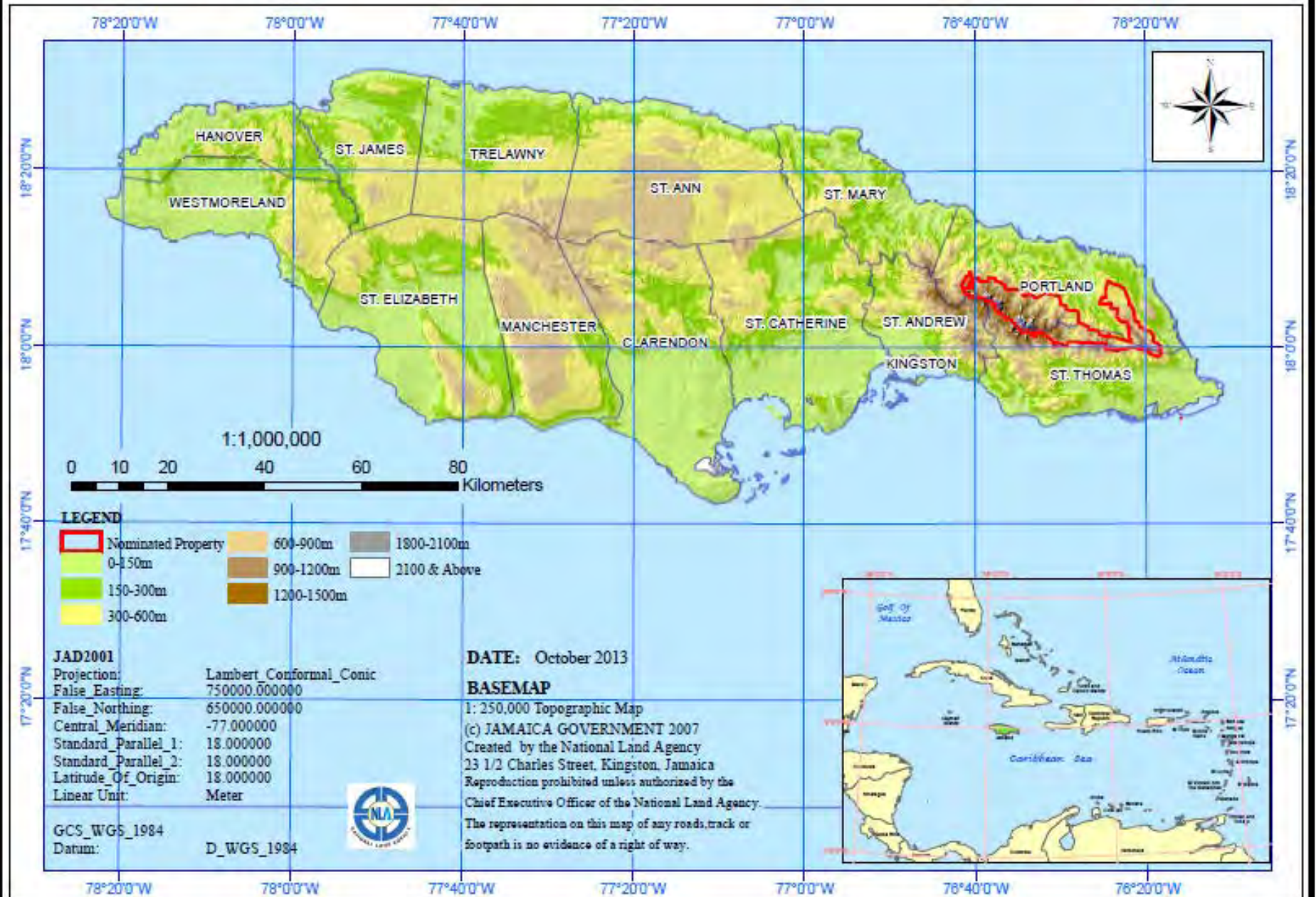
1.d **Geographical Coordinates**

A point central to the nominated property has geographical coordinates of 76° 32' 54.252" W and 18° 4' 25.096' N



*"View of Mountains from Hayfield"*  
Photo By: M. Morgan

# Topographic Map of Jamaica and the Nominated Property

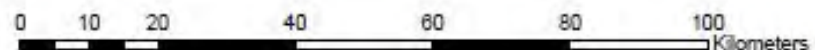


# Map of Jamaica Showing Nominated Property



JAD2001  
 Projection: Lambert\_Conformal\_Conic  
 False\_Easting: 750000.000000  
 False\_Northing: 650000.000000  
 Central\_Meridian: -77.000000  
 Standard\_Parallel\_1: 18.000000  
 Standard\_Parallel\_2: 18.000000  
 Latitude\_Of\_Origin: 18.000000  
 Linear\_Unit: Meter  
 GCS\_WGS\_1984  
 Datum: D\_WGS\_1984

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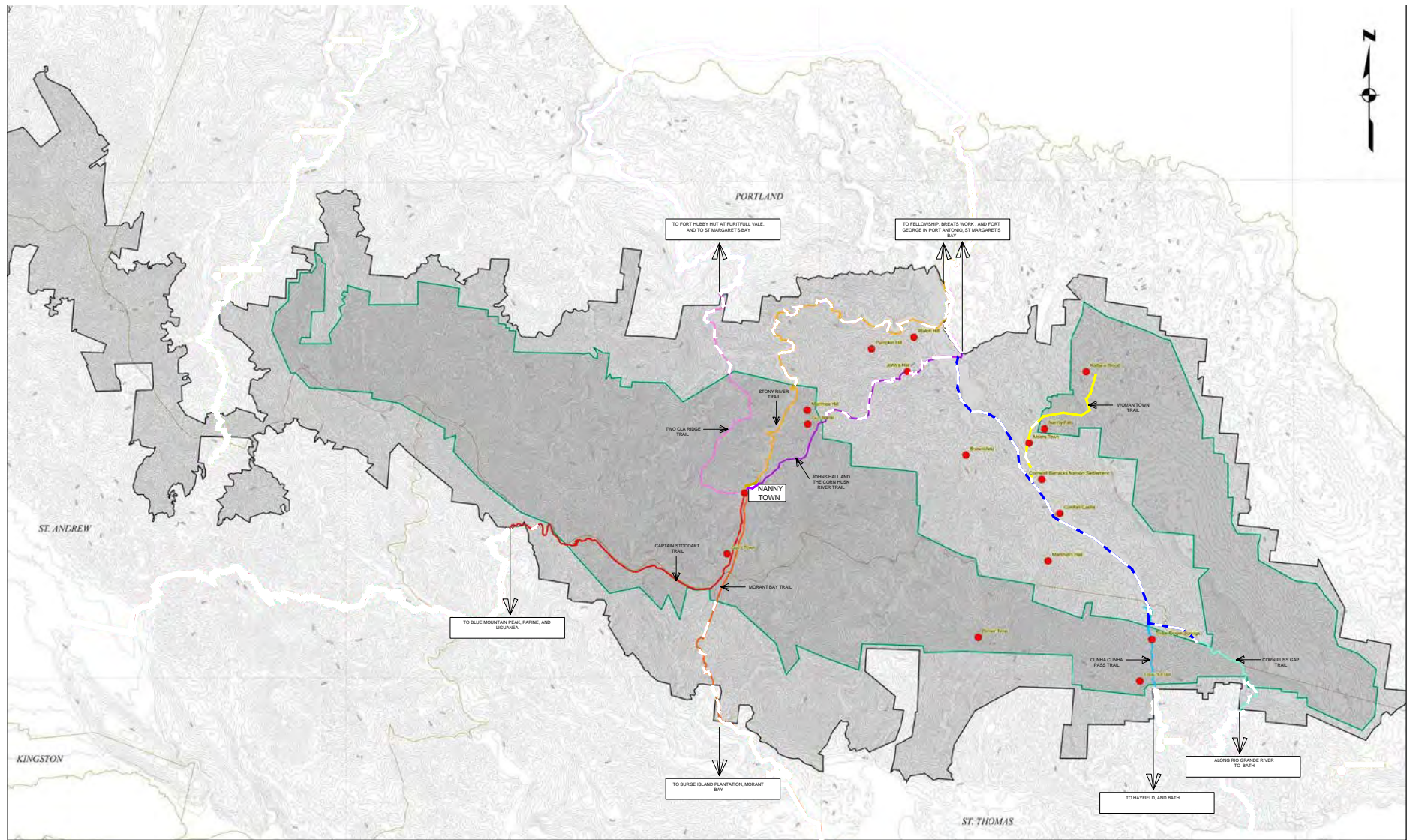
**LEGEND**

- Nominated Property
- Parish

Date: October 2013

Prepared by the  
 National Land Agency  
 23 1/2 Charles Street  
 Kingston, Jamaica





**The Cultural and Natural Heritage of the Blue and John Crow Mountains**  
 Map of Jamaica showing; Nominated Property and Buffer Zone Maroon Sites and Trails

Scale 1:50,000

January 2014  
 prepared by:  
**The Jamaica National Heritage Trust**  
 in association with  
**The National Land Agency**

<span style="color: red;">●</span> Maroon Sites	<span style="border: 1px solid green; padding: 2px;"> </span> Nominated Property
<span style="border: 1px solid black; padding: 2px;"> </span> Parish Boundary	<span style="border: 1px dashed green; padding: 2px;"> </span> Buffer Zone
<b>Maroon Secret Routes</b>	
<span style="color: cyan;">—</span> Cuna Cuna Pass Trail	<span style="color: red;">—</span> Stony River Trail
<span style="color: orange;">—</span> Corn Puss Gap Trail	<span style="color: magenta;">—</span> Two Cla Ridge Trail
<span style="color: blue;">—</span> Morant Bay Trail	<span style="color: purple;">—</span> Captain Stoddart Trail
<span style="color: yellow;">—</span> Woman's Town Trail	<span style="color: purple;">—</span> John's Hall and the Corn Husk River Trail

Logo



Nomination of The Blue and John Crow Mountains for inscription on the  
World Heritage List

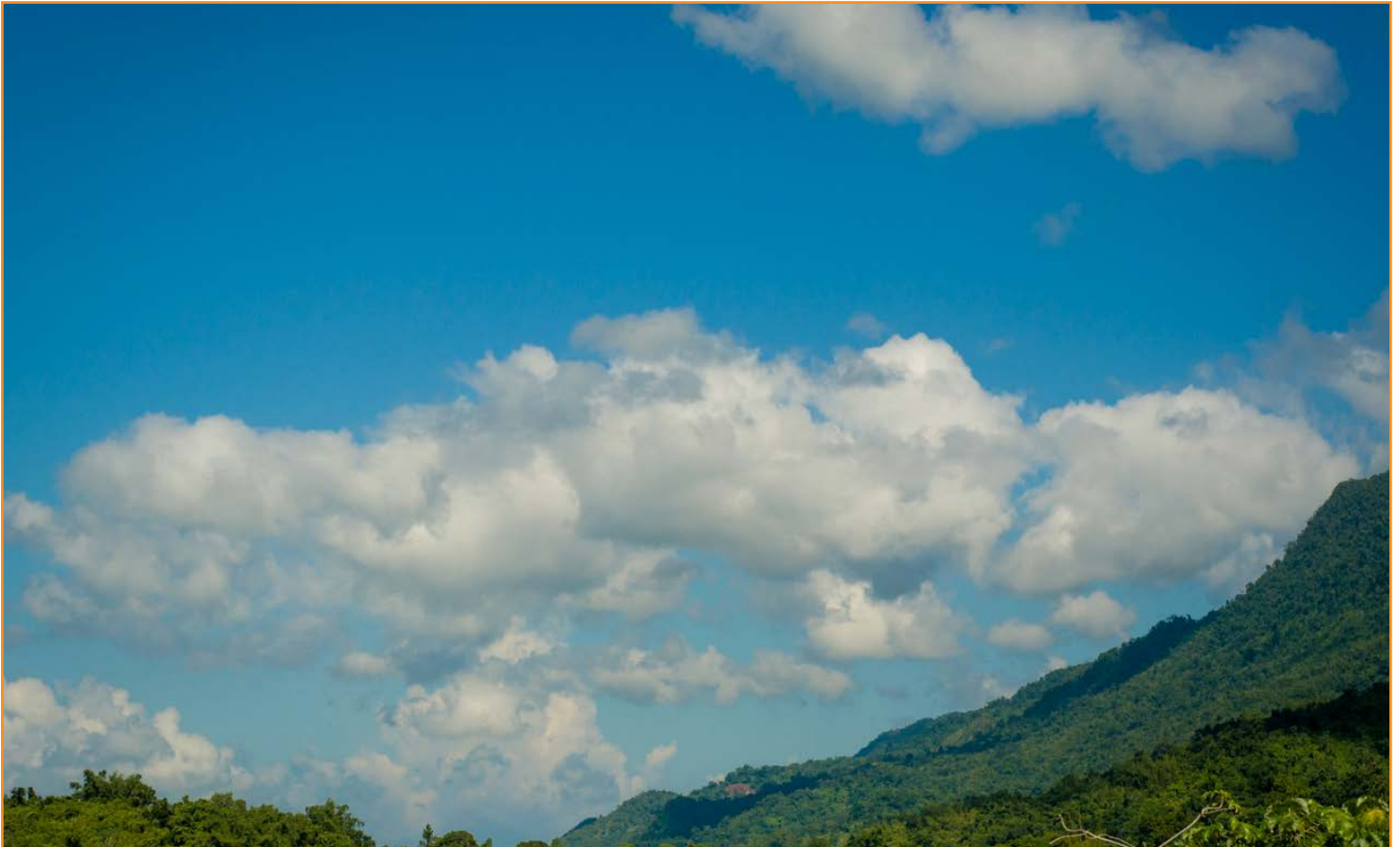
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1f. Area of nominated property (ha.) and proposed buffer zone (ha.)

Area of nominated property: 26 251.60 ha

Buffer zone: 28 494. 01 ha

Total: **55 845.59 ha**



*"View of Mountains from Maroon Sacred Site"*  
Photo By: M. Morgan

PART 2.  
DESCRIPTION



# Introduction

The Blue and John Crow Mountains represents a rich and outstanding natural habit for numerous endemic species and the cultural heritage of the Windward Maroons. It is an important site for its significant scientific and conservation value.

The site is being nominated as a mixed site consisting of both outstanding natural and cultural resources. The Windward Maroons used the natural features and resources of the Blue and John Crow Mountains not only as a source of sustenance, but also to wage a successful tactical guerrilla resistance against the colonial forces. The mountains are revered by the Windward Maroons as the resting place of the ancestors and their settlements are strategically located in the sheltered valleys beneath the mountains. This location allows the Maroons to be able to use the resources as their ancestors did for almost 3 centuries. This section addresses the nominated site's cultural and natural aspects in turn.

The Cultural and Natural Heritage of the Blue and John Crow Mountains is located within the Blue and John Crow Mountains National Park which consists of three mountain ranges. The northern and central sections of the Port Royal Mountains (PRM) (14.8% of the BJCMNP area) in the west, the Blue Mountains (BM) (65.7%) in the centre and the John Crow Mountains (JCM) in the east (19.5%).

The majestic mist capped ridges and peaks of the Blue and John Crow Mountains (BJCM) stretches across eastern Jamaica and extend over a planimetric area of 55 845.59 hectares. The nominated site consists of two mountain ranges, the Blue Mountains (BM) and the John Crow Mountains (JCM). The Blue Mountains run mainly west to east while the John Crow Mountains run mainly north to south. Along their major axis, the Blue Mountains extend about 39 km and the John Crow Mountains about 21 km. The stunning views of the Blue Mountains emphasise the vertical scale of the Mountains. The Blue Mountain range is a chain of high peaks with a central ridge of metamorphic rocks running northwest to southeast. From this central ridge, often referred to as the Grand Ridge, many long spurs jut to the north and south, some with slopes in excess of 70° and frequently over 50°. The Grand Ridge of the Blue Mountains stretches for 16 km across the eastern part of Jamaica, ending in the east with the Rio Grande Valley, and in the west with the Wag Water River trough.

The crest of the ridge exceeds 1800 m for a distance of 3 km. The highest elevation on this range and in the park is Middle Peak, also known as the Blue Mountain Peak, which rises to an altitude of 2,256 m (the highest point in Jamaica). Other peaks on the Blue Mountain range are: East Peak (2246 m); Sugar Loaf Peak

(c. 2150 m); High Peak (2082 m); Mossman Peak (2028 m) and Sir John's Peak (1927 m). The mountain range attains to these elevations from the coast in the space of only 16 km, thus producing one of the 'steepest general gradients in the world' (CIA Fact book, 2005) and one of the most impressive landscapes in the Caribbean (Ramsook, 2006).

The prominent cuesta of the John Crow Mountains is formed by a strongly tilted limestone plateau, which rises gently from the east and dips towards the north-east. This mountain range covers 19.5% of the park and runs parallel to the eastern coast of Jamaica.

The John Crow Mountains rise to an elevation of 1140 m, with a scarp face on the western side, and an unusual landscape of sinkholes and outcrops. The Rio Grande Valley separates the northeast side of the Blue Mountains from the John Crow Mountains, but the ranges join at Corn Puss Gap (640 m), the boundary between the parishes of Portland and St. Thomas. This rugged landscape was the home of the Windward Maroons and they used the steep gradients and other features to their advantage in their successful guerilla warfare against the British (Albert Edwards, 1994).





## 2.a(i). Description of the Cultural Heritage of the Blue and John Crow Mountains

The Cultural Heritage of the Blue and John Crow Mountains centres on the sacred Nanny Town site and the “Nanny Town Cultural Heritage Route” (NTCHR). Nanny Town now stands as an archaeological site of outstanding universal significance and a Site of Memory. The NTCHR represents the movement of the war of enslaved people against the colonial powers during the 18th century. It comprises a number of interconnected trails and battle sites that commemorate this event between the Maroons led by Maroon Queen Nanny and the English. Today, some trails are open and are still being used to by the Maroons and they connect the Maroon communities to each other and further across the island.

### *The Nanny Town Cultural Heritage Route (NTCHR)*

The NTCHR is a defensive network of settlements and secret trails that were used in the war of the first quarter of the 18th Century for liberation against colonial oppression. There are several trails that the Maroons created and utilized during the war with the English however, due to the secrecy of these trails by the Maroons only eight are highlighted. Four of the eight trails were infiltrated by the English troops who were successful in reaching Nanny Town in 1734 using the route of Captain Stoddard’s.

### **MAROON TRAILS**

Trails used by the Maroons to access Nanny Town and other Maroon settlements in and around the Blue and John Crow Mountain include:

#### • **Cunha Cunha Pass Trail**

Cunha Cunha Pass Trail is an 8 km route used by the Maroons to travel between

the parishes of St. Thomas and Portland. It connects Hayfield in St. Thomas in the east with Bowden Pen and the Rio Grande Valley in Portland. Midway along the trail is the Three Finger Spring and Lookout site which the Maroons used to monitor the movements of the English troops.

On April 19, 1817 Lloyd and Harvey gave their account passing through the Cunha Cunha Pass Trail on their way from Bath, in St. Thomas to Altamont in Portland to visit some Scottish immigrants:

*“We proceeded by a bridle path over a ridge three thousand feet high, called the Coonah-Coonahs. After the first four or five miles all traces of human interference with the wild domain of nature had disappeared excepting only the track we followed. Below us was a valley of immense depth, formed by a long ridge on the opposite side, and by the one impending over our heads. All was one vast forest, whose solitude was broken only by the deep-toned voices of birds.” (Peter Espuet, Unpublished manuscript)*



*“Cunha Cunha Pass Trail”*  
Photo By: M. Morgan

#### • **Corn Puss Gap Trail**

Corn Puss Gap connects the Blue Mountains in the west and the John Crow Mountains in the east. It is 640 m above sea level and connects the Johnson Mountain Maroons with the Maroons of the Rio Grande Valley. Corn Puss Gap is said to have gotten its odd name from the fact that hikers got lost in the hills caught a cat, corned (salted) it and ate it.

*“Corn Puss Gap resembled a small cross road, with a clearing and trails leading off in several directions, one over the hills to Portland northwards, and several trails to adjacent hills such as Crown Hill, surrounding the gap.” (Pringle 1939, cited in Espuet [Unpublished manuscript])*

#### • **Morant Bay Trail**

From Morant Bay following the Morant River northwesterly to Serge Island and then continues through the Blue Mountain Valley, up to Island Head along the Negro River across the ridge at Abraham’s Peak and down into the Stony River Valley into Nanny Town (Thomas Craskell and James Simpson, 1763).

#### • **Woman’s Town Trail**

The Woman’s Town Trail led to Katta-a-Wood (Woman’s Town), the settlement that protected Maroon women and children from British onslaught. The trail is located above the hills of the Great Plantain Walk. From there the Maroons could look directly into the town of Port Antonio and the fort at Titchfield Hill. (Carey 1997: 230)

According to oral tradition there are many more Maroon trails traversing the nominated area which link settlement and

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

sacred sites as well as those for hunting or gathering herbs but because of the secrecy of the Maroons many of the trails' alignments are not disclosed.

### MAROON TRAILS USED BY THE ENGLISH

The Maroon trails were not only used by the Maroons, but were later used and formalized by the English to launch assaults on Maroon settlements in the Blue and John Crow Mountains, primarily Nanny Town.

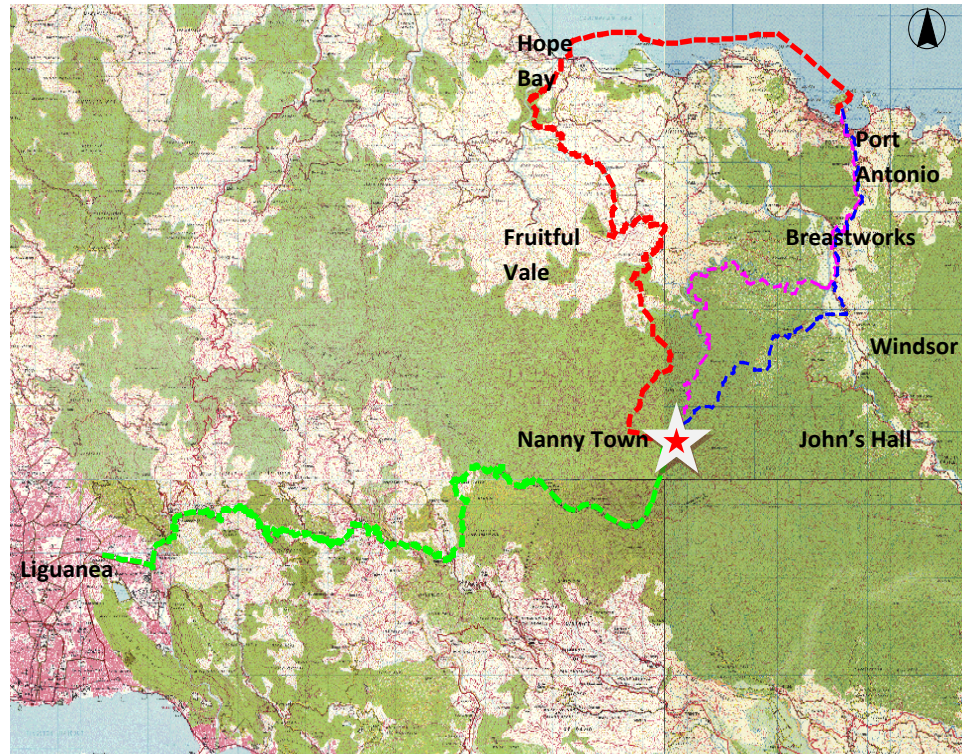
Bev Carey in her book *The Maroon Story: The Authentic and Original History of the Maroons in the History of Jamaica 1490-1880* (1997) identified four main trails that the British used to raid Nanny Town (See Map --)

#### • Stony River Trail

According to Carey, to access the Stony River Trail, one has to "travel up the Back Rio Grande, to its confluence with the Stony River. Then follow the left-hand stream along the steep gorges, through the water, over boulders, diverting to avoid the falls, reaching the location of Stony River Town." (Carey 1997: 167). Carey adds that at least one military party used this route downwards and lived to tell the tale (Ibid).

#### • Two Claw Ridge Trail

This route commenced at Port Antonio and continued by ship, it then followed the coast to Plumb Tree Bay, near St. Margeret's Bay, following up the Swift River or Spanish River, bypassing Shrewsbury, and Fruitful Vale. At Durham, the route passed over the mountains, crossing the river many times, over hills and along ridges and finally up to Two Claw Ridge which would put the traveller above the Great Negro Town. This was the route



----- Stony River Trail

----- Captain Stoddart's Trail

----- Two Claw Ridge Trail

----- John's Hall and the Corn Husk River Trail

commonly used by the militia parties and by the Maroons themselves to attaché Hobby's Barracks, which was located at Fruitful Vale. (Carey 1997: 168).

#### • Captain Stoddart's Trail

"This went from the south side of the Blue Mountains, at Mr. Edlyne's Estate at Liguanea and over the Grand Ridge, pass the source of the tributaries of the Stony River, avoiding the great cataract and following the river by the town. (Carey 1997: 168). This was the route that enabled the English to capture Nanny Town in 1734 (Ibid).

#### • John's Hall and the Corn Husk River Trail

This route is one of the best known and the most developed. According to Bev

Carey:

*It went from the town, into and across the Stony River, up the ridge to Gun Barrel Hill. From this location, it went down into the Corn Husk River, across the river, up another ridge and over Pipe Hill or Garland Grove to John's Hall, which is located at more than 700 feet above sea level. From here, they hiked down to the Rio Grande River which they crossed at Golden Vale before turning north to Port Antonio or going easterly to the John Crow Mountain which had to be crossed to descend into the coastal area of Manchioneal. This route is an eight-hour hike for the average person accustomed to long walks in difficult territory. However, in the period circa 1690, it probably took one of the Maroon warriors five or six hours as they covered the distance at a run. " (1997:168).*

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### *The Maroon Settlement of Nanny Town*

Nanny Town was the principal settlement of the freedom fighting Windward Maroons. The Town was named after the legendary Nanny, Queen of the Maroons. It was situated approximately 32 km (20 miles) northeast of Kingston on the northern side of the Blue Mountain Ridge about 610 m (2000 ft) above sea level. The site consists of a triangular plateau of approximately 5,000 sq. metres bordered by thick forest, a fast falling water course and the Stony River. Abraham Hill and Sugar Loaf Peak are to the north and northwest of the site respectively.



*"Remains of British military fortification"*  
Photo By: E. Kofi Agorsah

### *The Archaeology of Nanny Town*

Located within the Blue and John Crow Mountains features are several Maroon archaeological sites, the strategic centre of these sites is Nanny Town or "Great Negro Town." In official documents Nanny Town is also referred to as "Principal Rebel's Town" (Teulon, 1967).

### *Alan Teulon Expedition*

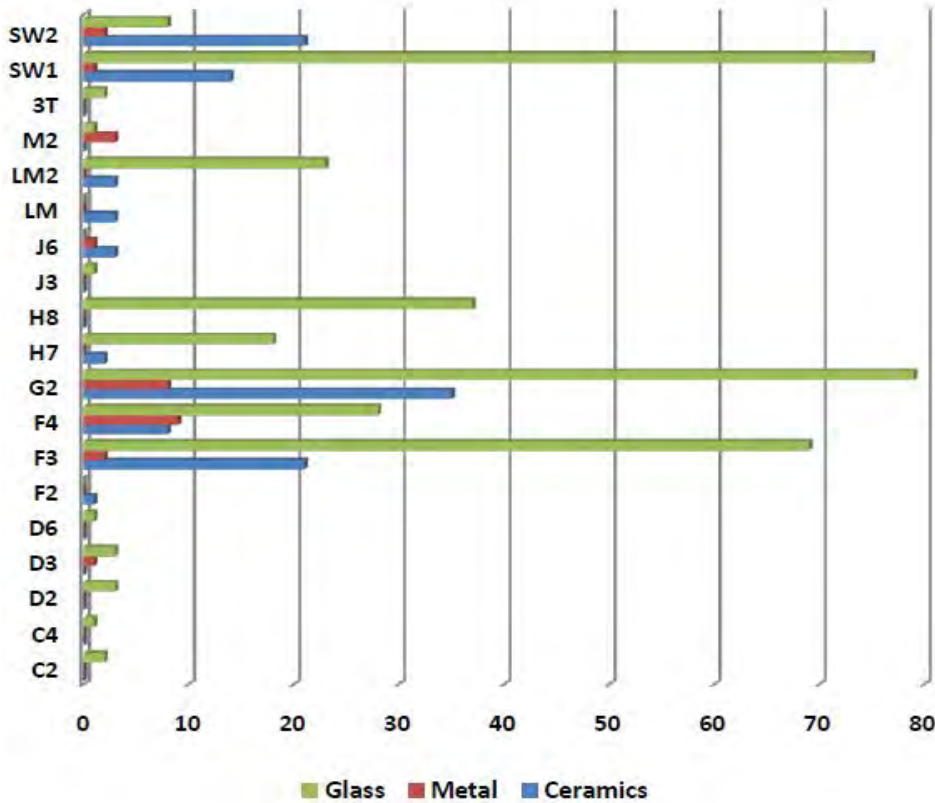
Since 1967 there have been several archaeological research and explorations conducted at Nanny Town. Alan Teulon conducted the first exploration on July 21, 1967. His main objectives were to locate the precise position of the "stonewall" or British Barracks constructed at Nanny Town and secondly to investigate the botany, forestry and geology in the area. The expedition was a joint venture by The Survey Department, Forestry Department, Institute of Jamaica, other scientific and private observers. Several artefacts were discovered from the expedition were lying on the surface near to the "Stonewall".

Table --: List of artefacts discovered from Teulon's Expedition (1967)

No. of Pieces	Artefact Type	Remarks
2	Bottle	Complete bases
13	Bottle	Base sherds
4	Bottle	Neck
1	Bottle	Base sherds
50	Bottle	Sherd pieces
3	Delftware Bowl	White with hand painted blue pattern sherds
14	Delftware Bowl	Undecorated sherds
2	Stoneware Jars	Bellarmino jars
3	Iron Utensils	Sherd
5	Iron Sherds	Undetermined
1	White Clay	
	Smoking Pipe	Stem sherd
1	Hoe Head	Complete
1	Axe Head	Complete

The surface artefact assemblage recovered from the Teulon's expedition demonstrates the presence of the Maroon and English occupation of the site.

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### *Tony Bonner Excavations*

In 1973, another expedition was carried out at Nanny Town led by Lieutenant Harvey Nott. At that time a small-scale excavation was conducted by Anthony Bonner and a team of researchers (Bonner 1974). During the excavations the site was cleared, and the rough cut stone wall enclosure built by the English military during their brief occupation of the site in 1734, together with the etched stone that commemorated this event were unearthed. Several test pits were dug and objects dating to the period of the 1720 – 1740 were recovered. This included artefacts associated with the First Maroon war with the English, namely fragments of green wine bottles, musket parts and balls, smoking pipes, African-Jamaican earthenware sherds, stoneware fragments and cutlasses.

The investigations at the Nanny Town confirmed that military action took place at the site.

*"Cunha Cunha Pass Trail"*  
Photo By: M. Morgan



*"Bellamine Bottle Face imprint"*  
Photo By: A. Brown



*"White clay smoking pipe stems"*  
Photo By: A. Brown



## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### Maroon Heritage Research Project (MHRP)

In 1987 Dr. Emmanuel Kofi Agorsah initiated and directed archaeological investigation into the heritage of the Maroons in Jamaica. The research project was initially called the University of the West Indies Mona Archaeological Research Project (UMARP). It was later renamed the Maroon Heritage Research Project (MHRP). The extent of the project included conducting archaeological surveys, mapping and excavation of Maroon sites in Jamaica and Suriname. There were two phases of the MHRP in Jamaica. The first phase was conducted in 1987-89 and involved the identification and locations of the Maroon sites in Jamaica.

The second phase began in 1990 and concentrated on the Maroon settlements. The main objectives of that phase were: (a) to obtain archaeological data that can

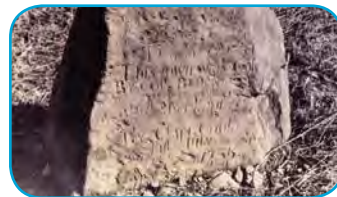
be used for interpretation of the social patterns of the behaviour of the Maroons (b) determine the factors can contribute to the location and character of Maroon settlement (c) to obtain data for dating and providing a chronological framework for the origins and development of Maroon heritage in Jamaica (Agorsah 1992). In Jamaica, archaeological investigations were conducted specifically at Nanny Town, Marshall's Hall, and Seaman's Valley in the Blue Mountains and Old Accompong in the Cockpit Country.

The excavation of Nanny Town revealed that there were three occupational phases of the site. The first occupation level seems to predate the Maroon existence in the area. The artefacts recovered included a mixture of local ceramics, stone artefacts and shell materials (Agorsah 1992). The second phase of the site was referred to as the Maroon Phase. Artifacts recov-

ered included ceramic material, fragments of gun flints, gun barrels, musket balls, iron nails, green and clear glass bottles, and one fragment of red clay pipe bowl (Agorsah 1990). Check article by Kofi to confirm date

The third phase of occupation was identified by the stone fortification and engraved stone. Many pipe fragments, buttons, fragment of gun barrels, medicine bottles, nails, imported ceramic bowls, plates and cups, buckets and a large quantity of green glass bottle fragments (Agorsah 1990).

Dr. Bonner's research expanded the ambit of Teulon's surface observation. However, Dr. Kofi E. Agorsah excavations exposed a greater dimension of the site by revealing the Taíno occupation of the area and possible linkage with Maroons.



## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### Settlements and towns

The Maroon settlements include towns and several important historical locations. The inventory of sites is by no means exhaustive. Much of the information especially as it relates to sites and special trails distribution have been derived from government archival documents. With continued research and partnerships additional information about Maroon sites and their heritage will be forthcoming. Many sites such as Grasset, Flat Grass, Cotton Tree, Aja Pass, Sweat Hill, Kill Dead, Thatch Rock, Barry Hill, Besi Water, Kamanti, Bubby Tick Bottom, Bitter Water, just to name a few, are mentioned in oral tradition but research to ascertain their location is on-going.



*"Brownsfield archaeological site"*  
Photo By: U.W.I. Arc. Department

Site Name	Parish	Longitude	Latitude	Archaeological Status
Look Out Hill	St. Thomas	76°23'13"	17°59'52"	Unoccupied
Dinner Time	St. Thomas	76°27'00"	18°00'59"	Unoccupied
Brownsfield	Portland	76°26'58"	18°04'39"	Unoccupied
Comfort Castle	Portland	76°24'55"	18°03'17"	Occupied
Cornwall Barracks Maroon Settlement	Portland	76°25'19"	18°03'58"	Occupied
Gun Barrel	Portland	76°30'15"	18°05'05"	Unoccupied
Guy's Town	Portland	76°33'19"	18°02'44"	Unoccupied
John's Hall	Portland	76°28'08"	18°06'16"	Occupied
Katta-a-Wood	Portland	76°24'00"	18°06'01"	Unoccupied
Mammee Hill	Portland	76°29'18"	18°05'55"	Unoccupied
Marshall's Hall	Portland	76°25'13"	18°01'48"	Unoccupied
Moore Town	Portland	76°25'33"	18°04'40"	Occupied
Nanny Falls	Portland	76°25'14"	18°04'59"	Occupied
Nanny Town	Portland	76°31'36"	18°03'42"	Unoccupied
Pumpkin Hill	Portland	76°28'58"	18°06'40"	Unoccupied
Three Finger Springs	Portland	76°23'03"	18°00'47"	Occupied
Watch Hill	Portland	76°27'58"	18°06'50"	Unoccupied

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

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### Site Name

Guy's Town/Abraham's Mountain/  
Carrion Crow Hill/

### Description

Guy's Town was named after their head man Guy or Gay. In 1733 a slave Sarra revealed that at Guy's Town (a defensive position near Nanny Town) there was about 200 fighting men, well-armed and a greater number of women and children. The men armed themselves with lances and cutlasses rather than guns. They never went to meet the parties unless to defend the paths which lead to their home.

Guy's Town was the food basket for these communities. There is a great deal of open ground in which was planted coco, sugar canes, plantains, melons, yams, corn. There was also hog, poultry and grazing of cow which gave the impression of a ranch with a great degree of permanency.

Guy's Town on Carrion Crown Hill was used by warrior to retreat for rearguard action or counter-attack, and which women and children could use for refuge. (Carey 1997)

Katta-a-Wood/  
Cotta Wood  
(Woman's Town/  
Young Gal's Town)

Katta-a-Wood was located on the far side of the Rio Grande River, on the foothills of the John Crow Mountains. The journey is some four to six hours walk from Nanny Town.

The area of Katta-a-Woods was well known to the Maroons, because it was the settlement of their ancestors, the Taino people. The Maroons also hunted wild hogs in that area.

Early June 1732 the government became aware of the exact location of Katta-a-Wood while the troops were still occupying Nanny Town. Several field commanders indicated that they had "discovered great tracks leading towards a place called Catta Wood". The soldiers observed that from Port Antonio it was more accessible to Katta-a-Wood than it had been to Nanny Town.

The Maroons tried to establish a new base at Katta-a-Wood between 1731 and 1733 but this was also attacked. A road was being cut from Long Bay to Katta-a-Wood which would bring the soldiers into the new township.

It was one of the towns the Maroons established after the British captured Nanny Town. (Carey 1997)

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

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Site Name	Description
Look Out	Look Out was an important vantage point from which the Maroons could survey the plains and watch for the approach of the British.
Mammee Hill	Mammee Hill possible use as a refuge site for Nanny Town and is characterized by Mammee tree groves. This suggests the early usage by the Tainos. (Carey 1997)
Nanny Falls	According to oral traditions at Nanny Falls their leader Nanny of the Maroons single-handedly defeated a battalion of British soldiers.
Nanny Town	<p>This sacred site is named after the body of water that flows just below it, and later after the great maroon leader, Nanny. Few places elicit the awe that maroons clearly feel when they speak of Nanny Town. At this strategically located stronghold from which Nanny launched her war against the British Colonial Government, Stony River Town is viewed as the place in which the spiritual powers of the great founding ancestors is most concentrated. Maroon commemorates the place in songs.</p> <p>The rather unimpressive ruin the maroons know today as “Stone Wall” is one of the very few manifestations of human occupation to have survived on the surface. The site was abandoned more than two and a half centuries ago, following a prolong siege by the British colonial troops. Though only a handful of present day maroons have actually seen the site, they all know of it and its sacred qualities. It is spoken of and is regarded by them, with the reverence difficult to comprehend by non-Maroons.</p> <p>Accessible only by hunters’ trails or by air. Historical references indicate that by the mid-eighteen century, the town was not only fully fledged, but also a stronghold of the freedom-fighting Maroons in the eastern part of the island. These Maroons were known as the “Windward Maroons .”</p>
Watch Hill	Watch Hill was located on an adjacent hill of hard limestone, bereft of trees. It was at this location that Nanny established a look-out from which her officers could keep watch over the British soldiers walking about the Breastworks .

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

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### Site Name

### Description

#### Brownsfield

According to Dr. Kofi Agorsah, the Brownsfield Maroon site is located on the Snake River near Alligator Church Bridge and sits high on a hill that overlooks the road skirting modern Brownsfield. The main features are remains of houses, with a few fragments of ceramics and green glass bottles on the surface. (76°26'58" 18°04'39")

Brownsfield was settled by the Maroons in the 1800s when they acquired additional lands.

#### Comfort Castle

Comfort Castle was built on flat land and is a small district populated by Maroons.

#### Cornwall Barracks Maroon Settlement

After the British Barracks was closed circa 1816, the lands continued to be occupied by the Maroons of Moore Town. Cornwall Barracks Maroons viewed themselves as a distinct group but acknowledged their kinship with Moore Town Maroons.

Over the years, some of these Maroons of Cornwall Barracks became pen-keepers, maintaining their herds on the steep rocky terraces of the John Crow Mountains, some of them acquired some amount wealth, enabling them to live quite well in properly designed wooden houses.

#### Three Finger Springs

The site got its name from the famous Three Finger Jack. Jack Mansong alias Three Finger Jack derived his name from the fact that he lost two fingers in a dual with a Scots Hall Maroon named Quashee (English name, John Reeder). Between 1780 and 1781 he fought almost singlehandedly a war of terror against English soldiers and militia. He was rumoured to have possessed special powers which made him invincible in battle, but in another confrontation with Quashee he was killed and his head taken to Morant Bay in a pail of rum as proof of his death. Three Finger Jack is romantically remembered as an African Robin Hood figure who became the toast of England. Plays, novels, and poems were written about him and some of these became important vehicles of the antislavery sentiments as the abolitionist movement gained momentum.

#### John's Hall

John's Hall is a Maroon community located at the foothills of the mountains, on the west bank.

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

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### Site Name

### Description

#### Pumpkin Hill

In the 1740s Pumpkin Hill was one of several sites where the Maroon would hide runaway slaves.

According to oral tradition Queen Nanny was considering surrendering to the British. She heard a voice in her head tell her not yet, wait one more day. When she awoke the next morning, she found three pumpkin seeds in her apron pocket. The voice told her to plant them. She planted them on the side of a mountain now known as Pumpkin Hill, and in a very short time, the seeds grew to fruition with large pumpkins that saved the Maroons from starvation.

#### Moore Town

The Maroons of Nanny Town was first allotted 500 acres of land. Granny Nanny saw the need for more land and made a request to the British government in 1781. There was an allotment of 1,270 acres of land which was called Moretown. Through a number of misunderstanding and errors, the town name was recorded in the survey document as Muretown and later Moore Town.

#### Marshall's Hall

Marshall's Hall also noted elsewhere as Marches Hall. The site is interesting because of its structural features and also for the fact that Maroon oral tradition links the site to the modern Maroon capital town, Moore Town, historically considered to be "New Nanny Town". Surface finds consist of eighteen and nineteenth century European ceramics, house foundations and steps.

#### Dinner Time , Gun Barrel

These are other Maroon sites of significance mentioned in the various literature and oral tradition.

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

Maroon communities have retained many of the cultural practices in very much the same form that they had three hundred years ago.

These cultural practices are manifested in their historical consciousness, oral traditions, religious rites, traditional medicine, language, music and dance as well as food preparation, Maroon constitutional and legal systems, methods of criminal investigation, traditional livelihood activities, and a 'sense of place' particularly as it is framed by the trails and footpaths.

### Traditional Constitution (Political and Legal System)

The historic record indicates that the Maroons at Nanny Town were governed by an elected leader and council, which is still the practice today. The elected leader, the Colonel, arbitrates in minor disputes among his people, planning the advancement of the cultural aspects of the group, and making sure that Maroon traditions are handed down to the younger generation.

The legal system was and is essentially democratic in nature. Trials were held in the full view of the whole people with the elders passing sentence.

### Religious Ceremonies and Musical Traditions

Maroons have retained much of their religious and associated musical traditions. The chief political leader was often the chief priest or priestess and main medicine person – the obi or obeah woman or man, a Yoruba word for priest. Nanny was known as the chief obi woman of the Windward Maroons by the English. Religious ceremonies included the use of herbs, drumming, chanting, charms and

the blowing of the Abeng. It also involved the veneration of paying homage to and communication with the ancestors. This is still a practice amongst the Maroons in the Blue and John Crow Mountains. As a result there is a feeling among a large section of the Maroon population that the mountains are sacred because many of their ancestors especially their warrior heroes are buried within them.

Music plays an important part in the Maroon's religious ceremonies in particu-

lar the Kromanti Play. This is the ceremony used mainly to cure those who are sick and involves the playing of the Kromanti drums and the performance of Kromanti songs and dance. The music of the Moore Town Maroon's was declared in 2005 UNESCO as a Masterpiece of the Oral and Intangible Heritage of Humanity.



*"Moore Town Maroons performing traditional drumming"*  
Photo By: M. Morgan

### Traditional Musical Instruments

The Abeng was and still is one of the Maroon's most prominent musical and linguistic instruments. Made from a cow's horn it is built to produce a range of specific and particular sounds. The remoteness of Maroon settlements made the Abeng an extremely important means of transmitting important messages to Maroons separated by great and hard to traverse distances and spaces within the Blue Mountains. Maroon drums are often used in pairs, a big drum referred to as

the "long" drum and a smaller drum as the "cutter". They are played with the palm and the fingers and both are played simultaneously.

### Traditional Baths and Rituals at Death

Rites of passage ceremonies are held at birth and death. These include the taking of ritual herbal baths before and after birth and special ceremonies for the naming of babies. The "setting of table" is done during the mourning period.

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### Traditional Language

The fusion of individuals from different parts of the world, and the isolation of the Maroon community in the hills of the Blue Mountains led to the development of a language unique to the Maroons. This language has been shown to be grammatically similar to the general Jamaican Creole or “patois” but phonologically different and includes Islamic words.

### Traditional Food Preparation

Maroons are known as the creators of the dish “jerk pork” from the many wild hogs that roamed the Blue and John Crow Mountains. Cacaoon stew is another Maroon dish using local resources that of the bean of the cacaoon plant combined with the black janga (shrimp) from the rivers.



*“Entida gigas (Cacaoon or Kakoon) soup”*  
Photo By: M. Morgan

### Traditional Hunting Methods

In the past the Maroons hunted the Cooney, birds and wild hogs and fished in the rivers of the Blue and John Crow Mountains. As a result the Maroons regard the mountains as a natural part of their cultural heritage.

### Traditional Use of Herbs

Maroons are renowned as expert herbalists. The knowledge of their African ancestors combined with that of the Amerindian ancestors have made them skilled in the use of the local flora of the Blue and John Crow Mountains for the treatment of ailments. In some instances the method of preparing the potion and the range of illness it can cure are ancestral secrets that are zealously guarded.

### Traditional Craft

The natural resources of the forests of the Blue and John Crow Mountains were

and are still utilized in the making of craft items, for example, baskets, bags, belts, dolls and jewellery.

The Maroons are totally dependent on the Blue and John Crow Mountains for survival at critical junctures in the past they had and continue to have a deep physical and emotional attachment to the Mountains. In addition the mountains remain a symbol and memorial of the:

- (i) Existence of the first inhabitants of Jamaica and of the Caribbean.
- (ii) The arrival, indigenization and integration of the Africans with the Taino to create the first Maroon civilization and nation in the post 1492 world.
- (iii) The Maroons’ indomitable fighting spirit and their tireless defense of the freedom won at so great a price.



*“Basket used to catch”*  
Photo By: M. Morgan



## 2.a(ii). *Description of the Natural Heritage of the Blue and John Crow Mountains*

The bio-geological history of the mountain ranges, differences in altitude, rock chemistry and climatic conditions have combined to produce the greatest diversity of ecosystems and habitats in Jamaica. The area is one of the two most biologically diverse on the island. The site was identified in the Centres of Plant Diversity: A Guide and Strategy for Their Conservation—Volume 3: The Americas, published in 1997 by WWF and IUCN as one of the two centres for plant biodiversity in Jamaica. The most recent IUCN and UNEP-WCMC Publication on Terrestrial Biodiversity and World Heritage identifies the BJCM as the only site in Jamaica and one of only six irreplaceable protected areas for biodiversity conservation of amphibians, birds and mammals of global significance, in the Caribbean (Bertzky et. al., 2013)

The Blue and John Crow Mountains have level of biodiversity and endemism on par with universally outstanding natural areas around the world. In fact, the multifarious array of endemic flora in the BJCM has helped to earn Jamaica a fifth place ranking among the world's islands for plant endemism (Davis et al, 1997). Large areas of the nominated site are yet unexplored. The contribution of the area to science is demonstrated by the appearance of many of its species in biological, ecological and evolutionary studies.

Tanner and his colleagues of the University of Cambridge have monitored forest plots in the nominated property since 1976. The area continues to contribute to our knowledge of science, the value of which is immeasurable.

### Geology

The geology of the nominated site verifies a 100 million years history of the develop-

ment of the Caribbean Tectonic Plate. The oldest rocks are found in the Blue Mountain Inlier in the Blue Mountain Block. Various rock types are present and formed in different geological settings, their current juxtaposition being the result of both ancient and more recent movements along fault zones.

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*One of only six irreplaceable protected areas for biodiversity conservation of global significance, in the Caribbean (Bertzky et. al., 2013)*

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Metamorphic rocks are found in a thin belt along the southern margin of the Grand Ridge of the Blue Mountains. These rocks include blue schists which formed at very high pressures but relatively low temperatures. This indicates that these rocks formed deep within a subduction zone setting at a destructive plate margin. An additional set of rocks is represented by serpentinites that represent metamorphosed material derived from the Earth's mantle. The ages of these rocks are still unknown.

In the south-eastern part of the Blue Mountains is a succession of basaltic pillow lavas, the term pillow coming from the pillow-like form of the lavas, and

indicating eruption under water. These were erupted at depths several kilometres within the ocean, and their chemistry indicates that they represent lavas formed from a mantle plume. These Cretaceous rocks (about 90 million years old) represent a small fragment of the crust beneath the Caribbean Plate which has a similar composition.

The north-eastern part of the Blue Mountains is represented by a succession of lavas and associated sedimentary rocks. The lavas were erupted in shallow water and on land and have a chemistry indicating formation within an island arc setting, much like the modern-day volcanoes of the Lesser Antilles. The associated sedimentary rocks include conglomerates, sandstones and shales, and limestones. Two limestones of particular importance are present, called the Back Rio Grande and Rio Grande limestones. These yield abundant fossils of rudist bivalves (an extinct type of tropical clam), including the bizarre *Barrettia monilifera*. The Blue Mountains were the first location in the Greater Antilles where such fossils were found and hence recognised as the Type Locality. These limestones in the Blue Mountains contain the best record of this part of geological time within the tropical Americas.



*"Barrettia monilifera"*  
Photo By: T. Edwards



*"Ridges of the Blue Mountains"*  
Photo By: S. Walters

To the east and west of the Blue Mountain Block lie the John Crow Mountain Belt and the Wagwater Belt (including the Port Royal Mountains), containing younger rocks than the Blue Mountain Inlier, deposited in narrow seaways formed by extension of the crust. The rocks found in the John Crow Mountains consist of an older set of sandstones and shales, known as the Moore Town Shales, overlain by younger limestones (part of the White Limestone Group). The shales give rise to steep slopes on the north-east slopes of the Rio Grande Valley that contrasts with the karstic topography characteristic of the White Limestone in the John Crow Mountains. The lower part of this shale-limestone succession was deposited in deep water, as indicated by the trace fossils (marks left by animals living in and on the ancient sea floor) and the microfossils (microscopic fossils), and records the best Paleocene (Earliest Tertiary) sequence in the Tropical Americas.

The Wagwater Belt contains a 9,000 m thickness of conglomerates, sandstones, shales and lavas, deposited some 60 to 50 million years ago and has been largely uplifted. It represents a natural laboratory of understanding how sedimentary rocks were laid down in such narrow seaways. An understanding of the geology of eastern Jamaica allows us to interpret the geological history of Jamaica over the last 40 million years. Forty million years ago, Jamaica was largely covered by the sea with only small carbonate islands; it probably looked much like the smaller islands of the Bahamas today. About 14 million years ago, new tectonic stresses began acting, and Jamaica progressively rose out of the Caribbean Sea to form the island visible today. The tectonic forces responsible are still active with frequently recorded earthquakes reminding us of the great upheavals of the past. This uplift was associated with bends (restraining bends) in the major fault zone on the

northern margin of the Caribbean Tectonic Plate, and represents a global model for this type of basin formation. With rapid uplift, there is also rapid erosion, and river systems have cut down through the limestones that originally covered the Blue Mountains to expose the Cretaceous rocks and produce the deeply dissected streams and rivers, with spectacular waterfalls, that characterise the area today. Where less uplift occurred, the limestone cover remains with deep karst features, underground river systems and caves.

The dramatic uplift history of Jamaica contrasts with that of the other larger islands of the Greater Antilles, which have been continuous emergent for the last 35 million years, and originally were joined to form a single land area reputedly connected to South America. The geological evidence indicates that the land flora and fauna of Jamaica must have reached the island by over-sea dispersal and Jamaica,

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List



*"Ridges of the Blue Mountains"*  
Photo By: S. Walters

and specifically the Blue Mountains with their contrasting climatic zones, provides a natural laboratory for evolutionary and ecological processes following dispersal.

The rapid uplift of the Blue Mountains has created a spectacular and impenetrable landscape. This has resulted in the preservation of extensive tracts of primary forest. It also provided an area that was impossible for the colonial powers to enter and created a conducive landscape for the cultural development of the Windward Maroons.

The Blue and John Crow Mountains contains a unique geology that is critical to understanding the evolution of the Caribbean region. The rapid uplift of this area over the last 14 million years has resulted in an impressive landscape that has preserved a diverse and highly endemic fauna and flora as well as providing the protection for the development of the earliest free nation in the western hemisphere. The geology therefore provides the bedrock on which the biological and cultural distinctiveness of the Blue and John Crow Mountains.

### Soils

Soil composition in the Blue and John Crow Mountains nominated property is greatly influenced by rock chemistry. The soils of the Blue Mountains have been derived from metamorphic and igneous rocks. Therefore, these soils are mainly siliceous, generally highly porous, erosive and their susceptibility to heavy leaching results in low nitrogen and phosphorus content.

An examination of the soil maps for the Blue Mountains indicates that according

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

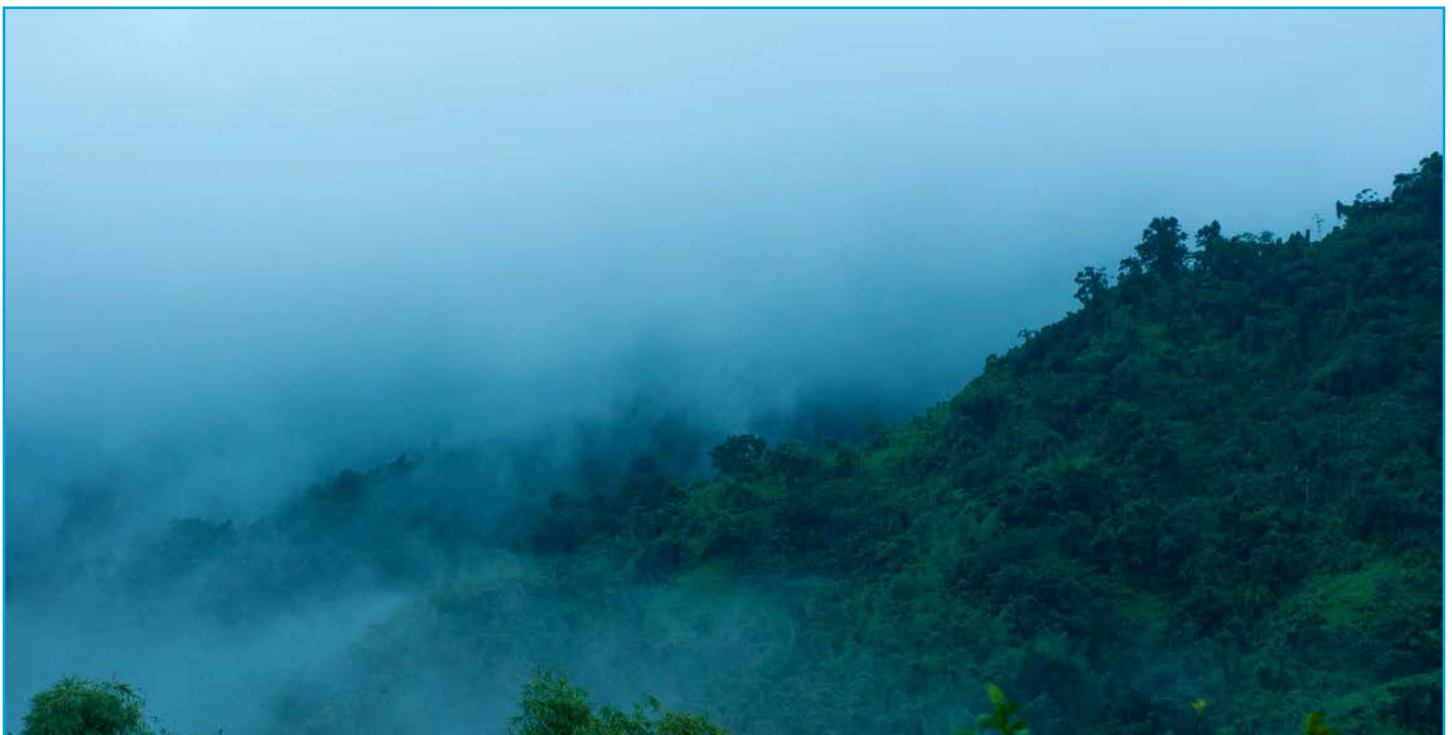
to the international soil classification system, mainly eutric regosol soil types are found at the higher altitudes in the Blue Mountains. In the western parts, cambisols derived from shale are predominant while lithosols derived from metamorphic, igneous rocks and shale are found over the eastern and northern slopes. The lower reaches contain dystric regosols and cambisols soil types.

Grubb and Tanner from the University of Cambridge carried out their own examination and classification of soils in the Blue Mountains in the early 1970s. On the eastern slopes of the John Crow Peak in the Blue Mountains, they identified and described for the first time an unusual humic soil together with a distinct forest type associated with it, which they called Mor Ridge. This soil-type was found to be very rare and confined only to knolls at

the western end of the range. Mor Ridge soils have a very deep and almost wholly organic humus layer as well as a low pH. It is easily detected being described by Grubb and Tanner in a 1976 publication as 'distinctly springy under foot'. There appeared to be no mesofauna in the Mor, however, the burrows of rats and mongooses were found to be present.

The researchers concluded that Mor Ridge could not be classified as podzols because regular evidence of eluviated or very markedly illuviated horizon was absent, and that in fact there was no generally recognised world group of soils to which it could be assigned. This soil was found to be different from peat because peat soils are formed under topographically determined waterlogged conditions; the drainage water being either base-rich

and the pH of the peat high, or the water is base-poor and the pH of the peat low. In either case the microbial breakdown in peat soils is primarily inhibited by the waterlogged conditions. In contrast it was found that Mor in the Blue Mountain was formed on strongly leached upland sites, nearly always on base-poor parent materials, and the pH of the uppermost mineral soil where Mor begins to form was found to be always strongly acidic (pH less than 4.5 usually less than 4.0). Mor soils are more or less freely drained and microbial breakdown is primarily inhibited either by factors related to the low pH, or by various phenolic compounds present in large quantities. The Mor Ridge soil in the Blue Mountains was found to be different from other Mor soils in Puerto Rico and Costa Rica in that it is 100% organic and not waterlogged.



*"Mist capt Mountain"*  
Photo By: M. Morgan

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Soils in the John Crow Mountains have all been derived from limestone or calcareous shale. However, large areas of the mountain range are devoid of soils, having instead exposed bedrock limestone. Where soils are present between rocky outcrops, they are usually shallow and stony. Deep soils have developed in hollows and at the top of ridges. These soils are usually sticky clay with only a thin litter layer above the humus enriched stratum. Eutric cambisols and chromic vertisols can be found on the eastern slopes. Well-drained, shallow, yellow-brown loams are present on the western escarpment, while rendzinas and eutric cambisols soils on the summit plateau are well-drained shallow loams, under a thin humic layer.

### Climate

The climatic conditions of the Blue and John Crow Mountains was used by the Maroons to their advantage in their employment of guerilla tactics. As stated by Albert Edwards (1994), the heat, humidity and the daily down pour of rain were constant irritations to the heavily clothed British soldiers, and supported the breeding of mosquitoes which led to debilitating fevers.

Jamaica has a tropical maritime climate that is mainly influenced by the North East Trade Winds and the island's orographic features. The influence of the latter is particularly pronounced in the eastern section of the island, where two of the mountain ranges of the nominated site have a profound effect, not only on the climate of the site itself but on the entire eastern section of the island. Since the island lies between the sub-tropical high-pressure and the equatorial

low-pressure belts of the Atlantic Ocean, the northeast trade winds are dominant. These moisture-laden winds blow in a south-westerly direction from the Atlantic and approach the island from the coastal areas of Portland in the east. As these winds sweep inland and rise up the northern slopes of the Blue and John Crow Mountains, the air cools, and precipitation occurs. By the time the rain clouds pass over the Grand Ridge they lose much of their moisture, creating a marked rain-shadow effect. The NE Trade Winds produce orographic rainfall ranging from 2,000 to 6,250mm/year on the NE facing slopes of the Blue Mountain ridge and 2,500 to 1000mm/year on the SW facing slopes, in its rain-shadow. Hence the northern slopes of the Blue and John Crow Mountains and the wind corridor of the Rio Grande valley receive considerably more rain than the southern side of the Grand Ridge.

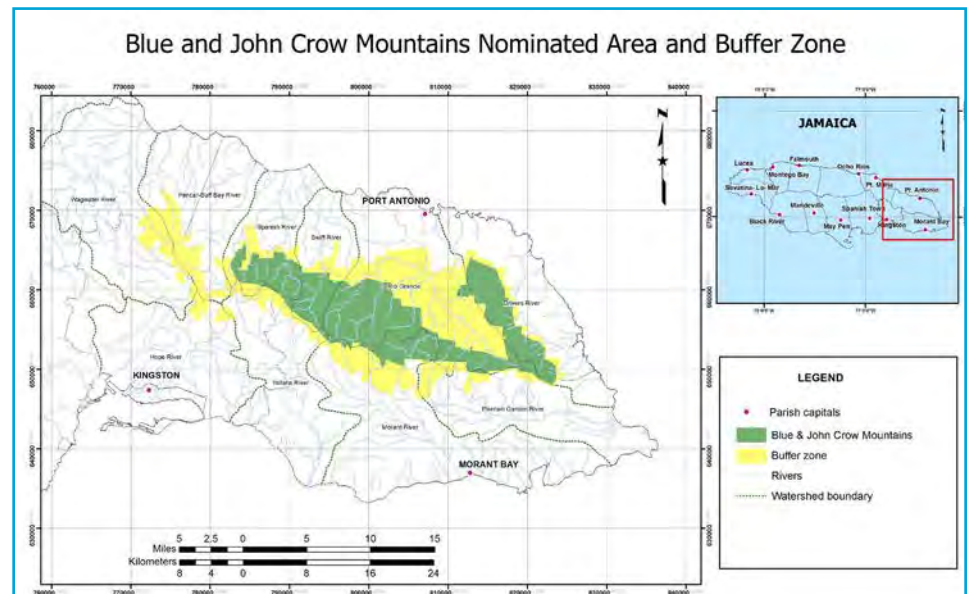
The result is two distinct types of climate in eastern Jamaica; an upland tropical climate, which prevails on the windward

side of the Blue and John Crow mountains.

The average annual rainfall in the park is 2700 mm, and there are two rainy periods - one in May and the other in October.

The number of rain days in the nominated site is generally very high but the rain pattern is very variable within and between years. Rainfall is the main determinant of surface water hydrology, vegetation and overall ecology of the Blue and John Crow Mountains. However, rainfall is not the only form in which precipitation occurs in the site. On the northern slopes of the Blue Mountains, mist is present for about 70% of daylight hours for most of the year; the corresponding figure for the southern slopes is 30%.

Blue Mountain Peak receives 4,300 mm of rain annually and is often shrouded in a dense mist. Oral tradition states that the Maroons also used this to their advantage in waging the victorious guerilla warfare against the British forces.



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Average annual mean temperatures at 1500 m within the Blue Mountain forests are between 18.5° and 20.5°C. However, the maximum temperature in the nominated property has been known to rise to 24°C, and the minimum temperature has been known to fall to 8.5°C.

### Hydrology

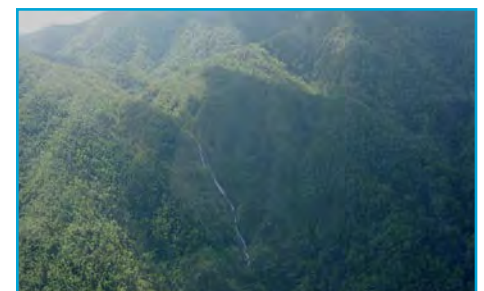
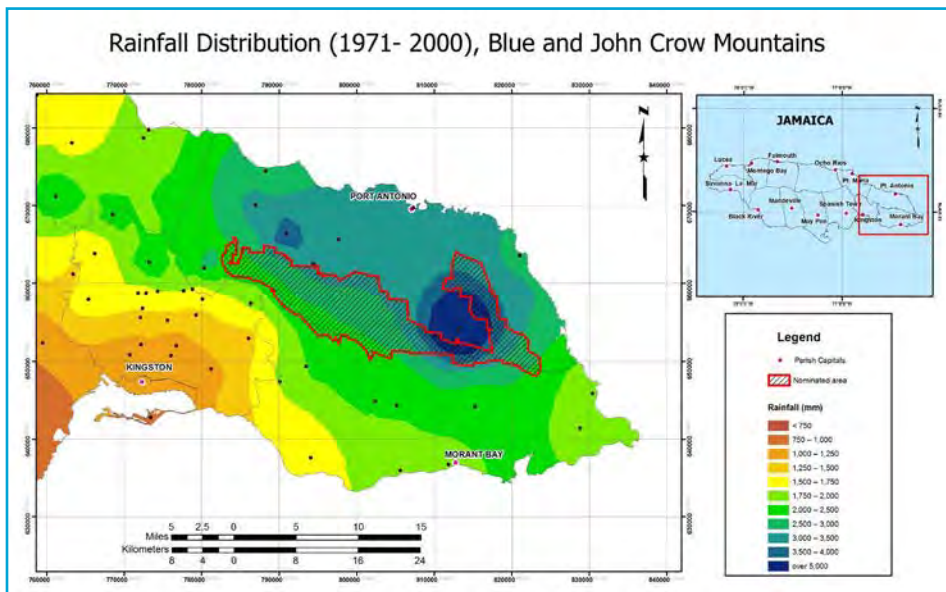
The headwaters of 10 watershed management units originate from within the boundaries of the Blue and John Crow Mountains as shown in the map and as listed hereafter - the Wagwater River, Pencar-Buff Bay River, Spanish River, Swift River, Rio Grande, Drivers River, Plantain Garden River, Morant River, Yallahs River, Hope River. Surface water e.g. rivers and waterfalls, is a significant and dramatic feature of the area's landscape, that occurs nowhere else in Jamaica. The abundance of surface water and drainage systems in the nominated property and its buffer zone, has facilitated the high density of Maroon settlements in the Blue and John Crow Mountains. It also enabled the Windward Maroons to

successfully sustain themselves through farming and fishing in the remote mountainous regions of the island which continues to this day.

These basins occupy an area of 2,187 km<sup>2</sup> constituting 20% of the land area of Jamaica. They drain a series of steep, narrow ridges – the John Crow Mountain ridge and the Blue Mountain ridge, generally aligned in an NNW-SSE direction and rising to over 2,200 m. The rivers flow off these ridges to the north, south and east, through steep narrow valleys, traversing 20 to 30 km to the sea.

The Blue Mountains are made of low permeability rocks of volcanic and volcanoclastic origin, occupying about 64% (1,400 km<sup>2</sup>) of the basins and characterised as aquiclude. These rocks are near totally framed by limestones (aquifers and aquicludes), occupying 23% (496 km<sup>2</sup>) of the basins and permeable river valley and coastal alluviums (aquifers) constituting a further 13% (291km<sup>2</sup>).

Some 33% (2,967 mm<sup>3</sup>/yr) of the rainfall on those sections occupied by aquiclude converts to surface runoff in rivers, whereas about 5% (441 mm<sup>3</sup>/yr) has been accounted for as groundwater discharge via coastal and submarine springs. River flows are characterized by very high flows in the rainy season (September/November and May/June) and very low flows in the dry season (December to April). The reliable (dry season) surface water yield of the Blue Mountain basins has been estimated to be 413 mm<sup>3</sup>/yr, only 14% of the average annual surface water runoff. The natural ability of the limestone aquifers to store water underground within spaces within its geological fabric results in about 343 mm<sup>3</sup>/yr (53%) of its average annual groundwater runoff being available for utilization during the dry season, a significantly higher proportion when compared to surface water runoff. The surface waters and ground waters of the Blue Mountain basins are all suitable sources for all conventional water uses. The surface waters and ground waters are both classified as calcium bi-carbonate type, the surface waters having a lower mineral content (Total Dissolved Solids < 150mg/l) than the ground waters (Total Dissolved Solids – 300mg/l). The surface waters are characterised by high rainfall induced turbidity, whereas the ground waters are affected to a much lesser extent.



"Cascade Falls"  
Credit: JCDT

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### Waterfalls

There are many waterfalls within the Blue Mountains, most of which are inaccessible but are in the process of being mapped. The Quao Falls holds great significance for the local Maroons in the area and is considered by them a spiritual site. The Nanny Falls is a majestic waterfall named after the famous Maroon leader Nanny of the Maroons. This waterfall is located north of the community of Moore Town and not only possesses great beauty but a rich history. It was said to have featured greatly in some of the battles fought between the British and the Maroons, with Nanny and her troops disappearing behind the falls. White River Falls is a series of beautiful falls cascading from rocks in the John Crow Mountain. Cascade Falls plunges majestically from the North Slope from an elevation of 4,363 feet above sea level, and is Jamaica's second highest waterfall. Apart from their aesthetic beauty, the waterfalls and associated plunge pools are favourite scenic spots enjoyed by local communities and visitors for recreation.

### Springs

Rivers in the Blue and John Crow Mountains start from streams rising from springs high up in the mountains. Although the rivers may have easier access, the Maroons prefer to obtain their drinking water directly from the springs. This is understandable, especially in the context as Edwards (1994) suggested, the British troops resorted to a tactic of poisoning the rivers. Well known springs are those occurring along trails such as Breakfast and Three Finger Springs along the Cunha Cunha Pass Trail. The former is the spring from which Maroons going to market would get their water in the mornings after resting overnight. The latter is

reputedly the site where runaway slave, Jack Mansong (Three Finger Jack) lost 2 of his fingers. There are several versions to the story of how this happened including losing the fingers to a machete chop from a frightened woman he happened upon, along the trail. Jack Mansong later became a legend within British and Jamaican theatrical folklore.

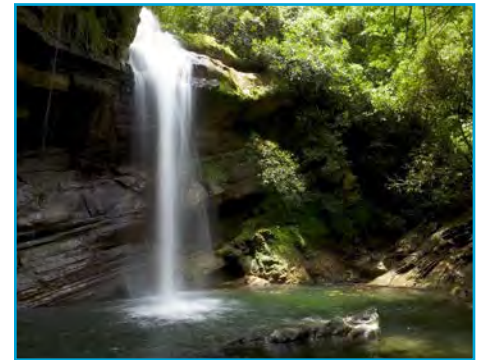
### Rivers

Rivers were and still are the lifeline for the Windward Maroons communities.

*“The Maroons, as well as the British forces, relied on the destruction of each other’s food supply in order to introduce weakness into the enemy camp. Water supplies were also poisoned. Maroon traditions relate that Maroons never drank from free flowing rivers, but from such waters as the Nanny Falls near the site of Nanny Town – sources of which the British could not gain access in order to poison. (Agorsah 160:1994)”*

Fish and shell fish harvested from the rivers are traditional Maroon sources of protein and continue to form an important supplement to the local diet today. The Windward Maroon communities and by extension Portland is the only place in Jamaica where snails are traditionally eat-

en – specifically, a freshwater snail locally known as “bussu” (*Neritina punctulata*). This is retention of Maroon tradition, as is the catching of janga (*Jonga serrei*) and fish using a fish pot made from bamboo.



“Nanny Falls”  
Photo By: J. Francis



“Three Finger Spring”  
Photo By: M. Morgan



“Rio Grande River”  
Photo By: JNHT

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Species name	Vernacular Name*	Common Name	Description
<i>Agnostomus monticola</i>	Cutter, cock-a-belly, calli-peypa	River/ mountain mullet	This is a well-known and widely used pelagic, migratory fish found in and around the Caribbean Basin.
<i>Joturus pichardi</i>	Hognose	Hognose mullet	This is a popular fish that has become extremely rare in Rio Grande and Wild Cane except in Banana River near the deserted site of Nanny Town.
<i>Gobiomorus dormitor</i>	Mudfish	Bigmouth Sleeper	
<i>Awaous tajasica</i>	Sandfish	River Goby	
<i>Pomadasys crocro</i>	Grunt	Burro Grunt	This is a marine species, known to inhabit rivers (up to 100 miles from the sea). The Maroons find it on the Rio Grande main stem.
TBD	Jacks	TBD	It is unclear what species of fish the common name "Jacks" refers to.
<i>Sicidium plumieri</i>	Suckstone, cocho	Goby, Green stream goby	Harvested as juveniles during mass migration events
<i>Anguilla rostrata</i>	Eel	American eel	This migratory fish is common in the Rio Grande but not very popular for food as many people are afraid of it.
<i>Macrobrachium carcinus</i>	Crayfish	Shrimp	This shrimp species is especially favoured for food because of its large size and tastiness.
<i>Macrobrachium crenulatum</i>	Black Janga	Pubescent hand shrimp	
<i>Atya lanipes and A. innocous</i>	Janga	Shrimp	
<i>Neritina punctulata</i>	Bussu	Snail	
*Name given by the Maroons Table provided by Kimberly John			



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### Forests

The dense forest coverage of the Blue and John Crow Mountains was a critical resource for the Maroons survival. A variety of plants were used for food, camouflage, tools, implements, instruments, medicines, construction material and several other purposes. Maroon houses were concealed under the canopy of the forests, reducing their visibility from intruders. Since the signing of the Peace Treaty in 1740, the Windward Maroons had moved from the nominated property to the more hospitable lower valleys which form the buffer zone.

Udvardy's Biogeographic System of Classification places Jamaica and the Blue and John Crow Mountains in the Neotropical Realm (Realm 8) and within the Greater Antillean Province (Province 8.40.13) along with Hispaniola and Puerto Rico. The forests of the Blue Mountains have been studied by a number of botanists, physiologists and ecologists. A seminal monograph was produced by Shreve in 1914 describing physiology of the forests. Edmund Tanner, his associates and graduate students have studied various aspects of the Blue Mountain's forests such as ecology, structure, floristics, dynamics, hurricane impact and recovery and vegetation re-growth on landslides.

Two main forest types clothe the slopes and ridges of the Blue and John Crow Mountains. Geological formation variation distributes these forest types over the Blue (montane over shale) and the John Crow Mountains (wet limestone). In addition, dissimilarities in topography, mean temperature and temperature ranges, soil type and rainfall distribution have resulted in multiple variants of these forest types, giving rise to very diverse forest ecosystems with habitats for species that are rare or restricted in their distribution. It is important to note that the forests of the Blue Mountains represent the only high altitude rainforest on volcanic soils in Jamaica and the John Crow Mountains, one of two wet limestone forests and the only very wet forest on limestone (NEGAR, 2009) in Jamaica. This is very important from a biological and conservation viewpoint and makes the BJCMNP an important centre for plant biological diversity and endemism in the island, and indeed in the Caribbean (Bertzky et. al., 2013; BirdLife, 2010; WWF 2001; Davis et al., 1997).

In light of its relatively small size, the floristic diversity of the Blue and John Crow Mountains is unquestionable. Iremonger (1993) reported that 275 vascular plant species and 14 varieties of the more than

600 species of flowering plants occurring in the Blue and John Crow Mountains are endemic to Jamaica. Specifically, Iremonger (2002) reports about 50% endemism amongst the flowering plants of the upper montane forest (above 900 – 1000m) with between 30 – 40% of these species confined to the Blue Mountains. Muchoney et. al. (1994) reported that in the highest reaches of the John Crow Mountains, over 50% of all plant species were endemic. Genera which are well represented by endemic species in the flora of the national park are *Pilea* (12 spp.), *Lepanthes* (12 spp.), *Psychotria* (12 spp.) and *Eugenia* (11 spp.). Of further international significance is that of the 281 Jamaican tree species listed on the IUCN Red List as threatened endangered or critically endangered, 106 occur in the Blue and John Crow Mountains. These include *Podocarpus urbanii* (CR) *Eugenia kellyana* (CR), *Psychotria danceri* (CR), *Schefflera stearnii* (EN) and *Miconia pseudorigida* (EN). The nominated property is the last known habitat for many globally threatened species and serves to protect them from extinction. It is the aspiration of the authority that the nomination of the property will help to ensure the protection of the threatened species.

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It should be noted that *Podocarpus urbanii* (Blue Mountain Yacca) is one of the species grown in the National Park's nurseries and used in forest restoration programmes.

The ranges of the Blue and John Crow Mountains also house approximately one half of the island's 530 ferns; of these, 21 species are endemic to the Blue Mountain Range. When epiphytic ferns are considered, over 80% of the genus *Grammitis* are present in the BM. Due to the high rainfall and humidity, there are numerous lower plants such as mosses and liverworts.

It should be noted, that since the seminal works of Adams (1972) and Proctor (1982) on flowering plants and Proctor (1985) on ferns of Jamaica, there has been no botanical survey of the Blue and John Crow Mountains apart from the Rapid Ecological Assessment conducted in 1994 (Muchoney et al. 1994). This rapid survey using satellite imagery and ground-truthing over six weeks in 1992, identified a population of a plant thought to be extinct (*Wercklea flavovirens*) and one new species.

The vegetation of the Blue and John Crow Mountains has been variously categorised and described by botanists over the years, the ensuing description draws heavily on the classification of forest communities put forward by Muchoney et al. 1994 from the BJCMNP Rapid Ecological Assessment in 1992. The researchers identified 36 community types within the National Park and immediately around it, with 16 of these being completely natural and unmodified – 13 of these are briefly described below (the remaining 3 are

sparsely vegetated formations e.g. cliffs and landslides).

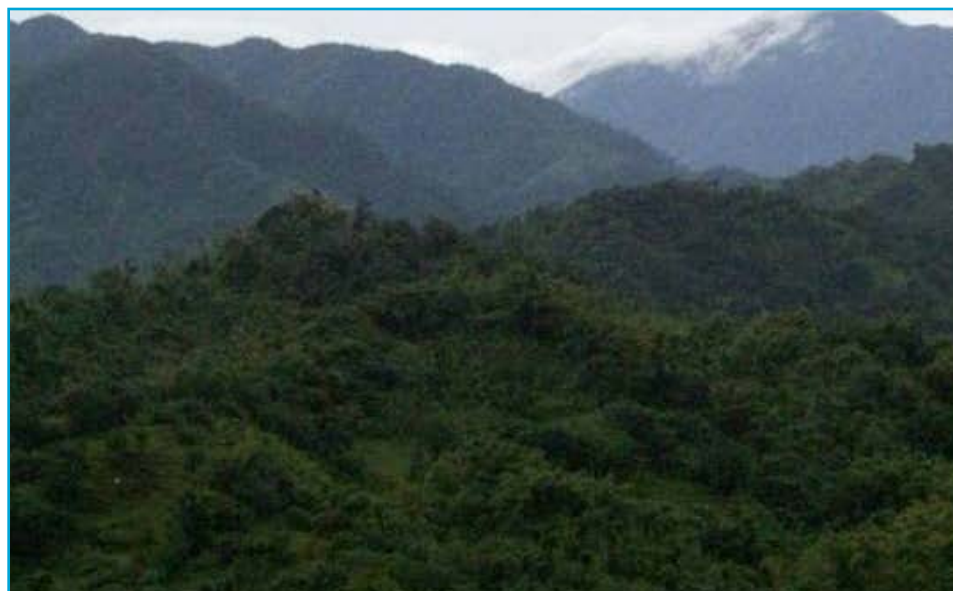
**Lower Montane Forest over limestone** is a three-tiered forest community found in the John Crow Mountains, and is the last remaining of this forest type in the island of Jamaica. The forest canopy reaches heights of between 26 – 28 m and there is an under storey of between 10 and 13 metres, while tree ferns, 2.7 metres in height, dominate the third stratum. Climbers, epiphytes and ground herbs can be found in abundance. This forest type has a tree density of between 925 to 1350 trees per hectare. Tree trunks have a relatively narrow girth, the maximum being 69 cm diameter at breast height (DBH) but the average DBH is less than 10. A number of rare and a few very rare endemics can be found, the latter includes *Tabernaemontana rendlei* and *Ilex jamaicana*.

**Lower montane forest over shale** has three variants identified in the Blue and

Port Royal Mountains: typical, gully and transitional.

The modified lower montane rainforest (mostly outside the nominated property but within its Buffer Zone) is the focus of the National Park, with significant work being done in the propagation of native and endemic species for forest rehabilitation.

The typical variant is mainly found on the northern slopes of the Blue Mountains below 1000 m. The typical variant of this forest type has a fairly dense canopy, which reaches heights of 15 – 33 m. Trees are characteristically large (c. 26 m high, 70 cm dbh) some of which are buttressed, and climbing Araceae and vascular epiphytes are abundant. Endemics include the rare *Philodendron schottii*, *Cordia elliptica*, *Carica jamaicensis*, *Hernandia catalpifolia*, *Wallenia fawcettii*, *Eugenia marchiana* and the very rare *Guarea jamaicense*.



"Forests of the Blue Mountains"  
Photo By: (Unknown)

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Some of the threatened plant species in the Blue and John Crow Mountains (IUCN Red List)

Scientific Name	Family	IUCN Status	Habitat and Ecology
<i>Ardisia brittonii</i>	Myrsinaceae	Endangered	A small tree endemic to St Thomas Parish
<i>Boehmeria jamaicensis</i>	Urticaceae	Near threatened	Secondary thickets, along paths and gullies, generally on limestone.
<i>Canica jamaicensis</i>	Caricaceae	Vulnerable	The species has a local distribution on rocky banks or in thickets and pastures on coral limestone or sandy soils near the sea.
<i>Cinnamodendron corbosum</i>	Canellaceae	Vulnerable	Remaining areas of rainforest between 300 and 1,000 m.
<i>Clethra alexandri</i>	Clethraceae	Near threatened	The largest population occurs in forest on the Grand Ridge. This species appears especially above 1,800 m.
<i>Cordia elliptica</i>	Boraginaceae	Near threatened	Occurring in secondary rainforest on limestone hills.
<i>Croton launinus</i>	Euphorbiaceae	near threatened	Populations are confined to areas of woodland on craggy limestone.
<i>Dendropanax blakeanus</i>	Araliaceae	Vulnerable	Elfin or moist forest on limestone. Confined to John Crows Mts., the species has been recorded in few localities, one above Ecclesdown and another at Proctor's Pool.
<i>Eugenia marchiana</i>	Myrtaceae	Near threatened	Submontane rainforest, especially on steep slopes
<i>Hemandia catalpifolia</i>	Hemandiaceae	Vulnerable	By streams and in damp ravines in submontane woodland.
<i>Ilex puberula</i> Proctor	Aquifoliaceae	Vulnerable	This species is found in exposed montane thickets and woodland on steep slopes, 1,200 to 1,500 m.
<i>Ilex vaccinoides</i> Loes	Aquifoliaceae	Vulnerable	Primary and secondary montane forest above 1,800 m.
<i>Lobelia martagon</i>	Campanulaceae	Not Evaluated	Montane rainforest at summit. Blue Mountains, forest between Portland Gap and Blue Mountain Peak
<i>Lyonia octandra</i>	Ericaceae	Near threatened	Endemic to the Blue Mts. The species is generally rare, although locally dominant in a few sites on ridge tops, especially on the Grand Ridge.
<i>Lunania polydactyla</i>	Flacourtiaceae	Vulnerable	An uncommon tree of hillside woodlands, occurring at altitudes of 480 to 900 m
<i>Podocarpus urbani</i>	Podocarpaceae	Critically Endangered	Generally restricted to the high montane cloud forests along the ridge of the Blue and John Crow Mountains National Park (915 to 2,265 m asl). It is less common where slopes are steep or unstable
<i>Rondeletia elegans</i>	Rubiaceae	Vulnerable	An uncommon tree or shrub, restricted to moist secondary forest on limestone hills between 360 and 680 m.
<i>Sapium hiansii</i>	Euphorbiaceae	Near threatened	A pioneer species of the Blue Mts. It occurs in colonies in forest gaps and as sparsely scattered large trees in submontane forest, especially on steep unstable slopes
<i>Symplocos octopetala</i>	Symplocaceae	Near threatened	Montane habitats between 1,160 and 1,700 m.
<i>Wallenia fawcettii</i>	Myrsinaceae	Vulnerable	A montane woodland species between 1,400 and 1,700 m.

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A number of endemic plant species are present including: *Blechnum killipii*, *Calyptronomia occidentalis*, *Cinnamodendron corticosum*, *Hirtella multiflora*, *Sapium harrisii*, *Lunania polydactyla*, *Hernandia catalpifolia*, *Wercklea flavovirens*, *Ardisia brittonii*, and *Wallenia venosa*. All these plants were recorded as very rare or rare in the database formerly maintained at The Nature Conservancy's Conservation Data Centre, and are therefore of national and global importance. Of particular significance in this forest type is the presence of the plant *Wercklea flavovirens*, a plant thought to be extinct when its last known population had disappeared. This plant was rediscovered in this forest type during a rapid ecological assessment of the park in 1992.

Upper montane rainforest over shale is the largest natural forest community in the Blue Mountains. Variants of this forest type are mainly influenced by altitude, topography and soil type.

Grubb and Tanner (1976) described the 'typical association typical variant' of this forest type as Mull Ridge and Wet Slope, while Shreve (1914) categorised it as the forest of the Windward and Leeward Slope, and as Ridge forest. Canopy height varies from 22 -25 m with some trees having a DBH of up to 35.5 cm. Very rare endemics include *Mikania jamaicensis* and *Wallenia fawcettii*. Rare endemics include *Coccoloba zebra* and *Symplocos octopetala*.

The 'Selaginella variant' referred to by Grubb and Tanner (1976) as Very Wet Ridge Forest has an abundance of *Selaginella* spp with epiphytic bryophytes. These will be encountered in greater abundance than in the 'typical variant typical association' forest type. Twenty metres was the height of the tallest tree and typical tree girth 31 cm. However, one tree of the species *Cyrilla racemiflora* had a girth of 103.5 cm. In their 1976 publication, Grubb and



*"Cyathea sp. (Tree fern in the montane forest of Blue Mountains)"*  
Photo By: S. Lee Chai

Tanner described for the first time an uncommon variant of this forest type found on the eastern slopes of John Crow Peak in the Blue Mountains. The forest type was named Mor Ridge forest after the unique humic soil on which it was found. The community type is notable because of its unique species combination, which includes the rare *Lyonia octandra* (which the hemi-parasitic plant Mistletoe seems

to favour), and *Ilex obcordata*. *Laplacea villosa*, a small endangered tree is limited in its range to this particular forest type. The tree ferns *Blechnum underwoodianum* and *Cyathea gracilis* can also be found here, and these are also limited in their entire global extent to this particular forest type.

The forest canopy, which is usually 5-7 m

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tall, is generally open with trees generally having small girth. In this forest type, there is a characteristic leaning of the trees not related to wind-throw but rather to the lack of support for tree roots. Also noteworthy is the presence of several primarily epiphytic species growing on the forest floor.

At higher altitudes in the Blue Mountains, the upper montane rainforest becomes distinctly elfin in characteristic with trees attaining heights of 3 to 6 meters and no greater than 2 m at the highest elevation. Endemic herbs such as *Lobelia martagon* and *Odontocline laciniata* can be found beneath the tree canopy. Numerous epiphytes including hanging mosses and minute orchids, some endemic to this specific area have been documented. Lichen flora is also a common feature of this forest type.

Upper montane rainforest over limestone has two variants found in the John Crow Mountains – the typical and the edaphic variant. There are many species in common in these two variant forest types and these two forest communities have many species which are also present in the lower montane forest type. However, tree species are generally short with small girth. As such, forest canopy reaches heights of 8-11 m with tree girth less than 15 cm in the typical variant, and less than 10 cm in the edaphic variant community. The most notable distinctions between these two forest communities are the more open canopy of the edaphic variant, and the presence of *Solanum acropterum* (a plant restricted in its range) in the typical variant community. This latter forest type also contains species that favour soils with impeded drainage.

Many very rare species such as *Tabernaemontana rendlei*, *Dendropanax blakeanus*, *Samyda glabrata*, and *Phyllanthus cladanthus* are found in the typical variant forest community. While very rare endemic such as *Ternstroemia cf. howard-*

*iana* and rare endemics including *Croton laurinus* and *Ilex jamaicensis* are present in the edaphic variant communities. Montane scrub is found in the upper reaches of and on the summit of the John Crow Mountain. Trees are generally gnarled and of short stature. This area is generally inaccessible because of the hostility of the terrain and the area demonstrates the highest species diversity in the nominated area. With over 50 % of plant endemic species, this area has the highest rate of endemism in the island (Muchoney et al. 1994).

Montane summit savannah was first documented by Shreve in 1914 and is confined to a small area on the north side of High Peak in the Blue Mountains. *Danthonia domingensis* (which also grows at high altitudes in Hispaniola) dominates the area. This is the only piece of high altitude grassland in Jamaica and it is thought that it may be a relict community from the last ice age, when the tree line in the Blue Mountains may have been about 1000m lower than it is now. However, this may not be so, since the factors controlling

its presence until the present time are obscure. The absence of the community on higher peaks in the mountains adds to the puzzle.

Current species list for the Blue and John Crow Mountains cannot be considered to be exhaustive, since there are locations within the nominated area that have not yet been explored or where the exploration was preliminary. This includes the northern slopes of the Blue Mountains and large areas of the John Crow Mountains. In addition, the aquatic plant communities have not been surveyed, so the potential exists for the discovery of many more endemic species and species of terrestrial and freshwater plants new to science.

### Invertebrates

The full extent of the diversity of invertebrates in the Blue and John Crow Mountains is still unknown. Undescribed species are being unearthed with every new investigation, highlighting the international significance of this area for invertebrate biodiversity. This is even



*"Psychotria corymbosa"*  
Photo By: JCDT

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more remarkable when the relative size of the nominated property is considered.

### Beetles

Despite their abundance, the Coleoptera of the Blue and John Crow Mountains are relatively poorly studied. However, a casual search of the literature indicates several descriptions of new species and sometimes new genera. Much of these were taken from a few sites within the nominated site and the majority of the area has not been researched. Since many of the endemic species of beetle described from Jamaica so far, are restricted in distribution to particular localities, further research will undoubtedly yield new species to science. So far, 62 species of Scolytidae (Bark beetles) and 7 species of Platypodidae (Ambrosia beetles) have been recorded on the island. Forty-eight species of fireflies have been described from Jamaica. Of these, 45 species are found nowhere else in the world, the rate of endemism is 94%. It is not known how many species of fireflies occur in the Blue and John Crow Mountains since no specific study has yet been done. However, Lampyrid fireflies, Elateridae click beetles (known locally as “Peeny Wallies” or “Blinkies”) and headlight beetles are common at night. Being one of the two sites with undisturbed forest in Jamaica, the Blue and John Crow Mountains can be expected to feature significantly as an important habitat for endemic fireflies. .

### Butterflies and Moths

Four hundred of Jamaica’s 1000 species of moth are endemic to the island. While actual population densities are not known, collections between 1988 and 1989 at a single location in the southern Blue Mountains yielded several thousand specimens, representing some 500 species.

There are 124 species of butterflies in Jamaica (Brown and Heineman 1972, Pp 478) with 19 species and 12 subspecies endemic to the island. A number of but-

terflies, both endemic and non-native are present in the site. The area is of particular importance for the following endemic species listed in the table below.

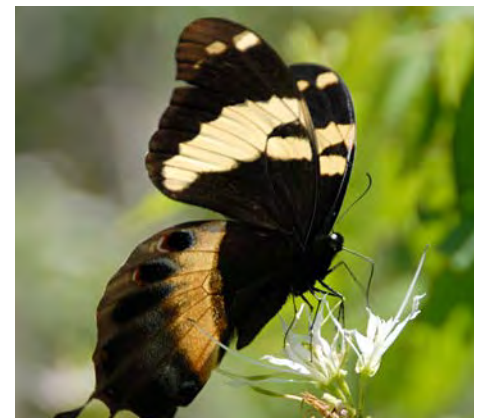
Family	Common Name	Butterfly Species
Nymphalidae	Jamaican Patch	Atlantea pantoni Greta diaphane
Lycaenidae	Miss Perkin's Blue	Leptotes perkinsae
Satyridae	Jamaican Satyr	Calisto zangis
Lycaenidae	Adam's Small Sulphur	Eurema adamsi
Papilionidae	Giant Swallowtail	Pterourus (Papilio) homerus

Most of these can be found in the forests of the John Crow Mountains between 300 and 600 metres. However, a number of species both endemic and non-native are common in the mist forests and elfin woodlands of the Blue Mountains between 900 - 1500 meters. In the most extreme part of the habitat, that is, 1200 – 2100 meters in the Blue Mountains, three species of butterfly are likely to be encountered: Vanessa cardui, Calisto zangis and below 1800 meters, Eurema adamsi.

The nominated site also boasts an endemic of great significance: Pterourus homerus (Previously Papilio homerus), the Giant Swallowtail Butterfly. With a forewing average length of 7.5cm (3 inches) long and wingspread approaching 15cm (6 inches) this butterfly has been reported to be the largest butterfly in the Western Hemisphere and about the third largest butterfly in the world. Its bold black-and-yellow pattern, huge spatulate tails and slow flight makes this magnificent butterfly distinguishable from any other species. First described in 1793, it was found to be common in seven parishes throughout the island. Today its habitat has been restricted to two places, the cockpit country and the Blue Mountains. Most P. homerus have been collected and sighted at elevations of 150 metres to 600 metres at the junction of the John Crow and the

Blue Mountain Range, at Corn Puss Gap and Cunha Cunha Pass, areas within the site, where it was described by Kaye, W.J. (1926) to be ‘entirely in its native ecology’. Of the 573 recognized species of Papilionidae, the Giant Swallowtail is one of the ten endangered swallowtails in the world and is listed in Appendix 1 of CITES. It’s listing as endangered on the IUCN’s Red List also attests to the high risk of extinction this universal treasure faces. In 2013 it was listed in the World’s top twelve endangered species of all categories by the IUCN Red List (IUCN 2013).

Despite the relative rarity of this species, it is still regularly seen in the Upper Rio Grande Valley, where the Bowden Pen Farmers’ Association (a group which includes many Maroons) has been actively planting the tree, Hernandia catalpifolia (Water Mahoe) - which the Giant Swallowtail caterpillars eat (Lehnert 2007).



“Giant Swallowtail Butterfly”  
Photo By: V. Turland

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### Snails

Jamaica has one of the world's most diverse terrestrial snail fauna and is another example of a taxon where a great deal of speciation has taken place. Of the 561 named species, 505 are endemic and about 36 undescribed snail species have been identified to date. Many Jamaica's snails naturally have a small geographic range, which means that several of those found at particular habitats will be found nowhere else in the world. As with the coleopteran, there is a high likelihood that further research will yield several species new to science. Many of the snails in the nominated site are endemic, particularly in the John Crow Mountains. In addition, three recently discovered species from the snail family Punctidae, were found to exist at high altitudes pointing to the significance of the park as a habitat for them.

The description of Jamaica's snails cannot be considered to be comprehensive and more undescribed species will surely come to light as micro snails from litter samples are described. The study of terrestrial molluscs is ongoing and the Blue and John Crow Mountains is expected to feature significantly as one of the foremost habitats for these yet to be described species.

### Onychophora

The wet climate of the nominated site makes it an important habitat for a phylum of unique and ancient animals, the Onychophora, also known as velvet worms or walking worms. This creatures share a number of characteristics with both annelids (segmented worms) and arthropods. In fact, biologists believe that they are important to understanding the evolutionary history of the arthropods. It is a small phylum consisting of only 70 species. Jamaica and South Africa are the only two countries in the world that have cave dwelling species, which do not have eyes. The Blue and John Crow Mountains are an important habitat for this unique

group. Onychophora are rarely seen in their natural habitat, possessing the ability to hide in extremely tight crevices. Jamaica has 5 species of Onychophora, including the endemic genera *Plicatoperipatus* (Arnet 1961, Pp. 72, 213—221) and *Speleoperipatus*.



"*Onychophora (Peripatus sp) Velvet Worm*"  
Photo By: JCDT

### Crabs

All Jamaican land crabs are thought to have evolved from a single marine ancestor that invaded terrestrial habitats only 4 million years ago. Of the ten indigenous species of grapsid crabs, nine are endemic. Crabs have not been well studied in the Blue and John Crow Mountains, however, three endemic species of the genus *Sesarma* are known to occur in the site. Morphological and molecular evidence for a new endemic freshwater crab, *Sesarma ayatum* sp. n., (Grapsidae, Sesarminae) from eastern Jamaica (Schubart et al 1998)

Jamaica has 9 endemic species of land crabs, which are unique in their exceptional adaptations to terrestrial life. The crabs in the site, like some other Jamaican land crabs exhibit the only active brood-care for larvae and juveniles known in crabs worldwide (Schubart et al 1998)

### Aquatic Species

The numerous rivers in the Blue and John Crow Mountains are home to several aquatic invertebrate species including Black Janga (*Jonga serrei*). This endemic freshwater shrimp is restricted to rivers in the parish of Portland. The Maroons consider *Jonga serrei* a delicacy.

*Neritina punctulata*, locally known as "Bussu" is an endemic freshwater gastropod of the family Neritidae. *N. punctulata* is only found in two of the rivers originating in the nominated site and nowhere else in the world. This snail has nutritional and economic value and has been traditionally harvested in northern Blue Mountain streams. It forms an important part of the traditional diet of the Maroons and inhabitants of Portland. This tradition has been recognized in recent times and a Bussu festival is held annually. Not much is known about the biology of this aquatic invertebrate but the species is recognised to be migratory, the female snail lays her eggs in streams, which hatch after 20-22 days. The planktonic larvae produced are carried to estuaries where they develop into juveniles for approximately one year. These juveniles then migrate back up the rivers.



"*Black Janga (Atya Innocous)*"  
Photo By: JCDT

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Insects of the order Trichoptera (Caddisflies) are also abundant in the aquatic environment of the park. Adults are mostly nocturnal, weak-flying insects that are often attracted to lights. During the day, they hide in cool, moist environments such as the vegetation along riverbanks. All Caddisfly larvae live in aquatic environments too; they may be herbivores, scavengers, or predators. The scavengers and herbivores live within protective "cases" which they build from their own silk and stones, twigs, leaf fragments, or other natural materials. Case design and construction is distinctive for each genus of Caddisfly.

### Vertebrates

#### Amphibians

Jamaica has 21 native species of frogs, which are all endemic to the island. Eleven of these occur in the nominated site, of which 5 (*Eleutherodactylus andrewsi*, *E. orcutti*, *E. pentasyringos*, *E. alticola* and *E. nubicola*) are to be found nowhere else in Jamaica. *E. orcutti* lives mainly in rivers. Elevation appears to play a significant role in the distribution of frogs in the nominated area, and species diversity peaks in the Blue Mountain range. Frogs of the genus *Eleutherodactylus* that reside in the Blue Mountains are morphologically different from those in the John Crow Mountains. According to the Red List, IUCN 2013 six of Jamaica's frog species is critically endangered and a further 8 are endangered. In fact, only 2 of the species are of least concern. Among those endangered are species that are local endemics of the site. *E. orcutti* and *E. alticola*, two species restricted to the Blue Mountains have been assessed critically endangered, with the former feared extinct. *E. andrewsi* found in both the Blue and the John Crow

Mountains and *E. nubicola*, a species restricted to the Blue Mountains, have also been listed 'endangered'. Frogs of the species *E. pentasyringos* are considered vulnerable and their population is decreasing.



*"Eleutherodactylus alticola"*  
Photo By: S. Blair Hedges



*"Eleutherodactylus pentasyringos"*  
Photo By: S. Blair Hedges



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Reptiles Studies have revealed that the property is home to 1 species of turtle, 4 species of snakes and 10 of Jamaica's 24 species of lizards. Though these studies cannot be considered exhaustive at this time, they already indicate something of the importance of the area to Jamaica's small reptile population.

Two endemic lizards, *Anolis reconditus* (Blue Mountain Tree Lizard) and another species of the genus *Sphaerodactylus* are restricted to the Blue and Port Royal Mountains in the Blue and John Crow Mountains. *Celestus occiduus*, Jamaica's endemic Giant Galliwasp may also occur in the site, though this skink-like lizard has not been seen in recent time, and is possibly extinct .

A notable observance relates to the distinct morphological patterns shown between lizards in the Blue and in the John Crow Mountains (JCDT, 2005). It is therefore believed that investigations could reveal them to be subspecies or separate species.

Endemic Frog Species			
Species	Family	Endemic/ Native	Status and Treat Category
<i>Osteopilus brunneus</i>	Hylidae	Endemic	Least Concern
<i>Osteopilus crucialis</i>	Hylidae	Endemic	Endangered
<i>Osteopilus wilderi</i>	Hylidae	Endemic	Endangered
<i>Eleutherodactylus alticola</i>	Eleutherodactylidae	Endemic	Critically Endangered
<i>Eleutherodactylus andrewsi</i>	Eleutherodactylidae	Endemic	Endangered
<i>Eleutherodactylus glaucoreius</i>	Eleutherodactylidae	Endemic	Near Threatened
<i>Eleutherodactylus gossei</i>	Eleutherodactylidae	Endemic	Least Concern
<i>Eleutherodactylus jamaicensis</i>	Eleutherodactylidae	Endemic	Endangered
<i>Eleutherodactylus nubicola</i>	Eleutherodactylidae	Endemic	Endangered
<i>Eleutherodactylus orcutti</i>	Eleutherodactylidae	Endemic	Critically Endangered
<i>Eleutherodactylus pantoni</i>	Eleutherodactylidae	Endemic	Near Threatened
<i>Eleutherodactylus pentasyringos</i>	Eleutherodactylidae	Endemic	Vulnerable

Lizards species found within the Blue and John Crow Mountains			
Scientific Name	Family	Distribution	Status
<i>Aristelliger praesignis</i>	Gekkonidae	West Indies	Common
<i>Sphaerodactylus argus</i>	Gekkonidae	Neotropic	Common
<i>Sphaerodactylus goniorhynchus</i>	Gekkonidae	Endemic	Common
<i>Sphaerodactylus oxyrhinus</i>	Gekkonidae	Endemic	Rare
<i>Anolis garmani</i>	Iguanidae	Endemic	Common
<i>Anolis grahami</i>	Iguanidae	Endemic	Common
<i>Anolis lineatopus</i>	Iguanidae	Endemic	Common
<i>Anolis opalinus</i>	Iguanidae	Endemic	Common
<i>Anolis reconditus</i>	Iguanidae	Endemic	Vulnerable
<i>Celestus cruscus</i>	Anguidae	West Indies	Common



*"Sphaerodactylus dacnicolor"*  
Photo By: S. Blair Hedges

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### Snakes

The most impressive of the 4 endemic species of snake found within the nominated area is *Epicrates subflavus* (Jamaican Boa or Yellow Snake). This mostly nocturnal creature can attain lengths of 3 meters. It preys on small mammals such as rats and mongoose as well as birds and their eggs.

Low altitude forests at elevations of 900 meters are the main habitat both in the Blue Mountains and in the John Crow Mountains. The Jamaican Boa is listed on the IUCN Red List as 'Vulnerable', however, its population has not been thoroughly assessed.

The other endemic species of snakes found in the site are: *Arrhyton calliaemus*, *Arrhyton polylepis*, and *Typhlops jamaicensis*. All snake species in the site are harmless with none known to be poisonous to human beings.

The *Tropidophis haetianus*, a non-endemic species found in the park is considered terrestrial to arboreal in habit. Dwarf boas also called "thunder snakes" or "water snakes," possibly because they are frequently seen after heavy rains, and near swamps, wells, and water tanks may average 30–60 centimetres in total length. Despite the relatively small size and cryptozoic nature of dwarf boas (making them difficult to find), there is evidence that some populations may be susceptible to extirpation. One interesting defence mechanism displayed by the *Tropidophis haetianus* is most unusual; when disturbed, the snake may bleed from the eyes, mouth, and nostrils



*"Epicrates subflavus (Jamaican Boa)"*  
Photo By: S. Blair Hedges



*"Hypsirhynchus calliaemus (Jamaican Red Racerlet)"*  
Photo By: S. Blair Hedges

*Hypsirhynchus polylepis"*  
Photo By: S. Blair Hedges



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### Avifauna

Jamaica's avifauna is composed of 256 species of land birds, including 159 breeding species, 30 of which are endemics (Gosse Bird Club 1986a) though two (2) possible extinctions have revised the number to 28. This number of endemics earned the country a fourth place ranking among oceanic islands in the number of species of endemic land birds (WWF, 2001). There are 5 endemic genera, 21 endemic sub-species, 10 introduced species with breeding populations, 54 other breeding species (residents) and 8 summer breeding migrants. Overall, there are 114 breeding species (excluding introduced species). In the Blue and John Crow Mountains there are 74 non-breeding species, 25 transient species and 50 vagrant or rare winter visitors. Observations within the nominated property show 53 breeding species, 25 endemic species (all 5 endemic genera), 2 summer migrant species and 40 winter migrants. The Blue and John Crow Mountains serves as a permanent or winter home to 220 migrant and resident bird species. Thus the area is an important habitat for resident birds and has been identified as the second most important bird area in the island (Bird Life, Jamaica, 2003). It is also the largest intact wintering habitat for migratory birds in the insular Caribbean (Haynes et al, 1989).

During the northern hemisphere winter season, outstanding assemblages of migrants visit the park. Some of these are en route to wintering grounds in South America; and for them, the park functions as a vital stop over. The exact number of species that will turn up during any given winter period is unknown since no research has as yet been conducted to de-



"*Dendroica caerulescens* (Black-throated blue warbler)"  
Photo By: P. Jones

termine this. However, up to 40 species are known to reside in the area during the winter months.

The use of the area as a wintering ground by migrant species, such as the Petchary (Tyrannus domenicensis domenicensis) from South America, is further evidence of the significance of the area as a key component of the Western Hemisphere's ecosystem. One notable migratory species in the nominated property is the Bicknell's Thrush (Catharus bicknelli), a relatively rare bird with as few as 4,000 known to occur in Canada. This Thrush is unique because of its mating practice that involves females mating with more than one male. Up to four males perform duties

related to one nest.

Swainson's Warbler (*Limnothlypis swainsonii*) is another species that can be found in the park during the winter season. This species has experienced drastic declines in some areas in North America in recent times, and loss of and degradation of tropi-



"*Neesopsar nigerrimus* (Jamaican Black Bird)"  
Photo By: R. Miller

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cal forests on wintering grounds have been identified as one of the contributing factors. The importance of the Blue and John Crow Mountains in maintaining the population of this bird is therefore undeniable. The Black-throated Blue Warbler (*Dendroica caerulescens*) is one of the neotropical migrants that spends the majority of its time in the Caribbean and by extension the Blue and John Crow Mountains, only migrating north during the spring to breed. Also common in the park during the winter months are the Black and White Warbler (*Mniotilta varia*), Ovenbird (*Seiurus aurocapillus*) and the Common Yellow throated Warbler (*Geothlypis rostrata*).

Perhaps the most flamboyant of the migratory birds in the park is the American Redstart (*Setophaga ruticilla*), locally called the Christmas bird because of the brilliant, almost ornamental, black and orange plumage of the adult male and the fact that this species is commonly seen during the Christmas season. This bird spends the majority of its time in the tropics beginning its arrival in September and remaining until mid April.

Other species though not discussed here contribute to the diverse spectrum of migratory birds that stop over or reside in the park during the winter, contributing to the diversity in form and function, feeding techniques and feeding locations among the park's avifauna.

The Blue and John Crow Mountains is one of the main places of refuge for important breeding populations of all of Jamaica's 30 endemic terrestrial bird species, some of which have been experiencing declining populations in recent times. This includes

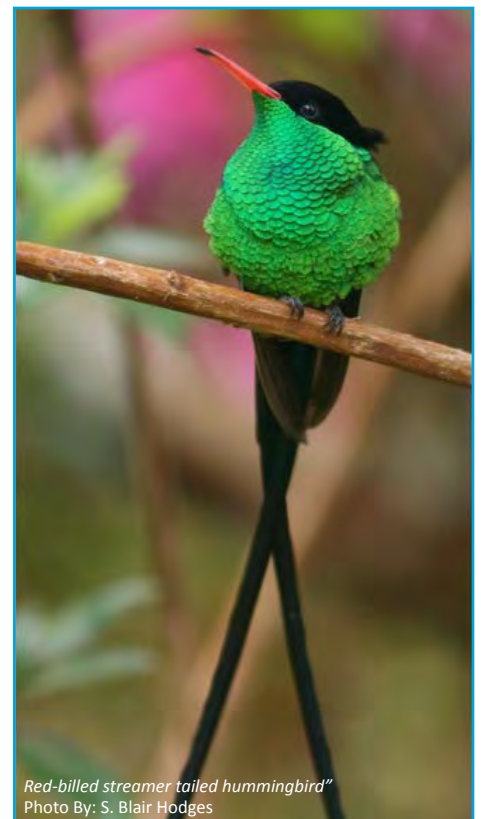
Jamaica's most threatened endemic species, *Nesopsar nigerrimus* – the Jamaican Blackbird, whose last remaining habitat is the lower montane forest on the northern slopes of the Blue Mountains, where it forages for insects in the many epiphytes present. This species is listed on the IUCN's Redlist as 'endangered' with a decreasing population.

Another endemic species likely to be encountered particularly in the John Crow Mountains is Jamaica's national bird, the streamer-tail hummingbird (*Trochilus* sp.) locally called the Doctor Bird. This bird's significance dates back to the first Jamaicans – the Tainos, who referred to this bird as the 'God' bird because it was considered to be the reincarnation of dead souls. The red-billed and black-billed streamer tail hummingbirds, once considered subspecies of the genus *Trochilus*, have been split into two species, the red-billed *Trochilus polytmus*, found island wide, and the black billed *T. scitulus* which occurs in the nominated area and is confined to eastern Jamaica. Being the only intact forested area in the eastern part of the island, the Blue and John Crow Mountains is an extremely important habitat for *T. scitulus*.

The Jamaican Tody, (also called Robin Red-breast) one of the few birds in the world that nests underground, also resides in the area.. All five species of the family *Todidae* are remarkable diggers that in pairs can dig long, curvy tunnels of over 60cm. Todies are endemic to the Greater Antilles, and *Todus todus* or the Jamaican Tody, is found only in Jamaica. These birds are known for a consistent upward gaze and oral tradition of Jamaicans explain its red breast in connection with Christian beliefs. A drop of blood is said to have

fallen while the bird gazed up at the cross on which the crucified Christ hung.

A few of the other most widely recognised endemic species in the Blue Mountains are the Crested Quail Dove (*Geotrygon versicolor*), White-chinned Thrush (*Turdus jamaicensis*), Jamaican Becard (*Pachyramphus niger*), Jamaican Woodpecker (*Melanerpes radiolatus*), and Blue Mountain Vireo (*Vireo osburni*). Other common resident birds include Rufous-tailed flycatcher (*Myiarchus validus*), and the Jamaican Vireo (*Vireo modestus*). The John Crow Mountains boast an impressive diversity of endemic avifauna including the Yellow-billed Parrot (*Amazona collaria*), the Black-billed Parrot (*Amazona agilis*), the Jamaican Crow (*Corvus jamaicensis*) and the Jamaican Owl (*Pseudoscops grammicus*).



Red-billed streamer-tailed hummingbird  
Photo By: S. Blair Hodges

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Many resident non-endemic species also add to the diverse spectrum of birds in the nominated site and emphasizes the area both nationally and internationally as of prime conservation significance.

### *Mammals*

The Coney or Hutia (*Geocapromys brownii*) is Jamaica's only remaining terrestrial non-volant mammal. This large rodent, called the Coney or Grazeby by locals, is similar in size to a rabbit or groundhog. It inhabits solution cavities in sedimentary limestone as well as holes formed by roots, hollow trees and crevices in rock-fall areas. In the past, this animal was known to inhabit forested areas throughout the island but pressure from large-scale deforestation, introduced animals and excessive hunting has resulted in a contraction of the population. The population is now known to be increasingly restricted to habitats in the John Crow Mountains, where it was found to exist in all areas from Cambridge Backlands and Hog Meat Bottom in the North, to Corn Puss Gap and Johnson Mountain in the South. A few areas in the Blue Mountains at altitudes of 600 – 1800+ meters, including the Cunha Cunha Pass Trail are also confirmed habitats for the species. These areas within the Blue and John Crow Mountains are considered the only one of two secure habitats for this national treasure where its occurrence was reported to be plentiful.

Three main non-native mammals can be found in the Blue and John Crow Mountains, these are the wild boar or wild hog (*Sus scrofa*), the mongoose (*Herpestes javanicus*) and rats (*Rattus* spp.).

The wild boar is a feral domesticated pig which was introduced by Spanish settlers.



*Coney or Hutia (Geocapromys brownii)*  
Photo By: JCDT

It lives in the forested areas of the nominated site. The boar can weigh as much as 440 lbs or 200kg. The animal is only dangerous if it feels threatened but can harm humans with its tusks. Hog hunting remains a common tradition among Maroon men, who on any one hunting trip take out a pack of dogs and may stay out for days at a time. Subsequently, families would feast on jerked pork. This is still a tradition particularly widely practiced today as described extensively in the Justification for Inscription – criteria 6.

The mongoose was introduced to Ja-

maica in 1872 by a planter W.B. Espeut who thought they could reduce the rat population, if turned loose in the sugar cane fields. Four male and five female mongooses (one pregnant) were caught in Calcutta and brought to Jamaica. The scheme failed and the animal became a serious threat to native fauna, killing snakes, ground nesting birds, lizards, crabs, toads, snails and the grubs of many beetles and caterpillars. The mongoose is now considered to be a significant contributor to the decline of lizard species in the island including the Jamaican Iguana. No assessment has as yet been done on

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the population in the nominated site and its impact on the sites fauna.

### *Chiroptera (Bats)*

The chiropteran fauna in the Blue and John Crow Mountains has not been well studied; however, several species of bats have been known to occur in the area. Leach's Long-tongued bat (*Monophyllus redmani redmani*) is one such species, the subspecies is endemic to Jamaica, and occurs on the slopes of the Blue Mountains. The Buffy Flower Bat (*Erophylla sezekorni syops*) is another species likely to be encountered in the St. Thomas areas of the site up to elevations of 1300 meters. They have a narrow snout and a long tongue for feeding on flower nectar, similar to a hummingbird. They have long ears, a very small nose leaf and short tails. When flower nectar and pollen are scarce, these small bats will eat insects. They are important pollinators for many plants. Also in the park are two endemic bat species, the Jamaican fig eating bat (*Ariteus flavescens*) and the Jamaican Brown Bat (*Eptesicus lynni* Shamel). The former can be found up to elevations of 1500 meters but the latter resides high on the southern slopes of the Blue Mountains.



*"Eptesicus Lynni Shamel (Jamaican Brown Bat)"*  
Photo By: A. Donaldson

## 2.b History and Development of the Blue and John Crow Mountains

### *History and Development of the Blue and John Crow Mountains*

The Blue and John Crow Mountains which dominate the eastern section of the island of Jamaica are one of the longest continuous ranges in the Caribbean. Their beauty, remoteness and mystique have made these majestic landforms into a sanctuary for endemic natural resources and cultural forms. The Blue Mountains which peaks as Jamaica's highest point, was known as a refuge site from the days of the Spanish (1494-1655), who called the range Sierra de Bastida. It was later named the Blue Mountains in reference to its blue appearance from a distance and associated mist. The John Crow Mountain was given this name during the 19th century (Higman and Hudson 2009). The term is the Jamaican name for the Turkey Vulture or Carrion Crow (*Cathartes aura*), due to their abundance at the site during the English occupation. The nominated property has a rich and deep history, which commences with the island's geological development to the present management system of the BJCMNP. The following pages will detail the natural and cultural history and development of the site.

### *Geological Processes*

The natural history of Jamaica dates to over 100 million years (Lee 2006). The geology of the Blue and John Crow Mountains are testimony to the intense volcanic activity that produced the oldest rocks on the island, the Blue Mountain Inlier and the rich volcanic soils found in the nominated property. About 65 million years ago, the volcanic activity ceased and was replaced by tectonic activity, massive movements in the earth which resulted in uplift, folding and the emplacement of igneous rocks (Porter 1990). It has been

documented that the island was shaped by two major periods of tectonic activity which occurred around 65 million and 14 million years ago respectively (Lee 2006).

Approximately, 45 million years ago, Jamaica was submerged. It is said that during this period, the land area of Jamaica was considerably larger than it is now (Porter, Jackson, & Robinson, 1982, p. 136). The island underwent a process of gradual destruction and submergence, followed by a long period of existence as a series of shoals and shallow banks in the sea (Ibid). It probably resembled the smaller islands of the present Bahamian archipelago. Between 45 and 14 million years ago, white limestone was deposited on the seafloor. This pure white limestone became the island's bedrock that consists of two-thirds of Jamaica's land mass (Porter 1990; Lee 2006). The remaining third of the island is comprised of igneous and metamorphic rocks, shale and alluvium (Emanuel, Waite, Blake, & Blake, 2001, p. 4).

The next phase of tectonic activity around 10 to 14 million years ago resulted in the island's emergence from the Caribbean Sea. Jamaica, along with the other islands of the Greater Antilles began to assume their present size and form (Watts 1987). The major landforms found today, namely the interior mountains such as the Blue and John Crow Mountains were formed in the past five to ten million years (Porter, Jackson, and Robinson 1982; Porter 1990; Lee 2006).

The island is located south of a transform fault where the North American Plate is sliding along the Caribbean Plate. The Walton Fault and Enriquillo-Plantain

Garden Fault Zones intersect the island (Figure). The movement of these plates, as well as associated fault movements on land, are the major sources of earthquakes in Jamaica (NEPA and USAID 2002, p. 21). The most notable earthquakes include the 1692 and 1907 which devastated the eastern parishes and coastal towns. The Blue and John Crow Mountains, are said to enjoy a fair level of seismic stability, however, there exists a number of major faults namely the Water-gate Fault, the Yallahs Fault, The Blue Mountain Fault and the Rio Grande Fault (Porter 1990; NEPA and USAID 2002). The island, especially the mountainous areas are also prone to landslides. Some of these landslides have been associated with earthquakes or torrential driving rains that accompany tropical storms or hurricanes (Porter, 1990, p. 9). Over the course of Jamaica's history several landslides or rockslides have occurred, particularly in the John Crow Mountains. According to the Jamaican Geographer, the White Limestone of the JCM escarpment is underlain by weaker yellow limestone and then by shale and sandstone beds of the Richmond Formation. This arrangement lends easily to instability, and aerial photographs have revealed several major landslide events (Jamaican Geographical Society, 1996, p. 6). One fatal case was the October 1937 landslide, locally known as the "volcano" which subsequently killed five individuals.

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Map showing the Caribbean Plate and Major Fault Zones (Source: Wikipedia.com)

### *Evolution of the Blue and John Crow Mountain Forests*

Natural vegetation is influenced largely by the island's topography, climate and precipitation. The volcanic rocks and soils, cool temperatures and high levels of precipitation found in the Blue and John Crow Mountains have stimulated extensive areas of natural forest (Tanner 1986). Prior to the arrival of the first humans, mountain forest and tropical rainforest covered this zone stretching to the sea (Higman 2008). At present, forests occupy over 265,000 hectares (654,829 acres) or 24 per cent of Jamaica's total landmass (Natural Resources Conservation Authority/National Environmental Planning Agency, 2001, p. 10). Only 8 per cent of the total land area can be classified as natural forest with minimal human disturbance, most of the remaining forest areas have had varying degrees of human disturbance (McGlashan, et al., 2008, p. 25). The most pristine forests namely the Higher Montane High Forest are primarily

located in the Blue and John Crow Mountain ranges.

Hurricane, derived from the Taíno word huracan, for these violent storms and an alternate name for the supreme deity Yocahu. These hurricanes are potentially catastrophic for ecosystems (Tanner, Kapos, & Healey, 1991, p. 513). According to Tannehill (1956):

Some hurricanes may be virtually rainless, but more often the rapidly rising air currents bring heavy rain: thus one over Silver Hill, Jamaica, in November 1909, which was unusually late in the season produced 3,428 mm of precipitation in seven days, while the maximum 24-hour fall recorded for a hurricane is 728 mm (Tannehill 1956, cited in Watts 1987, p. 20). At times, wind speeds have reached 320 km per hour, and under such conditions the degree of physical destruction of vegetation and property may be immense.

When hurricanes strike it does significant damage to crops, terrestrial ecosystems and coastal communities (Tanner et al. 1991, p. 514). The extent of the damage depends on the intensity of the hurricane, its diameter, its velocity of forward movement, the susceptibility of ecosystems to damage and the degree of production afforded by topographic features (Ibid). Intense rainfall and wind cause extensive defoliation, breakage and blow down of trees, in addition the saturation of the soil causes flooding, erosion and trigger landslides (Ibid). The changes to forest structure in turn bring about changes in the physical environment and in ecological processes such as hydrologic and nutrient cycles (Ibid, p. 515). Hurricane Gilbert (1988) resulted in the severe defoliation of one third of the western Blue Mountain Forest (Ibid). The reach of the destruction also affected several bird and other animal populations dependent on this ecosystem.



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### *The dispersal of biological resources*

Jamaica, unlike the other islands in the Greater Antilles has never been connected to the American mainland. The island was also never attached to its island neighbours (Higman, 2008). Jamaica is separated from Cuba and Hispaniola at a comparable distance of 145 km (90 miles) and 160 km (100 miles). Yet despite its proximity, the geographical position of the island has made it the “most isolated island” in the Caribbean (Dacal Moure and Rivero De La Calle, 1996, p. 4). According to Roger Smith:

Most of the other Caribbean islands are arranged, geographically, in chains; each island being closest to its neighbour. As a result, adjacent islands both in the Greater and Lesser Antilles have many species in common. Jamaica is unique, in that its position is out-of-line with the rest of the Greater Antilles, and is thus relatively more isolated than the other islands (1968, p. 18).

Barry Higman states that “this isolation was a vital factor in determining the range of biotic resources Jamaica might support in the great sweep of time before long-distance human voyaging” (2008, pp. 30-31). Jamaica’s “out-of-line position” or “isolation” could be one of the reasons why large mammals such as the the Greater Antillean sloth (*Megalonychia*) that arrived in Cuba, Hispaniola and Puerto Rico during the Early Oligocene (30 to 35 million years ago BP) never reached Jamaica (Watlington, 2003, p. 33). This factor could also explain the island’s high levels of endemism in plants and animals and late human colonisation. It has also been suggested that Jamaica’s

long period of submergence affected the island’s biological colonization (Fincham, 1997, p. 47). Alan Fincham states that it is not known when exactly mammals, birds and other vertebrates first managed to reach the island (Ibid). According to Fincham, on this point the Jamaican Tertiary record is still virtually a blank, because only marine/brackish-water species have been recovered to date (Domning and Clark, 1993 cited in Fincham, 1997, p.47). It has been documented that the terrestrial flora and fauna of the island arrived through over-sea dispersal. In the Caribbean, ancestors of rodents, primates such as monkeys and insectivores are believed to have arrived as long ago as 35 million years ago via rafting on fluvial and oceanic conveyors from South America and as far as Africa (Ibid, pp. 32-33; 35). Jamaica provides an outstanding example of rapid transition, and speciation. The island’s geographic isolation and highly varied ecological niches enabled the adaptive development of amphibians, crustaceans and reptiles and the evolution of many endemic species of animals and plants (Higman 2008). The Blue Mountains, in particular exemplifies the case of isolation due to the difficulties to access the region (Watts 1987, p. 11). This landform has proven to be a vital key in the study of the evolutionary and ecological processes following the dispersal of these biological resources.

The mammalian contribution to the original fauna of Jamaica seems to have been limited to primates, rodents, and bats (Fincham 1997). The island once had a population of monkeys (*Xenothrix mcgregori*) that survived until the 18th century (Ibid). It is however, uncertain if the Jamaican monkey ever inhabited the nom-

inated property. Jamaica’s only surviving land mammal is the coney (*Geocapromys brownii*) that has taken refuge in the Blue and John Crow Mountains. The coney, also known by its Spanish name hutia has been traced to the Quaternary period (1.6 million years ago to the present). This rodent has been heavily exploited by the Taíno and the later maroon populations.

There have been a number of invasive species that know inhabit the nominated property. In the 16th century, the Spanish brought cattle (boss p.), goats (*Capra aegagrus hircus*), horses (*Equus ferus caballus*) and pigs (*Sus scrofa*) (Sloane 1707, p. 1; Wright 1921, p. 1974; Buissert 1996, p. 32). Indirectly they carried the rat (*Rattus* spp.), which apparently stowed away on the Spanish ships. The pig went feral and now wild boars or hogs inhabit the Blue and John Crow Mountains. The mongoose (*Herpestes javanicus*) which was introduced into the island in 1872 to kill rats and snakes that dominated the sugar cane fields (Senior 2003). The mongoose became such a destructive pest that not only did they attack domestic animals, but wreaked havoc on indigenous fauna such as the yellow snakes, iguana and coney (Ibid). More recently in the 1980s, the white-tailed deer (*Odocoileus virginianus*) was introduced to the island. The captive held deer escaped into the wild and there have been concerns whether the deer represent a threat to biodiversity in the remaining natural forests of the Blue and John Crow Mountains (Chai 2007).

Sir Hans Sloane (1660-1753), noted physician, scientist and collector came to Jamaica in 1687. Here he served as physician to the new Governor, The 2nd Duke of Albermarle. During the 15 months that

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he was in Jamaica, Sloane made extensive notes on the local flora and fauna, the customs of the local inhabitants and natural phenomena such as earthquakes. Hans Sloane was particularly interested in the Blue and John Crow Mountains region and obtained a number of natural and cultural specimens from the site. He amassed one of the greatest collections of plants, animals and antiquities which established the British Museum.

### *Cultural History*

The prehistoric colonisation of Jamaica was full underway by AD 650. The earliest settlers were the Ostionoid culture, a ceramic age culture that developed within the Caribbean. The Ostionoids were the ancestors of the Taíno, the indigenous group that encountered Columbus and the Spaniards. These people are said to be the result of the intermingling between the Saladoid and Archaic peoples that had migrated from the American mainland hundreds of years before (Wilson, 1997a, p. 17). Caribbean archaeologists have argued that the settlement of Jamaica took place in two migrations, the Ostionan (AD 650) and the Meillacan (AD 900). The prehistoric and contact culture, which we call the Taíno, developed about AD 1200. Samuel Wilson states, that it is difficult to mark the beginning of the Taíno: "Their society emerged as a continuation of the cultural development that had characterised Caribbean history for several thousand years" (Wilson, 1997a, p. 17).

Archaeological evidence has revealed that the Ostionoid settled along the coasts, in the interior valleys and limestone hills and plateau. This settlement pattern has been confirmed by the abundance of prehistoric sites and archaeological data. The



*"Golden Vale, Portland. With the Blue Mountains in the background. 1824"*  
Photo By: J. Hakewill

first Jamaicans exploited the marine and terrestrial resources, practised horticulture and supplemented their diet with gathering wild plants and fruit. It seems that the Ostionoid and the later Taíno people did not exploit the lush interior mountain ranges. This apparently changed with the Spanish colonisation of the island from the late 15th century to the mid-17th century. The Spanish arrived on May 5, 1494. They established their first capital in 1509 at Sevilla la Nueva, over 60 km from the Blue and John Crow Mountains. The Spanish occupied Sevilla, as it is locally known from 1509 to 1534 (Robertson, 2005, p. 4). The arrival of the Spanish marked the rapid decline of the indigenous population in the region. Taíno society disappeared in less than a century of conquest and colonization (Alegría, 1997, p. 32). The Taíno demise was a result of various factors Spanish slavery

and brutality, forced migration to other islands, lack of immunity to introduced diseases and suicide.

### *The Windward Maroons*

In 1513 the first enslaved Africans were brought to the island. These enslaved Africans were bought by individual colonists (Morales Padrón, Spanish Jamaica, 2003, p. 153). As a result of Bartholomew Las Casas's proposal in 1517 to accept the early introduction of enslaved Africans into the Greater Antilles (Ibid). The Enslaved Africans were to replace the rapidly diminishing indigenous inhabitants. They served as body servants, cowboys, hunters and herders of wild horses, pigs and cattle, which allowed them to explore the interior of the island (Senior 2003). The Maroon population later expanded in 1655, when the English invaded Jamaica. The Spanish freed their enslaved

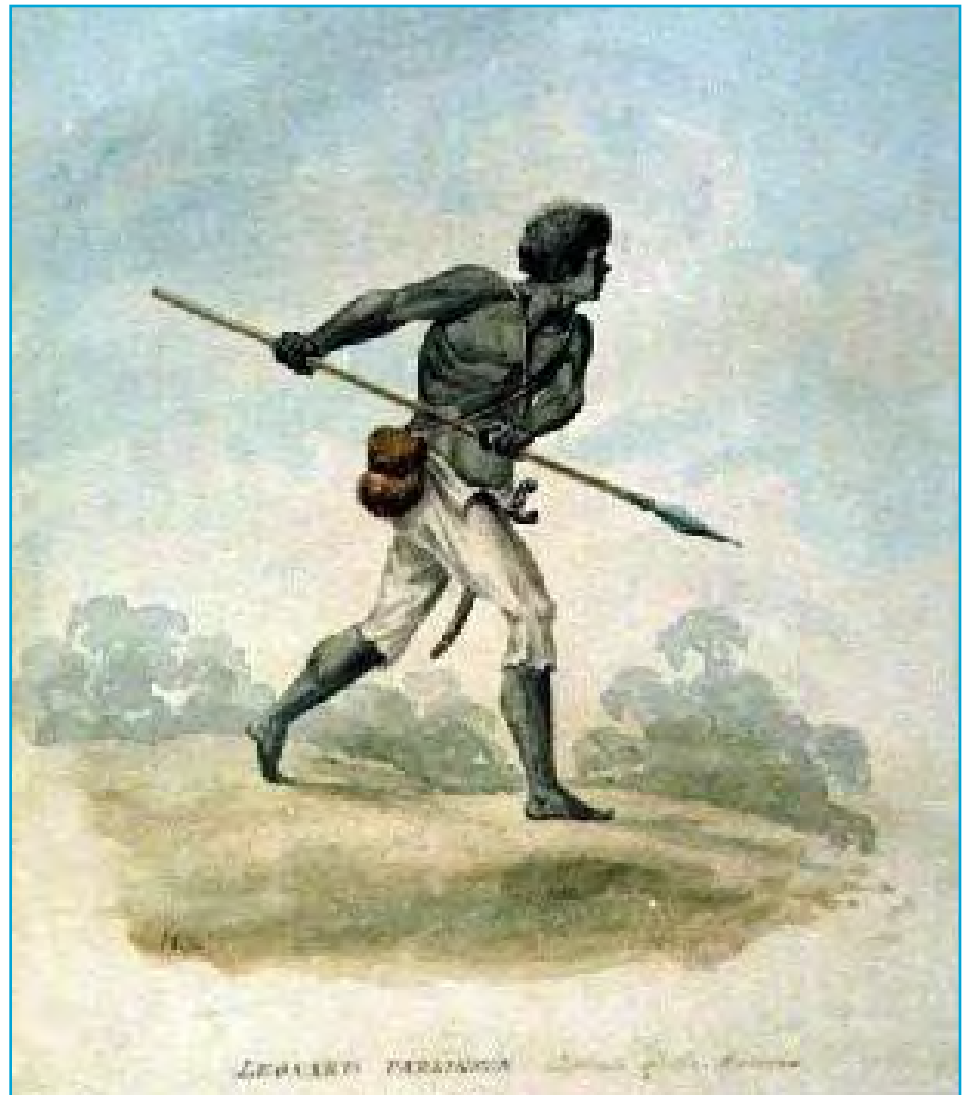
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Africans in return for the support in the war. The Africans however, fled to the interior, and joined the band of indigenous rebels. Maroons are typically the union of Amerindian and African peoples (Agorsah 1994; Senior 2003). Maroon oral tradition claims that they are descendants of the Taíno, who are referred to as the “First Freedom Fighters”. Remnants of the Taíno cultural legacy are seen in several modern practises of the Maroons hunting the hutia, smoking of tobacco, building of caney houses and the men carrying loads on their backs in a ‘hamper’ or straw basket by way of a rope passing around the forehead.

There were two main Maroon groups, the Windward in the east and the Leeward in the west. In Jamaica, during the British occupation African runaways later supplemented the Maroon bands. The ethnic distribution of the Maroon population encompassed Congo, Angolan, and Akan (Ashanti, Twi and Fanti). The Akan, Twi, Fanti and particularly the Ashanti were locally called the Coromantee (Senior 2003; Bibly 2005), as these enslaved Africans were imported from Cormantin (Fort Amsterdam) on the Gold Coast (Gottlieb 2000, p. 10; Bilby 2005, p. 72). According to Gottlieb, “the very act of being Maroon was an act of ideological defiance that questioned the validity and survivability of the colonial slave system” (2000, Pp. 1-2). Agorsah expounded, “resistance is a phenomenon that cannot be separated from slavery or oppression” (1994, p. xii). The Maroons were recognized as freedom fighters, and struggled against slavery all of its various forms (Ibid). Agorsah added that, “before any known struggles for independence in the New World. Maroon communities had developed strong ideas

and strategies of self-sufficiency, self-help and self-reliance and fought with great skill and courage for the right to self-determination” (Ibid). In fact during the 18th century the Jamaican Maroons were a great threat to the British. The Maroons waged two wars on the British in the 18th century, The First Maroon War (1725-1740) and The Second Maroon War, which commenced in 1795. (Harris 1994; Senior 2003).

The settlements of the Windward Maroons are strategically located in the sheltered valleys of the Blue and John Crow Mountains. These Maroons had the largest concentration of settlements including: Nanny Town, Moore Town (New Nanny Town), Watch Hill, Killdead, Gun Barrel, Marshall’s Hall, Pumkin Hill, Mammee Hill, Old Crawford Town, New Crawford Town, Charles Town, Comfort Castle and Seaman’s Valley all in the Portland parish.



“Leonard Parkinson”  
Photo By: BCC Museums

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In addition to these were the Hayfield, St. Thomas, and Scott's Hall, St. Mary settlements (Agorsah 1994; Harris 1994; Senior 2003; Bibly 2005). The Maroons established very widespread network of trails and supply routes over the mountains and into the northern plains. These trails connected their villages, provision grounds and hideouts, enabled communication, and provided hunting and defensive paths in and out of the mountains.

Long before 1700 and by the time the English began settling the north east, the Maroons had created a viable society and culture there replete with a largely self-sufficient economy. Examples include the Nanny Town Maroons, who survived by planting several crops such as banana (*Musa sapientum*), cassava (*Manihot esculenta*), coco (*Xanthosoma sagittifolium*), corn (*Zea mays*), plantain (*Musa paradisiaca*), yam (*Dioscorea L.*), and various types of fruits (Kopytoff 1973, p. 59). Cassava or manioc was an important staple of the Taíno, and can be seen as a form of indigenous retention. Historical sources describe plantains that were found in the vicinity of Nanny Town. In 1733 the British Militia assessed one farm as covering an area of 640 acres of land. It was a mixed crop but there were more plantains than anything else and it was described by the English soldiers as the "Great Plantain Walk" (Carey 1997, pp. 223-224; Braithwaite 1977, p. 10). They were able to sell fowl and fruit. Besides this they hunted wild animals such as hogs. The period 1728 – 1734 represented the Maroons in their greatest glory. After being discovered in 1728 there were at least nine expeditions against the Nanny Town Maroons between 1730 and 1734 (Wright 1970, p. 9).

The political structure within the Maroon communities was heavily influenced by the military and warfare, but also Ashanti influences. The Maroons also retained the tradition of the Queen Mother; the most renown is The Right Excellent Nanny, the Jamaican heroine. Nanny, Queen of the Maroons was born in Ghana ca. the 1680s. Nanny and her brothers established themselves as prominent leaders within the Maroon society. She was a brilliant tactician. It is said that she was the originator of the camouflage, known among contemporary Maroons as ambush (Harris 1994, p.46), and a key element in Maroon guerrilla warfare strategies. In keeping with their militant nature there was a Deputy Chief also called Major, followed by Captains (Harris 1994; Gottlieb 2000; Bilby 2005). There was also a Secretary and a Foreman of the Council. These posts are elective and under normal circumstances are held for the rest of the incumbents' lifetime (Harris 1994, p.44).

The Maroons developed extraordinary skills in guerrilla warfare. They faced superior firepower and were heavily outnumbered. Opposition at times included imported mercenaries, Indians, and black troops known as Blackshot consisting of freedmen and enslaved persons who had been promised freedom, and rangers or chasseurs using hunting dogs. However the highly adaptable and mobile Maroon warriors took maximum advantage of Blue and John Crow Mountains environment and their intimate knowledge of it striking and withdrawing with great rapidity and at will, making extensive use of ambushes to catch their adversaries in cross fires, fighting only when and where they choose, and depending on reliable intelligence networks among non- maroons and

whites especially Irish indentured servants in Jamaica Warriors disguised themselves with leaves, branches and blossoms of local plants so that they blended perfectly into their environment, making it virtually impossible for the British to see them.

In 1710 the English colonial administration in Jamaica fearing its inability to successfully resist an uprising of the enslaved African peoples because of the low ratio of whites to Africans which at that time was 1:10, offered incentives to attract additional white migration to Jamaica and more specifically to the north-eastern section of Jamaica in the parish of Portland. This included the Blue and John Crow Mountains its foothills and the plain areas to the sea, or all those lands that were controlled by the Maroons and governed from the Great Negro Town which later became Nanny Town.

The Blue and John Crow Mountains have been regarded by the Maroons as a sacred site extremely important to their history and culture. Within West African thought it is believed that the spirits of the ancestors live in the locations where the person is buried and protect the living. West African communities therefore try to live as close to the burial sites of their ancestors as is possible. As many Maroon Freedom Fighters are buried in the Blue and John Crow Mountains often as a result of dying to protect the freedom of their nation the Maroons regard the mountains as sacred and hold them in great reverence and awe.

In addition, for more than four centuries the mountains have provided a living for the Maroons out of the abundance of its resources. As in times past the Maroons

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presently use the Blue and John Crow Mountains as a hunting ground especially for the wild hogs that they use to make their famous “jerk” pork meat dish, as a place for collecting herbs for their traditional medicines and sacred plants for their religious rituals. Importantly, it has also provided a bastion and bulwark of freedom – a secure natural citadel - against the oppression of the Spanish and the English slave holders and plantocracy while establishing the physical and cultural boundaries of their nation.

### *Queen Coffee*

Located in the Blue Mountains, albeit outside of the nominated property are the famous Blue Mountain Coffee plantations. Jamaican Coffee ranks high internationally in quality and flavour, especially that grown on the slopes of the Blue Mountains which commands the highest price on the world market (Senior 1985, p. 40). For coffee to be labelled “Blue Mountain” it has to be found at elevations exceeding 5,000 feet and within a 16 km (10 mile) radius of the peak (Senior 1985, p. 40; Higman 1988).

The first coffee trees (*Coffea arabica*) were introduced to Jamaica from Martinique in 1728. Sir Nicholas Lawes, then governor of Jamaica was responsible for introducing coffee into the island. Although Lawes died before his experiments reached fruition, the crop was promising enough to entice other planters (McDonald 2005, p.36). Between 1728 and 1768 the coffee industry developed largely in the foothills of St. Andrew and then gradually spread into the Blue Mountains and the mountains of Manchester, St. Ann and St. Elizabeth. The exportation, however, of the crop did not commence until 1737

(Higman, 2008).

Originally the production of coffee was seen as secondary to King Sugar. In the late 18th century, however when sugar production reached a plateau, coffee cultivation expanded in both the French and British West Indies (McDonald 2005, p. 14). This boom was short lived and by the 1840s, the coffee industry went into decline. The rise of peasant cultivation of coffee rescued the industry and by the end of the 20th century, “Queen Coffee” emerged. Coffee production on large plantations suffered tremendous decline immediately after emancipation. Decline in production was greatest between 1838 and 1849 (Satchell 1991, p.46). After emancipation, coffee became mainly a small setter crop (Senior 1985, p. 41). Recently efforts to extend the Blue Mountains Brand classification areas has sort to include coffee grown in the Rio Grande Valley and this has promoted the expansion of coffee plantations in the area. (NEPA and USAID, 2002, p. 54)

### *The Protection of the Blue and John Crow Mountains*

Movements for the protection of the Blue and John Crow Mountains was initiated in the late 19th century following E. D. Hooper’s 1886 “Report upon Forests of Jamaica” which recommended that “the first and most important work to be done is reservation of the highlands of the Blue Mountains”. Hooper proposed not to take any new tenants nor allow existing tenants to clear additional land to “protect the springs from drying up and regulate the flow of the Portland rivers”. Further, Hooper stated, “at all hazards, the main ridge should be preserved from all cutting and any proprietor holding such land should be invited to relinquish it”. In response, Law 37 of 1889, The Mountain and River Reserves Law was enacted to exchange and purchase patents and another piece of legislation (Law 5 of 1871) was used to forfeit lands to her Majesty, on which outstanding taxes and quit-rents had not been paid. By 1923, most of the land proposed for the Reserve was back in Government’s possession, and in 1927,



*"Spring Garden Estate, St George"*  
Photo By: by J. Hakewill

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the Afforestation Law was passed which gazetted formerly patented properties in St. Andrew, St. Thomas, St. Mary and Portland, as forest reserves (JCDT, 2009).

The protection of the BJCM was initiated following The Forest Act that was passed in 1937 establishing the Forestry Branch under the Lands Department, and the BJCM forest reserves were put under its control. The Forestry Department (FD) was established within the Ministry of Agriculture in 1942, with the mandate to manage the island's forest reserves and plantations. The Blue Mountains Forest Reserve was designated under the new Act in 1950. Subsequently there were additions and other forest reserves were established all around it. The mandate of the Forestry Department included reforestation, boundary surveys, construction of roads and buildings, civilizational research and biophysical inventories. Between 1979 and 1999, through the Forest Industry Development Company (FIDCO) there was a focus on forest plantations – primarily Caribbean Pine (*Pinus caribaea*), in addition to Blue mahoe (*Hibiscus elatus*), cedar (*Cedrela odorata*), mahogany (*Swietenia macrophylla* and *S. mahagoni*) (Thompson, Wright, & Evelyn, 1986, p. 89). In the 1970s, the FD established a number of recreation areas including Holywell and Clydesdale.

BJCMNP project was launched in 1990 and this site became the first actively managed terrestrial national park in Jamaica, gazetted in February, 1993 under the Natural Resources Conservation Authority (NRCA) Act. It served to sensitize the Jamaican public about conservation and sustainable use of natural resources and provided the foundation for nation-

al parks and protected areas system in Jamaica - an environmental management tool that aims to protect the best and most representative areas of the island's natural heritage and associated cultural heritage. Under the criteria for site selection in the National System Plan (JCDT, 1992), the BJCMNP was selected due to its: (i) high ecological value, (ii) high socio-economic value, and (iii) high level of community interest. The management feasibility of the area was however, thought to be very difficult.

The Natural Resources Conservation Department (NRCD) was established in 1975 within the Ministry of Mining and Natural Resources. Its purpose was to ensure the conservation of the island's natural resources including through the establishment of a system of protected areas. With the documentation of the threat to Jamaica's few remaining areas of natural habitat in the Country Environmental Profile (1987), the United States Agency for International Development (USAID) and the Government of Jamaica through the NRCD and the Planning Institute of Jamaica SAID/GOJ funded the Protected Areas Resources Conservation (PARC) project. It was launched in 1989 and Phase I involved the establishment of the Montego Bay Marine Park and the Blue and John Crow Mountains National Park. Activities spanned five years, with the Planning Institute of Jamaica (PIOJ), NRCA and JCDT collaborating on the initiative, which included:

- preparation and enactment of park legislation,
- preparation of a protected areas system plan, and
- establishment of the Jamaica

National Parks Trust Fund through a debt for nature swap. This was to assist in financing the parks.

In 1991, the NRCA Act was promulgated, strengthening the NRCD which eventually became (through a merger with the Town Planning Department) in 2001, the National Environment and Planning Agency. The NRCA Act and its regulations address the establishment of protected areas, in particular, national and marine parks.

Between 1990 and 1996, the National Park was established under a national project involving several government agencies and one non-government organisation – the JCDT. With the winding down of the project and as per the NRCA Act and the country's Policy for its System of Protected Areas (1997), the NRCA delegated its management authority to the JCDT.

The CIDA-funded Trees for Tomorrow project which started in 1992 significantly strengthened the FD, at all levels. A new Forest Act was promulgated in 1996 and the National Forest Management and Conservation Plan produced in 2001. The new Act clearly stated the department's role in biodiversity conservation and provided for greater involvement of stakeholders in forest management.

The three organizations involved at that time in management of the site, signed a Co-management Agreement. Representatives of these organizations (JCDT, NEPA and the Forestry Department) meet regularly as the Co-management Committee. With the increasing realization of the importance and relevance of cultural heritage in the area and the Windward Maroon heritage in particular, the Jamaica



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National Heritage Trust (JNHT) was increasingly involved.

In 2012, to formalize the on-going collaboration with the Maroon communities and strengthen the work of the National Park in promoting and preserving Maroon heritage, a Maroon Community Committee was established. In the same year, the BJMNP Advisory Committee was established to increase the collaboration and coordination between agencies and

organizations which are stakeholders in the use of, and benefits from the National Park and wider environs.

The Blue and John Crow Mountains National Park is a fine example of collaboration between government and non-government entities. The partnership between the stakeholders has resulted in improved management of one of the Caribbean's premier natural and cultural heritage sites. In 2010, under the current

GEF/UNDP Project, Strengthening the Financial and Institutional Management of Jamaica's Protected Area System, the BJCMNP received the highest management effectiveness score of all protected areas in the island. Further, this score was significantly higher than the scores for the other sites, indicating its superlative management system and action.

PART 3.  
JUSTIFICATION FOR  
INSCRIPTION





## 3. *Justification for Inscription*

### 3.1.a *Brief Synthesis*

The property containing the Cultural and Natural Heritage of the Blue and John Crow Mountains (CNHBJCM) is located within a Small Island Developing State (SIDS) environment, on a high elevation over 2,256 metres above sea level, with steep slopes, rugged terrain and widely varying climatic conditions. It represents one of the world's most invaluable refugia of cultural and scientific importance. Historically, this became the haven of the Maroons, indigenous Tainos and runaway enslaved Africans, who nestled themselves in the heart of the Blue and John Crow Mountains. They took advantage of this territory to establish a system of routes and world-renowned resistance, and utilized the endemic flora and fauna as an integral part of their lifestyle. In 2003, the culture of this Maroon community was proclaimed as a UNESCO Masterpiece of the Oral and Intangible Heritage. These Maroons have continued to sustain, preserve, and protect the Blue and John Crow Mountains as a diverse, highly endemic flora and fauna habitat supporting ongoing adaptive radiation and evolution of species of Outstanding natural heritage

and universal significance and the mountains, in that symbiotic cycle, have in turn supported the heritage of the Maroons.

The property contains the "Nanny Town Cultural Heritage Route" (NTCHR), representing a dynamic movement for the war of liberation of enslaved people against colonial oppression within the first quarter of the 18th century that eventually led to the formation of two separate autonomous states within Jamaica - the Maroon state and the English state. It comprises a route with a number of interconnected trails and battle sites that commemorate this event between the Maroons, led by Maroon Queen Nanny and the English. This war culminated in the signing of a treaty on June 23, 1739 between the leaders of the Maroons and the English Governor honouring the sovereignty of Maroon lands. Today, this Maroon state continues to exist. The nucleus of the NTCHR is the imperial seat of this Maroon power, Nanny Town. A number of secret Maroon trails and settlements inside the physical terrain of the Blue and John Crow Mountains were infiltrated by the English forces during the war, and the NTCHR identifies the significance of four of these as the "English Route" with a selected four, as the "Maroon Route" from the network.

This war had inspired and formed the backbone of other liberation movements of enslaved people against the system of colonialism and had affected worldwide political, trading, and economic activities during the period of enslavement that eventually brought about the abolition of the 'slave trade', and the emancipation of enslaved people. The maroon experience in Jamaica was revolutionary and highly influential, as it served as the earliest example of the triumph of a Maroon society against the exploits of the British slavery system within the 18th century.

The scenic beauty of the nominated property with its majestic and mist-capped mountain range is located within the Blue and John Crow Mountains National Park. This natural heritage engenders several distinct types of endemic species and habitats, with a contrasting geology of the two mountain ranges containing highly endemic flora and fauna while supporting the evolution of species, all forming an outstanding natural heritage of universal importance. This natural heritage created several distinct types of forest communities, providing critically important habitats for the continued conservation of many endangered or threatened species of global interest.



## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### 3.1.b *Criteria under which inscription is proposed*

*(iii) Bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared*

The majestic Blue and John Crow Mountains bear a unique and exceptional testimony to one of the longest and still existing independent Maroon states in the world – the Windward Maroons, and its well-developed cultural heritage route embodied in the sites identified from the historical and archaeological records, as well as the oral traditions of the Maroons in this mountain range. The Mountains served as a sanctuary for the Windward Maroons for over 450 years, and as a protective and defensive network of secret trails and settlements that were used strategically and successfully in the war of the first quarter of the 18th Century for liberation against European colonial oppression.

The cultural tradition here represented is Grand Maroonage, which contributed to a system of resistance against colonial oppression and the plantation system, and paved the way for the development of a resourceful non-European society in the New World, defying the colonial norm of that time, and which reinforced sovereignty and freedom of the Maroons. The tradition of grand maroonage and this first Maroon nation, also lent strength to

later resistance activities until the eventual abolition of slavery.

Indeed, their successful campaign was one of the major forces influencing Maroon resistance in the region (Thompson 2006:118), where the “...country gained such notoriety for insurrections at least within the British circuit of slavery” (Alvin O. Thompson 2006:109). The Maroon influence on the resistance within the region and within the British colonial system of its time was extremely significant, and the guerrilla warfare of the Maroons was referred to as ‘the most significant British colonial war’ to be fought in the tropics. (Albert Edwards pg 149 in Agorsah 1994). The exceptional testimony of this cultural heritage route centres on “Nanny Town”, the imperial centre and sacred site, now destroyed, but stands as an archaeological site of significance to the wider international community for its relevance to Grand Maroonage and this resistance movement, and as a testament to the only female warrior in the 18th century in the English colonies. It is also a world renowned pilgrimage Site of Memory related to the trans-Atlantic slave trade.

The archaeological evidence of the Nanny Town site demonstrates the connectivity of the indigenous Taino, the African freedom fighters and the British that interacted with the site and each other at various periods throughout history. Further, it shows the impact of maroonage within the Blue and John Crow Mountains and its contribution to the freedom fight for liberty in the New World which resulted in the signing of the 1740 Peace Treaty and the assigning of commonly-held lands (Agorsah 1994: 165). Archaeological investigations in this area have occurred at

several points within three decades, specifically 1960s, 1970s and 1990s, the most extensive being the 1990 -1993 Maroon Heritage Archaeological Project.

Only about 40% of the Nanny Town site has been excavated and the exploration has generated several artefact types which indicate the three phases of occupation of the site, namely the Taino, Maroon and finally the English colonial phase. The interaction of the Windward Maroons on archaeological sacred places such as Nanny Town is as a ‘no-go’ area. These areas are revered and as such rarely visited. The archaeological evidence indicates clearly as well that there is continuity of use of the site from Taino, as a sacred hill site to today’s Windward Maroons who also revere the site as sacred. The archaeological remains of Nanny Town, Pumpkin Hill, the burial grounds of Brownsfield, Watch Hill, sacred natural sites and the network of trails are all tangible testimony to this cultural heritage route and the unique cultural traditions and events of the Windward Maroons. This rugged and unique wilderness that today supports numerous endemic species of flora and fauna became the definition of freedom and the original site of resistance against the system of European colonialism, which resulted in the enslavement of large numbers of Amerindian peoples in the Americas, and shortly thereafter the forced migration and enslavement of millions of people from the African continent.

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List



"Brownsfield Archaeological Excavation"  
Photo By: JNHT

Today, the property continues to be maintained and revered as a reminder of the symbiotic relationship forged between the Windward Maroons and this natural environment and bastion of freedom and hope – the Blue and John Crow Mountains.

*(vi) Directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.*



"Nanny Town Archaeological Excavation"  
Photo By: U.W.I.

The Cultural and Natural Heritage of the Blue and John Crow Mountains are directly and tangibly linked to the historical events associated with the armed struggle for freedom, and the living traditions of Queen Nanny, forged within a natural environment which functioned as a refuge, a defensive network of sites focused on the resistance struggle, and importantly a free society. The intangible aspects of forging a free society within this context lends to a unique set of cultural traditions, borne out of the circumstances and natural environment which honed the unique and world renowned Windward Maroon traditions, recognized by UNESCO on the Representative List of Intangible Heritage for Humanity (2008).

The events associated with the armed struggle for freedom and conquest by the Windward Maroons and British respectively, is a microcosm of the proverbial conflict of humanity over scarce commodities and resources that has given credence to the global understanding of human and civil rights – its bloodshed or brotherhood.

The epic battles between the Maroons and the British, such as those fought at Seaman's Valley and Nanny Town, as described in the section on history and development, exemplifies the tragedy of war and the human sacrifice paid for in blood and loss of lives. It is from these afflictions that the Maroons were triumphant in signing the 1739 Treaty, which came with a grant of commonly held lands on which they were to live uninterrupted in freedom, able to determine their own destiny as an autonomous state.

Today, the Windward Maroons enjoy the privilege of this land grant. The Maroon council continues to adjudicate the handling of matters relating to the lands held in common for the Windward Maroons.

Colonel Sterling disclosed *"that land was given to his fore parents at the time of the signing of the Peace Treaty with the British. The Council is now responsible for its administration and has the responsibility to resolve land disputes. Maroons cannot sell the land, but can sell the buildings and crops. ... [they] cannot make a will disinheriting their offspring, "the land is for generations to come." ... Maroons can marry non Maroons but an outsider will never be one of them, although the children of the union will. "That spouse can't own the land but council won't drive them away..."*



"Remains of British military fortification"  
Photo By: (Unknown)

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### *18th Century female leader*

The notion of freedom has dominated global political rule, and Nanny, as commander-in-chief and spiritual icon of Nanny Town, dominated the 18th Century as a female warrior in the liberation movement against enslavement, inspired her warriors in the wars against colonial oppression, and whose image conjures exceptional courage in the face of mounting odds, and whose influence bore global significance in the past and today.

The importance of the female figure of Grand Nanny as leader of the Windward Maroon community exemplifies the female leadership role of the 18th Century and beyond. The Windward Maroons success in battle was attributed to her spiritual leadership and astute guerrilla military strategies. Her negotiation for and receipt of land, from the colonial powers makes her stand out among women leaders in the region and more so the world at that time.

Places such as Nanny Falls, Nanny Hill, and Nanny Town are testament to Nanny's influence among the Windward Maroons. Nanny Town being the headquarters of the Maroon Nation bears within it centuries of use and now sacred worship.

The activities of the Maroons prior to the Treaty undermined the British imperialist expansion in the region as it inspired enslaved people from the plantations to not only runaway but to rebel. Indeed, the Maroons and the 1739 Peace Treaty served as an inspiration to other slave societies, which resulted in some planters taking "fright and flight" of the island. This thwarted the economic benefits to be accrued from the island, especially in

the context that the profit from plantation economies such as Jamaica fuelled the industrial revolution in Britain (B. Carey, 1997).

### *The Influence of Folk legend*

The saga of the Maroon resistance, especially as it relates to the heroics of Jack Mansong (Three Finger Jack) and the Maroons is a story that has been romanticized and immortalized in international theatre:

*'... his exploits as a guerilla fighter, starting in 1780 until his death in January 1781, sparked a wave of literary works which kept his legend alive well beyond the shores of Jamaica' He has had a strong influence on the British nation with more written about him than any other*

*West Indian according to L. Alan Eyre, writing in the Jamaica Journal Volume 7, Number 4, in 1973 said: "It is a fact that more 'biographies' of Jack have been published than of any West Indian before or since - somewhere approaching 20 in all, almost all written in Britain and almost all anonymous!" (The Gleaner June 4, 2011).*

Places in the Blue and John Crow Mountains have been named after this legendary ex-slave, such as Three Finger Cave, Three Finger Hill and Three Finger Spring.

### *Traditions and customs*

Maroon communities in and around the Blue and John Crow Mountains retain the profound link to their ancestral heritage, manifested in cultural traditions,



*"Queen Nanny's Bump Grave, Moore Town"*  
Photo By: JCDT

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music, dance, religious rites, language and cuisine. The vibrant and persistent culture, religious practices and beliefs of the Windward Maroons of the nominated site, bear a unique testimony to the forging of these living traditions in this specific environment – the Mountains, and the continuity of the Windward Maroon tradition and customs. This living tradition is directly and tangibly associated with the Blue and John Crow Mountains containing an exceptional cultural heritage route of sacred places of resistance, refuge and memory. The Blue and John Crow Mountains are directly associated with events that led to the liberation, continuing freedom and the survival of the original Windward Maroons.

Maroons have retained much of their religious and associated musical traditions and language. In many cases these rites are sacrosanct and must be preserved to ensure their continued veneration. Maroon heritage is handed down from one generation to the next (Col. Prehay of Scott's Hall Maroons). Religious ceremonies include the use of herbs for healing, drumming, chanting, charms and the blowing of the Abeng. It also involves the veneration of, paying homage to and communication with the ancestors of the departed, located within the nominated property.

Dr K. Bilby states *'Maroons remain different from other Jamaicans not only by virtue of their communally-owned "treaty lands," their governing councils with elected leaders, and other such political and economic features, but because they continue to possess their own religious beliefs, pharmacopoeia, oral historical traditions, music, dance, esoteric languages,*

*and other distinctive forms of expressive culture...*

The Windward Maroons continue to interact with sacred sites such as Nanny Town, Pumpkin Hill, Katta-wood and Watch Hill located within the nominated property. There exists among a large section of the Maroon population, the belief that the Mountains are sacred because many of their ancestors especially the warrior heroes are buried within them. Colonel Sterling (pers. comm. 2008) has stated that previously a special ceremony or 'table' or 'dinner' for the ancestral spirits was conducted in and out of the hills. These ceremonies sought to include and honour the ancestral spirits who fought for and retained the freedom of 'a nation', and by doing so sought their blessings on the community.

### *Celebrations and ceremonies*

Within the terrestrial context of the nominated property, the Windward Maroons developed extraordinary skills in guerrilla warfare linked to their cultural heritage route. Warriors disguised themselves with leaves, branches and blossoms of local plants namely the cacoon (or Kakoon, *Entida gigas*) leaves so that they blended perfectly into their environment, making it virtually impossible for the British to see them. In some accounts they were described to be camouflaged as trees while moving soundlessly through the forest. Today's Windward Maroons continue the tradition of 'ambush' mainly in Maroon ceremonies such as Emancipation Day, Quao Day and Nanny Day celebrations where plants are used to wrap around themselves in memory of the ambush guerrilla strategy of their Maroon ancestors.



*"Nanny Day celebrations at Moore Town - October 2013"*  
Photo By: JNHT



*"Colonel Sterling of the Moore Town Maroons receives award at Nanny Day celebrations"*  
Photo By: JNHT

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### *The music, dance and language of the Windward Maroons*

The methods that dictate how to prepare spiritually with ancestral approval is a very strong part of the cultural practices. The need to 'ask' the ancestors permission before venturing into the Mountains as these Mountains are not only a source of food, shelter and health, but are revered and respected at all times. (Communication with Col. Sterling, Moore Town Maroons May 31, 2013).

The expressions of Maroon culture through music and dance is a fundamental art form that has preserved and sustained Maroon heritage especially in the context of their connection to the spirit domain of their ancestors. These expressions are used to invoke ancestral spirits for guidance, blessing and protection or simply celebrating feats over egregious forces.

As the Maroons adhere firmly to the veneration of the ancestors buried to these mountains, they as a part of the ritual engage in libation (spraying from the mouth white rum) which is considered feeding the ancestors and declaring in kromanti as they cross over trails and

sites, rivers, streams, their intent to do no harm (pers communication Maroon guide October 22, 2013)

### *Traditional Musical Instruments*

The Abeng was and still is one of the Maroon's most prominent musical and linguistic instruments (Figure showing the Abeng). It is usually made from a cow's horn and is built to produce a range of specific and particular sounds. Historically, the Abeng was used as a means of communication, transmitting important messages through the remote settlements of the mountains. Today it has a prominent role in religious ceremonies, and used to communicate with the ancestors. The use of the Kromanti drums or akete drums

are another important cultural item still used extensively today. The drums are made using a hollowed out tree trunk with goatskin tightly drawn over one end. "Twine" or rope made from the bark of the trumpet or the Mahoe tree is used to keep the goatskin in place, and wooden wedges regulate its degree of tautness. Maroon drums are often used in pairs, a big drum referred to as the "long" drum and a smaller drum as the "cutter". They are played with the palm and the fingers and both are played simultaneously.

### *Traditional Food Preparation*

The preparation of food, namely bussu soup, janga, jerk pork and even the methods of hunting and gathering these sources of protein are part of what makes the

maroon culture thrive today within the Blue and John Crow Mountains. Bev Carey in her book the Maroon Story ably describes the international reach of this Jamaican dish which emerged from the cuisine of the Windward Maroons. She indicated that 'Jerked Pork (jerk pork) cuisine has for centuries been associated with the Maroons of Jamaica. During the last ten years the highly seasoned dish spread from the Parish of Portland to other



*"Moore Town Maroons perform using traditional drums"*  
Photo By: Moore Town Maroons

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Parishes of Jamaica, and has now found a place at the table of international cuisine' ( B. Carey 2012, pg 66)

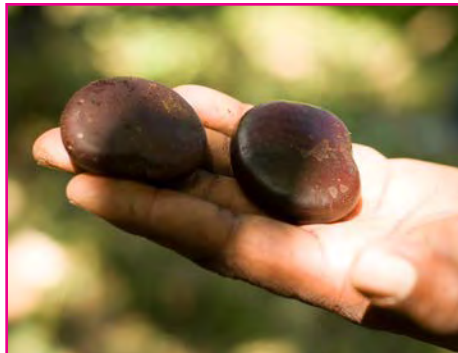
Jerk cooking and seasoning has firmly established a place in and inspired global culinary art, and iterations can be found at restaurants almost anywhere in the United Kingdom, United States and Canada. While the traditional method of cooking jerk cuisine has diversified, the principal seasoning ingredients remain central, it includes a combination of peppers, pimento, thyme, spices, garlic and onions. Ingredient manipulation has led to a plethora of by-products such as jerk sauce, jerk barbeque sauce, jerk tomato ketchup and has become a multimillion dollar business for some manufacturers. Whether in liquid or powdered form, jerk seasoning is now marketed and sold internationally as a unique Jamaican product - Maroons' contribution to international cuisine.

The unique cultural traditions that developed as a result of the contact between the Tainos and the Maroons as well as confinement within the Mountains caused by the increasing incursions of the British into Maroon territory, have been transmitted to present day Maroons who continue to display these traditions in their use of the natural environment and their religious and cultural practices.

There are other dishes that are not found outside Eastern Maroon communities. One such is Cacaoon (kakoon) soup or stew. This dish is made from the bean of the Cacaoon (kakoon) vine (*Entanda gigas*), a legume common in the forests of the Blue Mountains. The bean, when burnt, pounded and cut into strips can be served with janga a fresh water shrimp..



*"Traditional Jerking techniques"*  
Photo By: Charles Town Maroons



*"Cacaoon seeds"*  
Photo By: M. Morgan



*"Entanda gigas (cacaoon) busso soup"*  
Photo By: M. Morgan

Other Maroon dishes include those made using the thatch palm and the bussu – a freshwater snail reputed by the Maroon community to have aphrodisiac properties.

### *Traditional Use of Herbs*

The Maroon community has developed over the centuries the knowledge of using herbs for medicinal and household purposes Elements of Maroon traditional medicine that are unique to the community include Other plants used for medicinal purposes include Broomweed (*Sida acuta*); Bully Tree (*Bumelia niger*); Tea Bush (*Ocimum gratissimum*); Ashes Bush (*Tetrazygla pollens*); Bitter wood (*Alchornea latifolia*); Congo Mahoe (*Hibiscus clypeatus*); Cow Foot (*Pothomorphe umbellate*) and Chew Stick (*Gouania lupuloides*).

*(ix) 'be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;*

Geological research has concluded that Jamaica was never connected to any continental landmass (Mitchell, 2006). It is also thought that during the uplift of the island in the mid-Miocene, the eastern block consisting of the Blue and John Crow Mountains was separated from the rest of the island before the emergence of the Wag Water trough. Therefore, the terrestrial and aquatic biology of the Blue and John Crow Mountains provides an outstanding example of community differentiation, subsequent genetic divergence and speciation within a relatively small locale of an island system.



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Isolation, differences in geology, elevation and climatic factors have led to a high level of diversity in habitats within the various ecosystems resulting in high biological diversity, very high endemism in numerous taxa and a large number of species with highly restricted distributions. The processes that gave rise to the diversity and high endemism continue; for example, the daily and seasonal movement of various species in response to changes in the environment, availability of resources, seasons, life cycle stages, and the interaction between pollinators and plant species. Additionally, those species (e.g. snails, freshwater crabs) with limited powers of dispersal remain isolated, so the area continues to be important to evolution of many forest and freshwater species. Consequently, it has been suggested that each river system in the mountains should be protected as it is likely that the crabs within each river are unique (Schubart et al 1998). The site will continue to be of interest to researchers the world over. For example, it was recently observed that amphibians of the Blue Mountains show morphological differences to those of the John Crow Mountains; further research may lead to interesting conclusions.

Genetic studies showed that the red-billed and black-billed streamer-tailed hummingbirds, once thought to be sub-species are in fact two different species. The black-billed streamertail (*Trochilus scitilus*) is found only in the eastern part of the island including the BJCM whilst the red-billed (*Trochilus polytmus*) is common throughout the island, except in the east. A 2004 study carried out in Eastern Jamaica found 'morphological evidence of hybridization' between these two



*"Jokoto - Traditional medicinal plant"*  
Photo By: A. Comrie

*One of only six irreplaceable protected areas for biodiversity conservation of global significance, in the Caribbean (Bertzky et. al., 2013)*



*"Cow foot"*  
Photo By: A. Comrie

species (Graves, 2004). Bill-colour was the principal morphological means of identifying these hybrids, they were found to have blackish bills with faint traces of red or with the upper bill one colour and the lower another. The observation points for the study were mainly located in the Rio Grande Valley and the precise composition of the population within the park is yet unknown. Evolutionary and ecological studies of the Jamaican Streamer-tailed hummingbirds could answer many questions about species differentiation in isolated island systems.

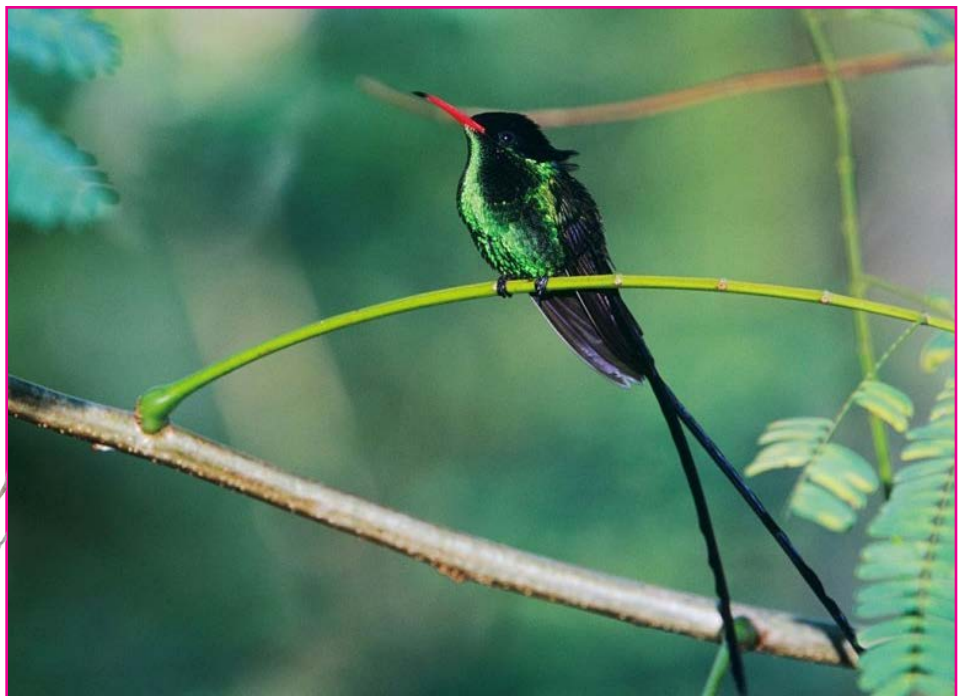
The scientific importance of the Blue and John Crow Mountains flora and fauna to the study of the biology, ecology and evolution of terrestrial and freshwater ecosystems and communities, is shown by past research and the current presence of unusual species, such as the Onychophora and endemic animals and plants. The Onychophora are well represented in Jamaica and found in the nominated site. Many plants and animals found in the nominated site, have been the subject of studies of species radiation, competition and habitat partitioning. The Anolis lizards featured in a study of convergent and divergent evolution conducted by Jonathon Losos et al. and the results were included in a November 2004 National Geographic article written by David Quammen. The researchers concluded that among the Anolis lizards of Jamaica and three other Caribbean islands, natural selection favours large ecological divergence between closely related species on the same island, which counters the effects of niche conservatism. As a result, the twig-Anoles of Jamaica more closely resemble those in Puerto Rico, Hispaniola and Cuba than they do other Anoles (more phylogeneti-

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cally related species) found in Jamaica. The nominated property as an internationally important biological environment is shown by the abundant publications on the flora and fauna. Similarly, there exist sizeable stocks of flora and fauna of the Blue and John Crow Mountains in herbaria, botanical gardens and natural history museums in Europe and North America; some having been collected from as early as the 17th century. For example, the British Museum indicates that Sir Hans Sloane started his collections in Jamaica in 1687. The Sloane collections founded the British Museum and many of his specimens are still there. Later, other naturalists such as Philip Henry Gosse and David Lack carried out research in the Mountain ranges, the latter shedding considerable light on the role of islands in speciation. In light of this, it would not be unreasonable to say that the area has contributed significantly to the development and expansion of knowledge of biological science (Senior 1983, Sinha 1972).



*"Black-billed streamer tailed hummingbird"*  
Photo By: R. Miller



*"Red-billed streamer tailed hummingbird"*  
Photo By: R. Miller



*"Anolis reconditus"*  
Photo By: S. Blair Hedges

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*(x) 'contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.'*

The Caribbean Islands are recognised as one of the 34 biodiversity hotspots in the world (Mittermeier et. al. 2004) and in the initial definition of these biodiversity hotspots, were ranked as the fifth in terms of five major biodiversity factors (Myers et. al., 2000). The Ecosystem Profile for the Caribbean Islands Biodiversity Hotspot produced for the Critical Ecosystem Partnership Fund identifies the Blue and John Crow Mountains as a wholly irreplaceable Key Biodiversity Area (BirdLife International, 2010). Most recently, the IUCN-WCMC Gap Analysis for Terrestrial Biodiversity and World Heritage (Bertzky et. al., 2013) lists the Blue and John Crow Mountains as one of six protected areas in the Caribbean which are irreplaceable for their contribution to global terrestrial species conservation. The forests of the nominated property and its buffer zone are noted for their global value, representing the best of the Caribbean Moist Forest Eco-region. In 1995, Dinerstein et. al. recognised the regional significance of the Blue and John Crow Mountains, describing the Jamaican moist forest eco-region as endangered, regionally outstanding and worthy of the highest regional priority for conservation. Confirmation of the global significance of this area came in 1997 when it was included on the WWF-IUCN's list of Globally Important Sites for Conservation of Plant Biological Diversity.

The Blue and John Crow Mountains contain biodiversity of Global importance of two main types; endemic species (of numerous taxa of plants and animals) and rare neotropical migrant birds. Endemics include Jamaican endemics whose population range includes the site as well as other parts of Jamaica such as the Jamaican Giant swallowtail, as well as species totally confined to the site or sections of it. For several rare migrant bird species, the nominated site provides important overwintering spots.

Areas within the nominated area and its buffer zone are both biologically unique in Jamaica and significant at the regional and global level. This uniqueness is related to the fact that the nominated site contains the highest rainfall in the island as well as the highest elevation in the island, and the second highest mountain range in the Caribbean. Additionally, while the majority of Jamaica is limestone, the high altitude peaks in the Blue Mountains are composed of a complex mixture of rocks, with limestone being an extremely small component. Hence, the park contains the only high altitude tropical rainforest over volcanic soils in Jamaica. The area represents the largest remaining tract of natural forest in Jamaica and one of the largest in the insular Caribbean. Additionally, the lower montane rainforest over limestone found in the John Crow Mountains is the last remaining forest of this type in the island.

Also of significance is the occurrence of highly specialised habitats and unique areas that are found only within a small locale. The Mor Forest, a small area on the eastern slopes of the John Crow Peak is an example of this, as well as the

high altitude montane summit savannah confined to a small area on the north side of High Peak in the Blue Mountains. The presence of these features together with the unique climatic condition of the area produces many habitat types in the park that are to be found nowhere else on the island or in the world. Many of the endemic species are restricted to these specialised areas. For example, the endangered tree *Laplacea villosa* is found only in Mor forest.

### *Flora*

Several studies of the flora of the Blue and John Crow Mountains have been done, and the results of preliminary studies are impressive, and place the area, though small in size, on par with any national park in the world with high floral diversity. The number of flowering plant species collected from the park has so far exceeds 1160. About 33% of Jamaica's endemic flowering plants occur in these mountain ranges, with 33% of the endemic flowering plants in the nominated property being restricted in their entire global range to this area (Iremonger, 1993). Genera well represented by endemic species in the flora of the site are *Pilea* (12 spp.), *Lepanthes* (12 spp.), *Psychotria* (12 spp.) and *Eugenia* (11 spp.). The Blue Mountains contain about 50% of Jamaica's 530 ferns; of these, 21 species are endemic to the Blue Mountains, including 80% of species in the genus *Grammitis*. Threatened Red listed Jamaican trees found in the site include *Eugenia kellyana* (CR), *Psychotria danceri* (CR), *Schefflera stearnii* (EN) and *Miconia pseudorigida* (EN).+

The forest communities of the highest reaches of the John Crow Mountain have the highest rate of endemism on the island, where over half of the plant species

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are endemic (Muchoney et al, 1994). Many higher and lower endemic plants are threatened or vulnerable and it is impossible to overemphasise the importance of the area as a refugium for these species. For example, 106 of the 281 taxa of Jamaican trees listed on the IUCN Red List as threatened or near threatened

are found in the nominated site. The plant *Wrecklea flavovirens* thought to be extinct when its last known population had disappeared was rediscovered in the BJCMNP during a rapid ecological assessment, conducted in 1992.

A recent inventory conducted for prepa-

ration of this dossier of the herbarium collections at the University of the West Indies and The Institute of Jamaica along with the field notebooks of Nathaniel Britton (courtesy New York Botanical Garden Archives) gave the following census for the flora of the Blue and John Crow Mountains.

TAXONOMIC GROUP	LOCATION			TOTAL NUMBER
	BLUE MOUNTAINS	BLUE AND JOHN CROW MOUNTAINS	JOHN CROW MOUNTAINS	
DICOTYLEDONS	645	27	193	865
MONOCOTYLEDONS	230	40	27	297
GYMNOSPERMS	13	0	0	13
FERNS	163	14	83	260
LICHENS	11	0	0	11
LIVERWORTS/MOSSES	43	20	27	90
TOTAL	1,105	101	330	1,536

### *Fauna*

Within the nominated site there are endemic species in several groups of fauna. 90% of Jamaica's 562 terrestrial molluscs are endemic and forest habitats are very important for their survival. The naturally occurring frogs are all endemic, 11 species are found in the Blue Mountains and the range of five of these species is restricted to the mountains. The Jamaican lizards of the genus *Anolis* are also endemic and *A. reconditus* is restricted to the Blue Mountains.

There is a remarkable diversity of invertebrates in the proposed site, ranging from terrestrial and aquatic insects, snails and crabs. High levels of endemism are found among several insect families. Several Jamaican endemic snail species are found in the site; many of them have highly restricted small geographic ranges and the percentage of undescribed snail species appears from preliminary indications to

be high. A study conducted in a small area of the park (the Blue Mountain Peak) revealed that 60% of the snails collected were not yet known to science.

In addition, the Blue and John Crow Mountains is one of only two remaining habitats for the endangered (2007 IUCN Red List) Giant Swallowtail butterfly, the second largest butterfly in the Western Hemisphere. This butterfly is considered to be at high risk for extinction and is listed in Appendix I of CITES.

The avifauna of the site proposed for inscription is rich and varied. The nominated site is the largest intact wintering habitat for migratory birds in the insular Caribbean (Haynes et al, 1989), and hosts migratory birds during the winter season of both the Northern and Southern Hemisphere. A total of 220 migrant and resident bird species occur in the BJCMNP. The nominated site is used by

migrant species from South America, such as the Petchary (*Tyrannus domenicensis domenicensis*). Other migratory species include the rare Bicknell's Thrush (*Catharus bicknelli*), with only about 4,000 known to occur in Canada. Many of these birds like the Black throated Blue Warbler (*Dendroica caerulescens*) spend extended periods in the area only returning to the North in the spring to breed. Other winter migrants include Swainson's Warbler (*Limnithlypis swainsonii*) whose dramatic decline in some areas in North America is believed to be related to the degradation of natural tropical forests. North American species include the Black and White Warbler (*Mniotilta varia*), Ovenbird (*Seiurus aurocapillus*), the Common Yellow Throat Warbler (*Geothlypis rostrata*) and the American Redstart (*Setophaga ruticilla*). The forests are also important for the seasonal migration of native species (such as Columbidae) that move between the mountains and the coast.

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

The site is an important refuge for breeding populations of 30 endemic terrestrial bird species, some of which are declining. These include Jamaican Tody (*Todus todus*), Crested Quail Dove (*Geotrygon versicolor*), White-chinned Thrush (*Turdus jamaicensis*), Jamaican Becard (*Pachyrhamphus niger*), Jamaican Woodpecker (*Melanerpes radiolatus*), and Blue Mountain Vireo (*Vireo osburni*). Other common resident birds include Rufous-tailed flycatcher (*Myiarchus validus*), and the Jamaican Vireo (*Vireo modestus*). The population of eight of the endemic species has been declining throughout the island and the Blue and John Crow Mountains is becoming an increasingly critical habitat for them. This includes the most threatened bird on the island – the Jamaican Blackbird (*Nesopsar nigerrimus*). Analysis of bird distribution data demonstrated that endemics were much more prevalent in areas covered by forests than in converted areas such as coffee plantations (Vogel, 2004).

The Bat fauna of the Blue and John Crow Mountains National Park is not well studied. Leach’s Long-tongued bat (*Monophyllus redmani redmani*) an endemic subspecies, the Buffy Flower Bat (*Erophylla sezekorni syops*) and two endemic bat species; the Jamaican fig eating bat (*Ariteus flavescens*) and the Jamaican Brown Bat (*Eptesicus lynni*) occur in the two watersheds.

The Blue and John Crow Mountains is an important habitat for Jamaica’s only remaining non-volant endemic mammal – the Jamaican Hutia (*Geocapromys brownii*). Once common throughout forested areas of the island, the population of this mammal has contracted dramatically as a result of habitat destruction and hunting pressure. The animal is now increasingly restricted to areas within the nominated site.

The Jamaica Boa (*Epicrates subflavus*) which is listed as ‘vulnerable’ on the

IUCN’s Red List, is found in the Park, as are lizards such as the endemic *Anolis reconditus* and a species of the genus *Sphaerodactylus* believed to be restricted to the Blue and Port Royal Mountains.

Jamaica has 22 species of native frogs, all of which are endemic. The IUCN website indicates that 81% of its frogs being endangered or extinct (compared to 92% of frogs in Haiti and 83.3% of frogs in the Dominican Republic). The frogs found in two genera *Eleutherodactylus*, and *Osteopilus*. Eleven of the 21 species of endemic frogs are found in the Blue and John Crow Mountains, and five occur nowhere else. Most of the local endemics are endangered or vulnerable with *E. orcutti* and *E. alticola* found to be critically endangered and in the case of *E. orcutti*, feared extinct.

Table 2. Occurrence of species of frogs in the Blue and John Crow Mountains

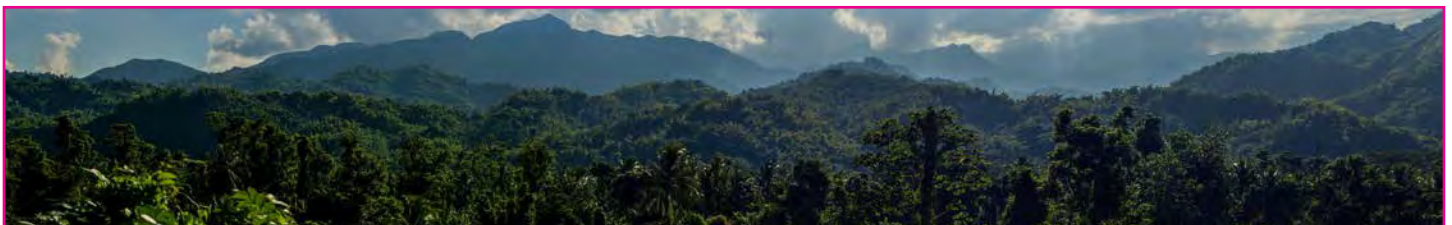
### John Crow Mountains

*Eleutherodactylus andrewsi*  
*Eleutherodactylus glaucoreius*  
*Eleutherodactylus gossei*  
*Eleutherodactylus jamaicensis*  
*Eleutherodactylus orcutti*  
*Eleutherodactylus pentasyringos*  
*Osteopilus brunneus*  
*Osteopilus wilderi*

\* *E. orcutti* is presumed to be extinct as it has not been sighted recently

### Blue Mountains

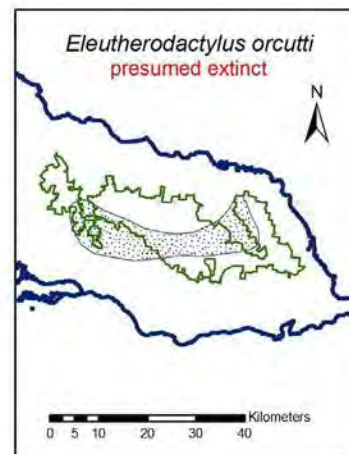
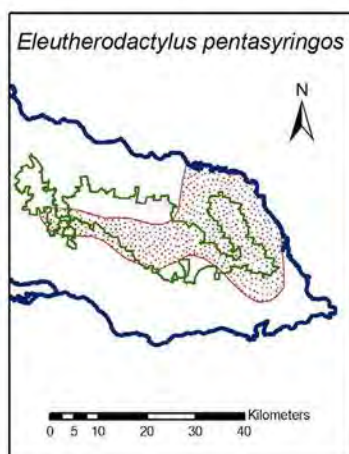
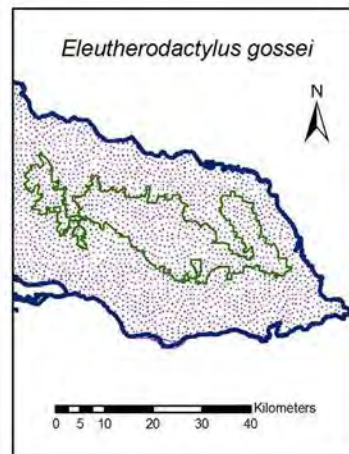
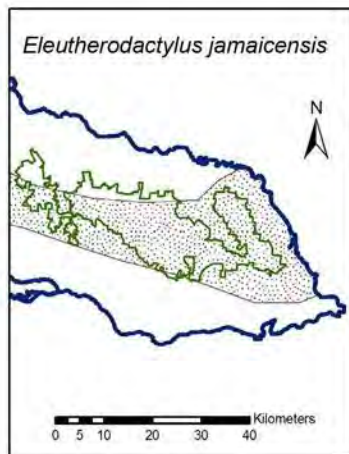
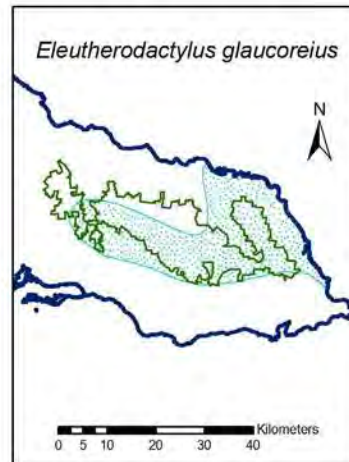
*Eleutherodactylus alticola*  
*Eleutherodactylus andrewsi*  
*Eleutherodactylus gossei*  
*Eleutherodactylus jamaicensis*  
*Eleutherodactylus orcutti*  
*Eleutherodactylus nubicola*  
*Osteopilus brunneus*  
*Osteopilus wilderi*



## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

Maps showing distribution of *Eleutherodactylus* species in and around BJCM

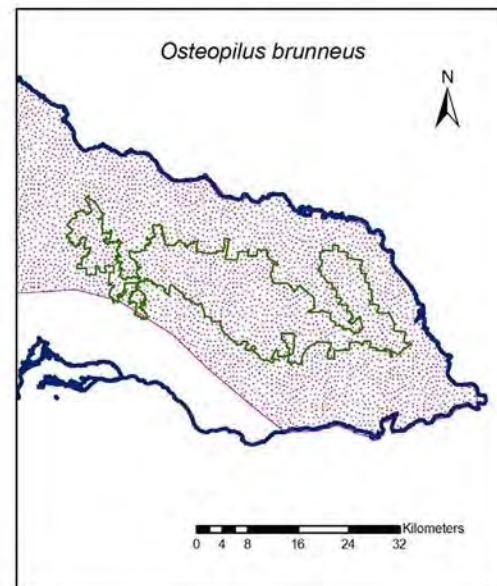
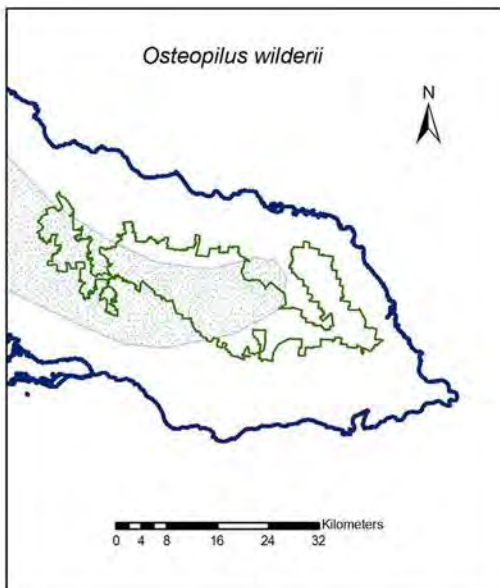
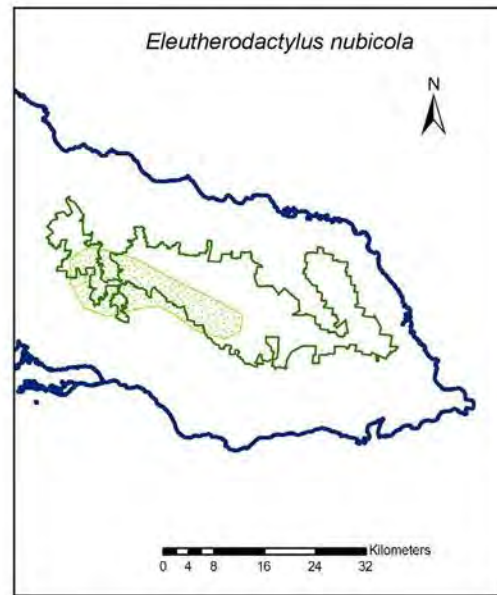
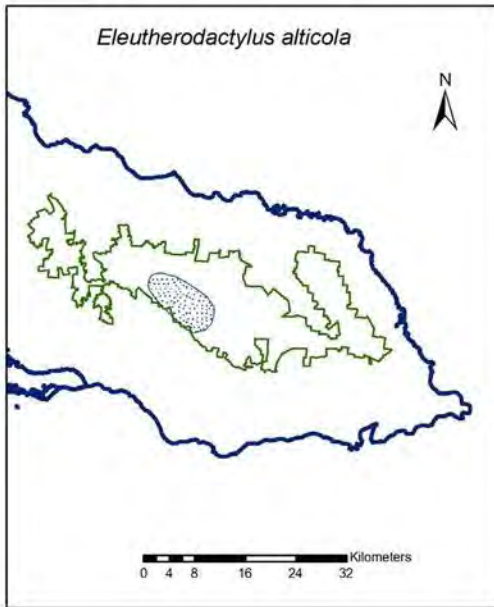
### AMPHIBIAN DISTRIBUTION MAPS



Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

Maps showing distribution of Eleutherodactylus and Osteopilus species in and around BJCM

AMPHIBIAN DISTRIBUTION MAPS



## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

The IUCN Red List includes 327 plants and 467 animals found in the Blue Mountains. Many of the significant habitats and species in the Blue and John Crow Mountains have been protected and conserved in part because of the rugged and hostile terrain. This made the area generally inaccessible and therefore subjected to less degradation by European colonizers.

In addition, the early inhabitants, the Maroons, valued and lived in harmony with their natural surroundings. This protected the high biodiversity and rate of endemism among the flora and fauna of the site and accentuates the importance of the site from the point of view of science and conservation. Plants and animals species that exist outside the site

in fragmented populations are conserved within the site in natural conditions and in less fragmented habitats. Within the site they are as free from human interference as possible within the island. This allows for long-term conservation of Jamaica's natural heritage and also provides excellent research opportunities not assured elsewhere.





## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

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### *3.1.c Statement of Integrity*

Covering 26,251.60 ha, the nominated area and its buffer zone are of adequate size and encompass all the natural and cultural values that form the basis for the claim of Outstanding Universal Value of the Cultural and Natural Heritage Blue and John Crow Mountains.

Scientific research has verified the nominated area as being a critically important and invaluable habitat for significant ongoing ecological and biological processes in the evolution and development of terrestrial and freshwater ecosystems, and within the boundaries of the site, supports a high level of species endemism in terrestrial and freshwater flora and fauna.

Archeological deposits are primary, and remain in situ, and the most sacred sites are protected deep within the forested core, with limited accessibility. The inaccessibility of the property and its early protected status and management has resulted in a property that is generally free from adverse human impacts, with a very good state of conservation. Consultations with local Maroon communities as well as ongoing field assessments have ensured that the sites are preserved for future scholarship. The present status of the sites has revealed a considerable amount of data which has been included within the boundaries of the site and/or its buffer zone. Policies, monitoring and activities have been implemented to continue the protection and documentation of the site in cooperation with local communities.

The Government of Jamaica in displaying its commitment to preserving the integrity of the site has continued with the implementation and enforcement of various legal measures to protect the site's natural and cultural components. The nominated property and the buffer zone have been designated as Protected National Heritage under the Jamaica National Heritage Trust Act (1985). The natural heritage of the Blue and John Crow Mountains is recognized as a Forest Reserve under the Forest Act (1996) and a Protected Area under the National Resource Conservation Authority Act (1991). The nominated property also benefits from a management system which factors both natural and cultural components of the property.

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

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### *3.1.d Statement of Authenticity*

The cultural and natural heritage comprising the nominated property has demonstrated a high degree of authenticity. In terms of location and setting, the Blue and John Crow Mountains is the original location and setting of the Maroon wars that resulted in the signing of the Treaty between the Maroons and the British colonial powers, which paved the way for the creation of an autonomous Maroon state. It is a place of resistance and refuge for the Windward Maroons who defended their freedom and developed their distinctive culture within this environment, and continues to do so today in a sustainable way with the natural environment. The established cultural heritage route with its historic trails, rivers, waterfalls, caves and sacred Maroon sites such as Nanny Town, continue to be used and venerated today. These sites have retained their original alignment, name and place over the past five hundred years. The communal lands have remained in the hands of the Maroons, and are maintained and administered by the traditional Maroon Council.

In terms of spirit and feeling, the mountains and the various sites such as waterfalls, caves etc. continue to be spiritually entwined in the belief system of the Maroons, who are strongly connected to the spirits of their ancestors, who are believed to remain in the immediate surroundings. Archeological sites such as Nanny Town, central to the defensive network of trails and settlements, retain its historical and spiritual values to the Maroons as it did in the past and is now a global pilgrimage site for the African Diaspora. The network of secret trails, although no longer being used for resistance purposes, continues to function as trails used by the Windward Maroons to connect them with other Maroon communities and the remainder of the island.

The wealth of documentary and archaeological evidence, oral histories, and stories relating to the Windward Maroons and the Blue and John Crow Mountains, serve to confirm the authenticity of this heritage, its context and importance as Outstanding Universal Value.

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

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### *3.1.e Protection and Management Requirements*

The nominated property and its associated natural and cultural assets is located in the core of the Blue and John Crow Mountain National Park (BJCMNP).

The cultural and natural heritage assets of the nominated property Blue and John Crow Mountains are located in the core of the Blue and John Crow Mountains National Park (BJCMNP). It is protected by three main pieces of legislation by three different government agencies. These three main laws also protect the buffer zone area where some maroon settlements and trails are located. The government agencies responsible for the implementation and regulation of these laws are as follows:

- **Jamaica National Heritage Trust (JNHT) - The Jamaica National Heritage Trust Act (1985)**
- **Natural Resources Conservation Authority (NRCA) - Natural Resources Conservation Authority Act (1991)**
- **Forestry Department - The Forest Act (1996)**

One of the primary functions of the JNHT is to promote the preservation of national monuments and anything designated as “protected national heritage for the ‘benefit of present and future generation the island. The JNHT Act (1985) therefore, protects all cultural heritage resources such as the Maroon settlements and trails within the nominated property and the buffer zone.

NRCA is responsible for the management, conservation and protection of the natural resources of the Jamaica through its agent, the National Environment and Planning Agency (NEPA). NEPA has delegated management authority in the form of an agreement since 1996, for the BJCMNP to the Jamaica Conservation and Development Trust (JCDDT), a non-government organization. Under the NRCA Act (1991), the NRCA is mandated to take such steps as are necessary for the effective management, conservation, protection of the highly endemic flora and fauna habitats that supports ongoing evolution of species of outstanding natural heritage within the Blue and John Crow Mountains.

The Forestry Department has designated the area of around the nominated property as well as some areas of the buffer zone as Forest Reserve under the Forest Act (1996). As such, the Forestry Department is responsible for the sustainable management of forests in the forest reserves and the effective conservation of those forests.

Traditional management of the cultural and natural heritage of the Blue and John Crow Mountains is also carried out by the Maroon councils and their communities. The Maroon councils sit on the Advisory Management Co-management and Maroon Heritage Committees of the BJCMNP.

This collaborative approach is facilitated by the cooperation between the government agencies, JCDDT and the Maroon councils through, a co-management agreement and committee. The nominated site is protected and managed by an extensive management plan and preservation scheme. The Management Plan (2011 – 2016) is currently active and is being implemented based on annual work plans which are submitted to NEPA and reported on bi-monthly and annually. The JNHT Preservation Scheme dictates the levels of interaction with the nominated site, thus ensuring the protection and preservation as well as the enforcement, surveillance, and monitoring of the highly endemic flora and fauna, Maroon settlements and the Nanny Town Cultural Heritage Route.

## 3.2 Comparative Analysis

Marronage, from the Spanish word “Cimarron”, is a phenomenon that began in Jamaica in the western hemisphere following the European colonization there after 1492. Marronage was firstly the act of resistance of the indigenous Aboriginial people to enslavement. Three types of Marronage have been identified (1) Urban, (2) Petit, and (3) Grande.

Urban Marronage consisted of fleeing to a densely populated urban area and passing oneself of as a free person. Often the Maroon would become attached to a master tradesman or artisan or hire themselves out as a job worker.

Petit Marronage or that type of flight was temporary in nature and motivated by the persons desire to see a relative or lover on a separate estate, or the need of the enslaved population to bury their dead.

Grande Marronage was of a different order and magnitude. The individuals who fled did so with the conscious desire to achieve their freedom and had no intention of returning to the enslavement of the estates. As a result they banded together to create independent communities of their own in the wilderness.

In Jamaica, typical Grande Marronage communities came to be composed largely of Africans who were literally just off the ships, persons destined to take up agricultural labour on the plantation, and generally the least acculturated of the enslaved people. The Maroons of the Blue and John Crow Mountains are the classical representation and prototype of Grande Marronage. There were two types of Maroons in Jamaica, the ‘Windward’ Maroons of the Blue and John Crow

Mountains, and the ‘Leeward’ Maroons of The Cockpit Country who used the natural environment as their defensive mechanism. By comparison, the site of the Windward Maroons being nominated as the Nanny Town Cultural Heritage Route carries more significance

The Blue and John Crow Mountains property stands out universally from other properties in its national and international significance, and helps to fill thematic gaps on the World Heritage List, as well as the imbalance of sites with associative values as follows:

*1) There are few properties that have been nominated on the World Heritage List, or are on this Tentative List in the mixed category, and only two mixed sites are in the Latin American and Caribbean (LAC) region and none in the Caribbean subregion;*

*2) It would help to re-dress the general imbalance of sites from the Caribbean subregion;*

*3) The site falls in the ambit of Small Island Developing States (SIDS), also under-represented on the World Heritage List;*

*4) It falls inside the thematic group of Sites of Memory directly related to the transatlantic slave trade and plantation enslavement, of significance to the wider international community as a pilgrimage and sacred site to the resistance movement for freedom;*

*5) There is no other Maroon example of early struggles of enslaved people resulting in the creation of a parallel State alongside the English colonial state, where*

*this dual sovereignty has survived in continuous existence today;*

*6) The property falls within natural heritage of seventy-eight most irreplaceable protected areas (sites or clusters) of biodiversity for the conservation of the world’s amphibian, bird and mammal species;*

*7) Its geological origin verifies a 100 million years history of the development of the Caribbean Tectonic Plate, where the oldest rocks are found inside the Blue Mountain Inlier in the Blue Mountain Block, critical to understanding the evolution of the Caribbean region;*

*8) The property contains the best record of this part of geological time within the tropical Americas, where the first location in the Greater Antilles containing abundant fossils of rudist bivalves (an extinct type of tropical clam), including the bizarre *Barrettia monilifera* fossils were found and recognised as the Type Locality;*

*9) Limestones in the property contain the best record of this part of geological time within the tropical Americas.*

The cultural heritage component fills gaps as:

*a) Archaeological sites in the form of settlements, secret trails, burials, and sacred sites;*

*b) Defensive systems using the natural environment;*

*c) Cultural routes, an evolving special category, and would be its first proposed nomination from the Caribbean subregion that would also add a new dimension to this category with a definition such as*

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*'a route comprising defensive mountain trails' (ICOMOS 2004, 80).*

*d) Caribbean cultures related to Aboriginal and enslaved peoples, colonisation, Colonial Period, also development of independent states until World War I as outlined in (ICOMOS 2004, 75).*

*e) Intangible associated value with:*

Gender and heritage through the universal value of the English war in the first quarter of the eighteenth century against the Maroons who were led by a woman, Nanny, Queen of the Maroons that resulted in Maroon sovereignty on June 23, 1739;

The 2003 inscription of the culture of this Maroon community pro-

claimed as a UNESCO Masterpiece of the Oral and Intangible Heritage.

Sustainable community management of its natural environment as an interconnected part of Maroon lifestyle aiding the retention of the endemism of the property as significant outstanding universal value.

COMPARISON OF THE MAROON COMMUNITIES OF JAMAICA IN BOTH THE BLUE AND JOHN CROW MOUNTAINS & THE COCKPIT COUNTRY		
	THE WINDWARD MAROONS BLUE & JOHN CROW MOUNTAINS	THE LEEWARD MAROONS THE COCKPIT COUNTRY
Settlements	34 Maroon settlements identified including Nanny Town, Moore Town, Gays Town, Pumpkin Hill, Crawford Town, etc.	3 Maroon settlements identified Trelawney Town / Cudjoe Town, Accompong, Furry Town
Resistance	Rugged terrain, rivers, caves, forest lands, and trails	Undulating terrain, caves, forest lands, and trails
Sovereignty	Treaty June 23, 1739	Treaty March 1, 1738
Geology	Blue Mountains: volcanic and metamorphic in origin (including the oldest formations in the island) John Crow Mountains: sedimentary in origin with limestone substratum	Sedimentary in origin with limestone substratum
Altitude	Summit of Middle Peak 380-2,256m (Blue Mountain Peak); Blue Mountains: 1,220-2,256m; John Crow Mountains: 380-1143m	300-746 m.
Annual temperatures	19.5°C	24°C
Rainfall	2,000 – 6,250mm/year	1,250 – 2,750mm/year
Hydrology	Numerous fast-flowing streams	No surface run-off (rivers or streams)
Forest Reserves	41,940 ha	22,327 ha
Forest ecosystems	Montane forest ecosystems	No montane forest ecosystems present
Biodiversity	Outstanding ecosystems and species diversity of flora and fauna especially at the higher elevations that contain approx. 50% of the endemic species	Rich in diversity, however the specimen slightly smaller (Emmel and Garraway, 1990)
Boundary	National Park Boundary established	Boundary still to be finalised
Declaration	National Park declaration (only one) and Forest Reserve designation by the National Environment and Planning Agency.  Protected National Heritage declaration by the Jamaica National Heritage Trust	Forest Reserve designation by the National Environment and Planning Agency
Protection & Management	Existing delegation agreement between Government authorising body and NGO for co-management with community	No statutory management systems in place

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World Heritage properties with association to Maroon sites include the Le Morne Cultural Landscape in Mauritius inscribed in 2008 under cultural criteria (iii) (vi). This property differs from the proposed nomination as it omits mention of trails and routes. Although several others are historically associated with Maroons, they are inscribed for their natural values. These sites include Morne Trois Pitons National Park, Dominica, (1997, (viii), (x)); Río Plátano Biosphere Reserve, Honduras (1982, (vii), (viii), (ix), (x), Everglades National Park, United States of America (1979, (viii), (ix), (x), and to a much lesser extent, Alejandro de Humboldt National Park, Cuba (2001, (ix), (x) and Pitons, cirques and remparts of Reunion Island, France (2010, (vii), (x). There are no Maroon associated sites currently on the tentative list.

Most countries in the Americas had an African presence and in each resistance plans were devised and actual uprisings took place forcing the plantocracy to enter into treaty with the Maroons. Haiti, Dominican Republic, Brazil, Panama, Venezuela, Ecuador, Mexico, Colombia among others had treaties from as early as the 16th century. Many Caribbean Maroon communities were very short-lived on account of defeat by the colonial powers, and had relatively little or no impact on the development of the colonies in which they were located. However, several communities in Jamaica, Suriname, Cuba and Brazil became large and relatively permanent powerful states encompassing thousands of members and surviving for generations even centuries (Price, 1979:1).

However, the Nanny Town Treaty of 1739

occurring 44 years before the United States won its War of Independence with England in 1783, and 65 years before the 1804 Treaty with France created the independent nation of Haiti, stands apart from all other Maroon resistance, on account of its association with the female leader, Nanny Queen of the Maroons.

The Natural Heritage component fills gaps as:

*1) An outstanding biodiversity site with merit for potentially World Heritage listing listed on the IUCN- UNEP-WCMC report as helping to answer the needs in the global thematic study focusing on the terrestrial realm that identified broad gaps (Bertzky, et. al., 2013, 43);*

*2) Concentration of endemism where on the highest elevations of the BJCM, over 50% of all plant species are endemic;*

*3) Enhancement of the areas with outstanding biodiversity values in a significant geomorphological environment;*

a. The geology with its rapid uplift of the BJCM has created a spectacular and impenetrable landscape.

b. This has resulted in the preservation of extensive tracts of primary forest.

c. Its geological history and formations, have resulted in vegetation formations, ecosystems and species diversity of flora and fauna is outstanding against such places as Australia, Ecuador, Cuba and Malaysia;

d. The result is an important centre for plant biological diversity and endemism in the Caribbean where 50% endemism resides amongst the flowering plants of the upper montane forest

(above 900 – 1000m) and between 30 – 40% of these are confined to the BJCM.

e. There are approximately 106 of the 324 taxa of trees listed on the IUCN Red List as threatened or near threatened in the BJCM ranges;

f. A number of endemic plant species of global significance such as the *Wercklea flavovirens*, are recorded as very rare or rare in the database formerly maintained at the Nature Conservancy's Conservation Data Center, such as this plant rediscovered in the forest type during a rapid ecological assessment of the park in 1992.

*4) International significance as a centre for invertebrate diversity, for example,*

a. Forty-eight species of fireflies have been given taxonomic recognition in Jamaica, with forty-five species found nowhere else in the world holding a 94% rate of endemism;

b. Among the vertebrates, is an endemic of great significance, *Pterourus homerus* (previously *Papilio homerus*);

c. Several aquatic invertebrate species including the *Neritidae punctulata* locally known as "Bussu" is a freshwater gastropod of the family *Neritidae* only found in two of the rivers originating in the nominated property and nowhere else in the world. Maroons consider Bussu a delicacy. For the avifauna, the BJCM is the largest intact wintering habitat blocks for migratory birds in the insular Caribbean. One endemic species in the BJCM is Jamaica's national bird, the streamer-tail hummingbird locally called the 'Doctor Bird'.

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5) *Intangible associations and linkages with the natural heritage for example, the Giant Swallowtail Butterfly, and one of the two verified endemic larval food plants grow near the 'Corn Puss Gap' and the 'Cunha Cunha Pass' trails of the Maroons. This butterfly was first described in 1793 (Emmel and Garraway, 1990).*

### *Natural Comparison with other sites of Biodiversity in Latin America and the Caribbean, and globally*

World Wildlife Fund Classification and Global 200 List attempts to identify a set of ecoregions whose conservation would achieve the goal of saving a broad diversity of the Earth's ecosystems. These ecoregions include those with exceptional levels of biodiversity, such as high species richness or endemism, or those with unusual ecological or evolutionary phenomena. The inclusion of the Blue and John Crow Mountains by special men-

tion within the Greater Antillean Moist Forest Ecoregion as worthy of nomination because it is recognised as an important area to be conserved. If this diversity of assemblages and species were to be compromised, it would represent a significant loss of global biodiversity.

- The Blue and John Crow Mountains property is classified under Jamaican Moist Forest within the Tropical and Subtropical Moist Broadleaf Forest biome in the Neotropical Realm using the World Wildlife Fund ecoregion classification.
- The Blue and John Crow Mountains are singled out for the number of endemic vascular plants over the Alejandro de Humboldt falls within the Cuban Moist Forest biome recognizing that both forests fall within the Greater Antillean Moist Forest Global Ecoregion. The Central Suriname Forest Reserve, Suriname and the Sangay National Park, Ecuador are included on this list, also the Greater Blue Mountains, Australia; Kinabalu Park, Ma-

laysia and Tikal National Park, Guatemala. Jamaica has twenty-one native species of frogs, which are all endemic to the island. Eleven of these reside in the nominated property, of which five (*Eleutherodactylus andrewsi*, *E. orcutti*, *E. pentasyringos*, *E. alticola* and *E. nubicola*) are to be found nowhere else in Jamaica. One species lives only in bromeliad plants. *E. orcutti* lives mainly in rivers. Elevation appears to play a significant role in the distribution of frogs in the nominated property, and diversity peaks in the Blue Mountain range.

The IUCN in analysing the patterns of endemism for the number and percentage of endemic amphibians by country, presents some important patterns. It is noteworthy that the percentage of endemism shows six island countries each having 100% endemism (none of these with very diverse amphibian faunas). On this list of the twenty countries with the highest percentage of endemism, Jamaica ranks No.1.

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<b>RANK</b>	<b>COUNTRY</b>	<b>% ENDEMIC</b>
1	Jamaica	100.0
2	Seychelles	100.0
3	São Tomé and Príncipe	100.0
4	New Zealand	100.0
5	Fiji	100.0
6	Palau	100.0
7	Madagascar	99.6
8	Cuba	96.7
9	Australia	93.7
10	Sri Lanka	84.8
11	Japan	80.4
12	Philippines	79.0
13	Puerto Rico	78.9
14	Chile	70.7
15	Papua new Guinea	70.3
16	United States of America	69.9
17	Mexico	67.6
18	Brazil	66.9
19	India	66.3
20	China <sup>1</sup>	65.2

<sup>1</sup>The numbers given here for China include the provinces of Hong Kong and Macau, but do not include the province of Taiwan which is listed separately due to its geographic separation from the mainland.



## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### *3.3 Proposed Statement of Outstanding Universal Value*

The property containing the Cultural and Natural Heritage of the Blue and John Crow Mountains (CNHBJCM) is located within a Small Island Developing State (SIDS) environment, on a high elevation over 2,256 metres above sea level, with steep slopes, rugged terrain and widely varying climatic conditions. It represents one of the world's most invaluable refugia of cultural and scientific importance. Historically, this became the haven of the Maroons, indigenous Tainos and runaway enslaved Africans, who nestled themselves in the heart of the Blue and John Crow Mountains. They took advantage of this territory to establish a system of routes and world-renowned resistance, and utilized the endemic flora and fauna as an integral part of their lifestyle. In 2003, the culture of this Maroon community was proclaimed as a UNESCO Masterpiece of the Oral and Intangible Heritage. These Maroons have continued to sustain, preserve, and protect the Blue and John Crow Mountains as a diverse, highly endemic flora and fauna habitat supporting ongoing adaptive radiation and evolution of species of Outstanding natural heritage and universal significance and the mountains, in that symbiotic cycle, have in turn supported the heritage of the Maroons.

The property contains the "Nanny Town Cultural Heritage Route" (NTCHR), representing a dynamic movement for the war of liberation of enslaved people against colonial oppression within the first quarter of the 18th century that eventually led to the formation of two separate autonomous states within Jamaica - the Maroon state and the English state. It comprises a route with a number of interconnected trails and battle sites that commemorate this event between the Maroons, led by Maroon Queen Nanny and the English. This war culminated in the signing of a treaty on June 23, 1739 between the leaders of the Maroons and the English Governor honouring the sovereignty of Maroon lands. Today, this Maroon state continues to exist. The nucleus of the NTCHR is the imperial seat of this Maroon power, Nanny Town. A number of secret Maroon trails and settlements inside the physical terrain of the Blue and John Crow Mountains were

infiltrated by the English forces during the war, and the NTCHR identifies the significance of four of these as the "English Route" with a selected four, as the "Maroon Route" from the network. This war had inspired and formed the backbone of other liberation movements of enslaved people against the system of colonialism and had affected worldwide political, trading, and economic activities during the period of enslavement that eventually brought about the abolition of the 'slave trade', and the emancipation of enslaved people. The maroon experience in Jamaica was revolutionary and highly influential, as it served as the earliest example of the triumph of a Maroon society against the exploits of the British slavery system within the 18th century. The scenic beauty of the nominated property with its majestic and mist-capped mountain range is located within the Blue and John Crow Mountains National Park. This natural heritage engenders several distinct types of endemic species and habitats, with a contrasting geology of the two mountain ranges containing highly endemic flora and fauna while supporting the evolution of species, all forming an outstanding natural heritage of universal importance. This natural heritage created several distinct types of forest communities, providing critically important habitats for the continued conservation of many endangered or threatened species of global interest.

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*"The property contains the "Nanny Town Cultural Heritage Route" (NTCHR), representing a dynamic movement for the war of liberation of enslaved people against colonial oppression within the first quarter of the 18th century..."*

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## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### (b) Justification for Criteria

#### The Blue and John Crow Mountains is nominated under criteria:

##### *Criterion iii)*

The property containing the Cultural and Natural Heritage of the Blue and John Crow Mountains bears a unique and exceptional testimony to a cultural heritage route that is embodied in the archaeological sites. These sites have been identified from the oral traditions of the Maroons in this mountain range as a protective and defensive network of secret trails and settlements that were used in the war of the first quarter of the 18th century for liberation against colonial oppression. The exceptional testimony of this cultural route centers on “Nanny Town”, the imperial centre, now destroyed but which stands as an archaeological site of significance to the wider international community, and a pilgrimage Site of Memory related to the transatlantic slave trade and the resilience of freedom movement.

##### *Criterion vi)*

The property containing the Cultural and Natural Heritage of the Blue and John Crow Mountains is directly and tangibly associated with the historical events and living traditions of Nanny, Queen of the Maroons whose imperial town, Nanny Town is located in the heart of the nominated property.

The notion of freedom has dominated global political rule and Nanny as commander-in-chief and spiritual icon dominated the 18th Century as a female warrior in the liberation movement against enslavement whose influence bore global significant.

Today, the Jamaican government has designated ‘Nanny of the Maroons’ as a ‘National Hero’. Nanny Town is a major Jamaican sacred site. Its cultural heritage route is a pilgrimage for many in the global African Diaspora and the wider public internationally.

##### *Criterion ix)*

The Nominated site exhibits outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial and freshwater ecosystems and communities of plants and animals. There are several examples of endemic groups including invertebrates, amphibians, reptiles and birds which are still under-going speciation and new species are still being discovered.

##### *Criterion x)*

The wide range of habitats associated with an extensive variation in elevation, rainfall and the geological origins of the Blue and John Crow Mountains have resulted in a high degree of endemism in terrestrial and freshwater flora and fauna. The site has been listed as one of the 78 most irreplaceable protected areas for the conservation of the world’s amphibian, bird and mammal species – the only such site in Jamaica and one of only five in the Caribbean (Bertzky et. al., 2013).

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### *(c) Statement of Integrity*

Covering 26,251.60 ha, the nominated area and its buffer zone are of adequate size and encompass all the natural and cultural values that form the basis for the claim of Outstanding Universal Value of the Cultural and Natural Heritage Blue and John Crow Mountains. Scientific research has verified the nominated area as being a critically important and invaluable habitat for significant ongoing ecological and biological processes in the evolution and development of terrestrial and freshwater ecosystems, and within the boundaries of the site, supports a high level of species endemism in terrestrial and freshwater flora and fauna.

Archeological deposits are primary, and remain in situ, and the most sacred sites are protected deep within the forested core, with limited accessibility. The inaccessibility of the property and its early protected status and management has resulted in a property that is generally free from adverse human impacts, with a very good state of conservation. Consultations with local Maroon communities as well as ongoing field assessments have ensured that the sites are preserved for future scholarship. The present status of the sites has revealed a considerable amount of data which has been included within the boundaries of the site and/or its buffer zone. Policies, monitoring and activities have been implemented to continue the protection and documentation of the site in cooperation with local communities.

The Government of Jamaica in displaying its commitment to preserving the integrity of the site has continued with the implementation and enforcement of various legal measures to protect the site’s natural and cultural components. The nominated property and

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

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the buffer zone have been designated as Protected National Heritage under the Jamaica National Heritage Trust Act (1985). The natural heritage of the Blue and John Crow Mountains is recognized as a Forest Reserve under the Forest Act (1996) and a Protected Area under the National Resource Conservation Authority Act (1991). The nominated property also benefits from a management system which factors both natural and cultural components of the property.

### *(d) Statement of Authenticity*

The cultural and natural heritage comprising the nominated property has demonstrated a high degree of authenticity. In terms of location and setting, the Blue and John Crow Mountains is the original location and setting of the Maroon wars that resulted in the signing of the Treaty between the Maroons and the British colonial powers, which paved the way for the creation of an autonomous Maroon state. It is a place of resistance and refuge for the Windward Maroons who defended their freedom and developed their distinctive culture within this environment, and continues to do so today in a sustainable way with the natural environment. The established cultural heritage route with its historic trails, rivers, waterfalls, caves and sacred Maroon sites such as Nanny Town, continue to be used and venerated today. These sites have retained their original alignment, name and place over the past five hundred years. The communal

lands have remained in the hands of the Maroons, and are maintained and administered by the traditional Maroon Council.

In terms of spirit and feeling, the mountains and the various sites such as waterfalls, caves etc. continue to be spiritually entwined in the belief system of the Maroons, who are strongly connected to the spirits of their ancestors, who are believed to remain in the immediate surroundings. Archeological sites such as Nanny Town, central to the defensive network of trails and settlements, retain its historical and spiritual values to the Maroons as it did in the past and is now a global pilgrimage site for the African Diaspora. The network of secret trails, although no longer being used for resistance purposes, continues to function as trails used by the Windward Maroons to connect them with other Maroon communities and the remainder of the island.

The wealth of documentary and archaeological evidence, oral histories, and stories relating to the Windward Maroons and the Blue and John Crow Mountains, serve to confirm the authenticity of this heritage, its context and importance as Outstanding Universal Value.

### *(e) Requirements for protection and management*

The Blue and John Crow Mountains nominated property features both natural and

cultural heritage values which are governed by laws and three different government agencies. Traditional management is carried out by the Maroon councils and their interaction with stakeholders. The three main laws which protect both the nominated property and the buffer zone are:

- *The Forestry Act (1996) – Forestry Department*
- *Natural Resources Conservation Authority Act (1991) – National Environment and Planning Agency (NEPA). NEPA has delegated management authority for the BJCMNP to the Jamaica Conservation and Development Trust (JCDT), a non-government organization.*
- *The Jamaica National Heritage Trust Act (1985) – JNHT protects all cultural heritage resources within the nominated property and the buffer zone, with the establishment of a preservation scheme which dictates levels of interaction with the site.*

This requires a collaborative approach which is facilitated by cooperation between organizations through, a co management agreement and committee. The nominated site is also protected by an extensive management plan; enforcement, surveillance, and monitoring activities.

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**PART 4.**

**STATE OF CONSERVATION  
AND FACTORS AFFECTING THE  
PROPERTY**

## 4a. Present state of conservation

The nominated property has been under legal protection as a Forest Reserve since 1928 under section 3 of Law 33 of 1927 “A Law to Regulate Afforestation”. More modern protection as a Forest Reserve came in 1950 under the Forest Act of 1937. Under the NRCA Act of 1993 the site has experienced significant increases in management and conservation practices. Further protection in 2013 under the Jamaica National Heritage Trust Act has improved the monitoring and preservation of the cultural heritage within the nominated site and its buffer zone. The protection of the property is maintained and assured through detailed and thorough management plans, active management involving all stakeholders, monitoring and evaluation. The property is presently in a good state of conservation.

There are several factors which contribute to the property’s current state of conservation:

- Regular patrols are carried out by uniformed Park Rangers who raise awareness and liaise with neighboring communities and deter illegal activities within the nominated property.
- Explanations and verbal warnings are issued to persons engaging in illegal activities and reports are then made to the Forestry Department and the National Environment and Planning Agency (NEPA) for enforcement action as necessary.
- Farms which are in close proximity or bordering the nominated property are mapped. This allows the relevant agencies to monitor and deter any expansion of the farm and/or encroachment of the nominated property. On site work will be followed up by Park Rangers.
- Reforestation and Forest Rehabil-

itation Programmes focus on reforestation with native species (particularly forest species rather than species with known lumber utility) and on invasive species control.

- The active involvement of local farmers and other community members in reforestation and invasive species control programmes.

- Education and Public Involvement Programmes place emphasis on watershed management for adaptation to climate change.

- Engaging and active involvement of the Maroon communities in the management of the nominated site, and in the adoption of sustainable environment practices

- The extreme isolation of the Maroon archaeological towns and the remoteness of the area, situated within the dense covering of the forest void from heavy human population pressures, have ensured that human-based impacts have been relatively few, and the biological, historical and cultural resources of this site

are well preserved. The extreme isolation of the archaeological Maroon towns and the remoteness of the area, situated within the dense covering of the forest void from heavy human population pressures, have ensured that human-based impacts have been relatively few, and the biological, historic and cultural resources of this site are well preserved.

*“The nominated property is the core of the Blue and John Corw Mountain national park where the natural forest is most serene and majestic.”*



*“View of Mountain Peak”  
Photo By: S. Walters*

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### *Natural Heritage*

The Blue and John Crow Mountains is home to a large number of endemic and endangered species within a variety of communities and ecosystems. Conservation planning led to the identification of eight (8) Conservation Targets for focus: Montane forest on shale, Montane forest on limestone, epiphytic communities, headwater ecosystems, montane forest birds, Jamaican Coney, Jamaican Boa and the Giant Swallowtail Butterfly. The National Park's Monitoring and Evaluation Programme, as adequately covered in Chapter 11 of the Management Plan, describes active monitoring activities for some of these targets and less formal systems for others.

#### **Status of Forest ecosystems**

The nominated property contains a natural broadleaf forest which extends along the Grand Ridge of the Blue Mountains across to the John Crow Mountain range. This natural broadleaf forest was identi-

fied (?) based on the 1992 Rapid Ecological Assessment implemented under the PARC Project with technical assistance from The Nature Conservancy using satellite imagery and ground truthing. More recent satellite imagery (1998 – 2000) and helicopter flights (2008) indicate that this core of natural forest still exists and is in good condition.

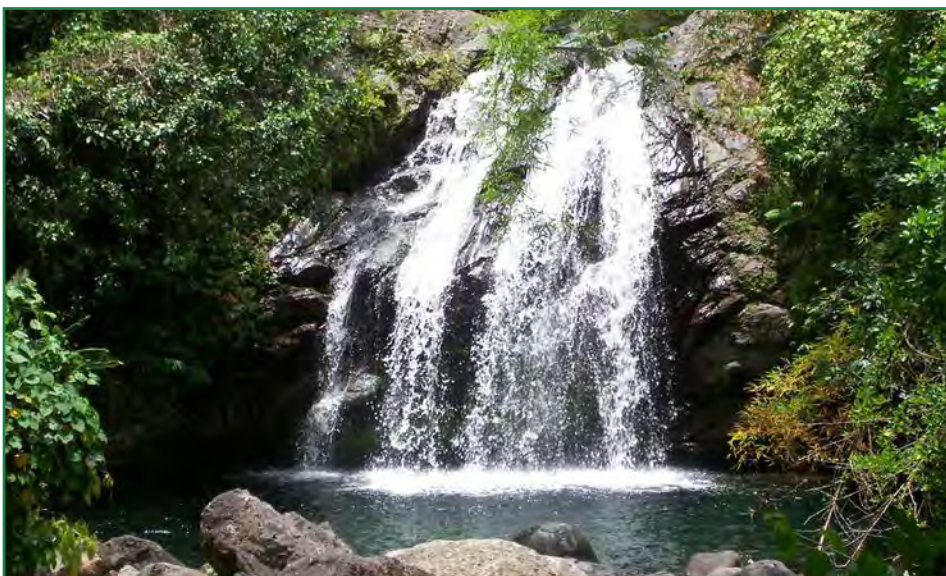
This core natural forest area forms the Preservation Zone of the National Park, which is within the nominated property as it also includes the most important Maroon sites. This core area is surrounded by a 500m Preservation Zone Buffer which encompasses all other secondary or modified forest areas. The Recovery Zone beyond this area comprises mainly degraded forest in which several priority restoration areas have been identified. These priority areas overlap with the Preservation Buffer and the focus of reforestation and forest rehabilitation work is on the areas where Preservation Buffer Zone is degraded. The Recovery Zone effectively acts as an additional buffer for the core Preservation

Zone.

The studies conducted by Chai et. al. indicate that after designation, as a National Park however, increased forest re-growth occurred, resulting in a 63% decline in the net deforestation rate from 0.80% yr-1 (1983–1992) to 0.26% yr-1 (1992–2002). Whilst concerns were expressed regarding continued forest clearance and defragmentation particularly in the lower montane forest, the nominated property contains the best preserved of both upper and lower montane forest on limestone and shale. Further, Park management approaches have diversified and increased in effectiveness (with greater involvement of the relevant agencies) and further decreases in net deforestation post-2002 should now be evident. The Forestry Department is currently conducting analysis based on the 2012/13 IKONOS satellite imagery through a European Union Climate Change Adaptation and Disaster Risk Reduction Project. The field component was completed in September 2013. Analysis of the data is currently being carried out with a completion date in 2014. (pers. comm.. Donna Lowe and Marlon Beale, Forestry Department).

#### **Status of Bird Populations**

28 of the island's 31 endemic bird species and sub-species are found within the Blue and John Crow Mountains and in surrounding areas. In addition, there are numerous other resident and migratory species. The property is especially important for several endemic and moist forest dependent species including the endangered Jamaican Blackbird (*Nesopsar nigerimus*). Regular bird monitoring by Park management started in 2000 and analysis of the 2000 – 2004 data indicated no apparent changes in distribution nor did it



"Silver Hill Falls"  
Photo By: JCDT

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raise any concerns regarding the presence or absence of any species (Vogel, 2004). Based on this analysis, monitoring was increased in coverage and now follows a five year cycle. Thus comparisons with the same sites can be made every five years starting from 2004/5, that is, by 2014. Research has shown that the presence of good forest habitats of sufficient size and elevation coverage will secure bird habitats and populations, and management of the nominated property focuses on protecting the forest ecosystem. Preliminary results indicate good status of the bird populations – both resident and migratory.

### Status of Fresh-water macro-invertebrates

Monitoring of macro-invertebrates within headwater streams started in 2005/6 and there have been no significant changes in species seen in subsequent years. There are clear differences between species present in freshwater ecosystems within the unpolluted water in the protected area and the waters outside the protected area, particularly closer to towns.

In 2007 a joint project with The Nature Conservancy, an Anti- River Poisoning Project, was initiated. This project focuses mainly on community education and public awareness in addition to mobilizing communities to guard the natural resources within their own communities. In 2013, based on the success of the 2007 – 2009 project in the Rio Grande Valley, a similar project was initiated in the Buff Bay Valley.

### Status of Target Species

Sightings of target species such as the Giant Swallowtail Butterfly and the Hutia are recorded by Rangers and other field staff

on duty, in addition to noting information from community members. The Giant Swallowtail Butterfly has been recorded within the property, historically and more recently from the ecological studies of Audette Bailey and Eric Garraway, from the Upper Rio Grande Valley. In the last five years, based on information collected by the Rangers and community feedback, the population has increased and further, another population has been identified in a separate area. The Jamaican Coney, historically recorded from the John Crow Mountains, is being reported by community members, particularly with respect to a recent upsurge in hunting which had virtually died out. In the last two years there have been reports of coney's damaging crops. These reports suggest populations of reasonable and increasing size. The Jamaican Boa is also being reported by community members.

Hence, although there are no current population counts or academic studies, the reports from community stakeholders and the observations of the National Park Rangers must be considered highly valuable. Discussions have been initiated with several academic and wildlife research institutions to conduct relevant studies.



*"National Park Rangers conduct water quality monitoring"*  
Photo By: JCdT



*"Jamaican Boa"*  
Photo By: R. Miller

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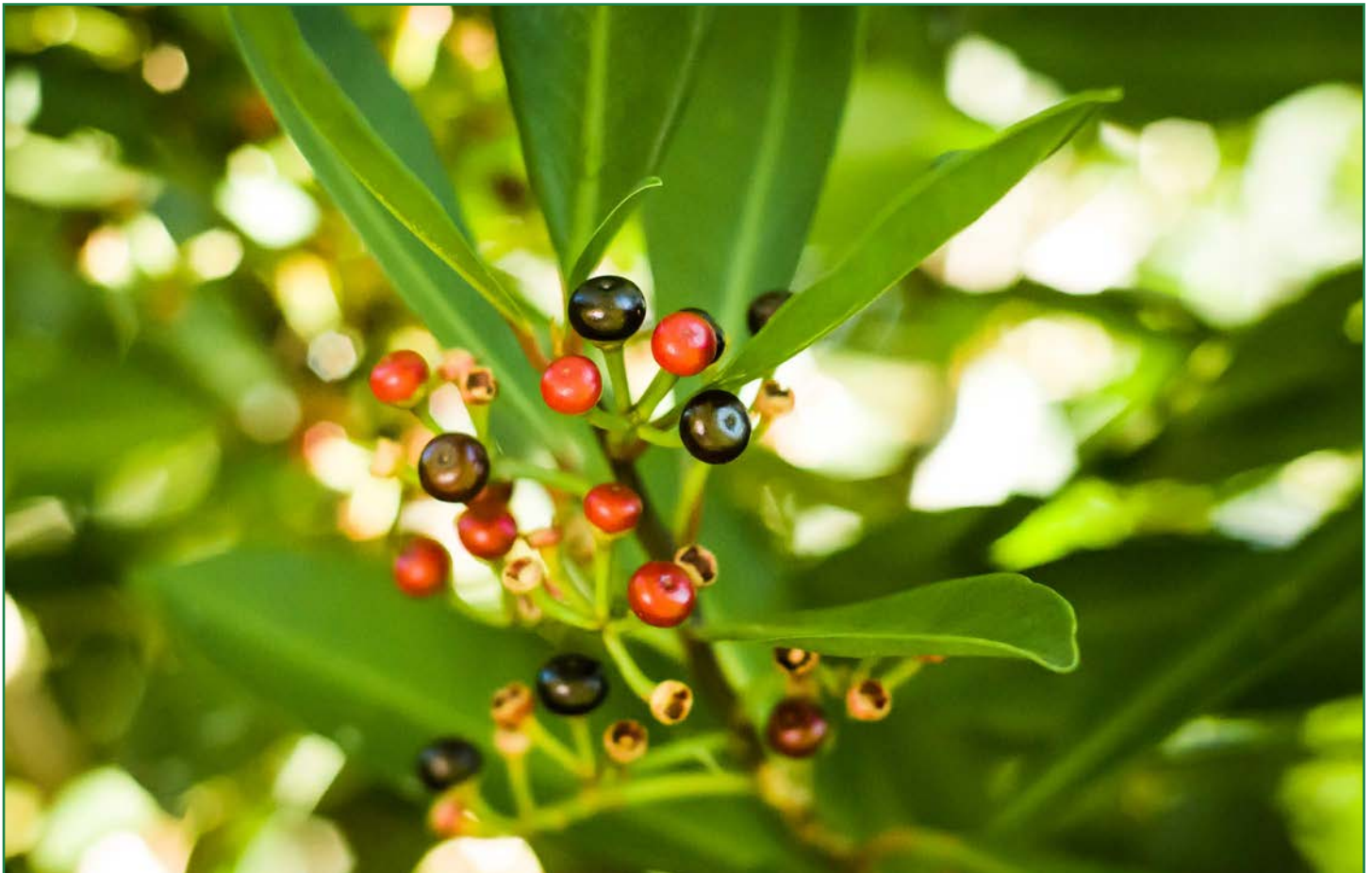
The Management Plan of the nominated property focuses on the conservation of species habitat which is of critical importance, for the survival of target and other species. All three target species are protected under the Wild Life Protection Act and therefore it is illegal and punishable by fine or imprisonment, to possess any of these animals. In addition, where there is specific conservation guidance e.g. from studies, this information is used to direct management actions. For example, the loss of the food plant for Giant Swallowtail caterpillars (which feed on only one plant species) has led to work with a local community-based organisation to propagate and plant the seedlings of the Water Mahoe (*Hernandia catalpifolia*). In 1994

Giant Swallowtail Butterfly Education Project funded by RARE, was found to be a great success. The Park's logo is the Giant Swallowtail, and it is often used in other education programmes, thus the communities are always on the alert for collectors and inform the Park Rangers when they are concerned.

The Rangers are on the alert and through regular patrols and educational programs have severely decreased the incidences of hunting for the Jamaican Hutia or Coney. Reports have revealed that most of the hunting actually occurs outside the boundary of the nominated property and that the Blue and John Crow Mountains may be providing a refuge for these

animals. Public environmental awareness about the values of the endemic snake species has been increased among the communities.

In the last two years, Park Rangers have received reports of the Jamaican Boa in two communities. In response, town square community meetings have been held to explain and discuss biodiversity conservation and the Jamaican Boa in particular. The meetings have been well attended and the information has received with interest, again particularly amongst youth held in tandem with current public awareness initiatives of the National Park as outlined in the management plan.





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### *Cultural Heritage*

The building materials used by the Maroons and the change in location of the Maroon's major towns to outside the boundaries of the nominated property consequent on the signing of the peace treaty of 1739/40s little of the built heritage remains. The one exception is to be found in the Nanny Town cut stone wall left by the English in 1734/5. Other elements such as the trails, historic and cultural locations and place names are protected by the Maroons, by traditional and convention of use. The towns are primarily archaeological and are protected by reason of their anonymity.

The trails and sites of the Nanny Town Cultural Heritage Route (NTCHR) are in some cases over grown. However, the outstanding Cunha Cunha Pass and Corn Puss Gap trails are regularly maintained by the Maroon Community at Bowden Pen. There are many other trails within the nominated property and the buffer zone that are still a part of the Maroon secret tradition of and thus unexposed to the public.

The archaeological integrity of these sites is preserved due to the fact that these sacred Maroon archaeological and ceremonial sites benefits greatly because of their inability to access their prohibitively remote location. The rugged terrain of the area with few safe areas for helicopter landing and several days journey by foot makes it difficult for human interference. All provisions, food, water and shelter must be brought on the journey.

As mentioned in the previous sections,



*"Nanny Town Archaeological site"*  
Photo By: K. Agorsah

the Maroon community has expressed their interest in further exploring the sacred places of their ancestors that have never been subjected to archaeological investigation before as well as identifying the location of burial sites that have been lost.

Due to the steepness of the mountains and the abundance of rainfall the resulting soil saturation which result in soil

erosion and land slippage occasionally. Though this to date has not impacted negatively on the known Maroon sites within the nominated property, it has affected some of the trails along the NTCHR. As part of the maroon community and JCDT mainatenace programme, these instances are mitigated by using bamboo bridges and rails and packed stone to restore eroded sections of the trails as well as the trails' accessibility and use.



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### *4.b.i Development Pressure*

The BJCM is not deemed to be under any serious development threat. With the exception of few crops planted in the foothills of the mountains, the area is generally steep slopes with soil too poor and shallow for significant threats from agriculture. The mountain ranges have been under protection for watershed management since 1927 and later designated as a forest reserve in 1950. Its designation as a National Park in 1993, firmly established the biodiversity conservation purpose of the property. Further, the new Forest Act of 1996 addresses even more strongly the biodiversity conservation mandate of forest reserves. The Forestry Department is currently proposing additional forest reserve regulations to strengthen this mandate. The JNHT Act, through its preservation scheme, significantly regulates all activity within not only the nominated property but also the buffer zone (most of which comprises the Blue and John Crow Mountains National Park).

Traditional protection under the Windward Maroon community is also provided for the nominated property and under the protection of the living community, development within the site is kept to a minimum as the living communities reside outside of the nominated property, which took place soon after the signing of the Treaty in 1739. Any developments within the nominated property will take into consideration all legal and traditional controls imposed on the property by various laws and so development which will have a negative impact on the site will not be approved under any of the applicable pieces of legislation and regulations.

Further, the nominated property is located at the core of the BJCM National Park, in the steepest, most inaccessible areas and unsuitable for any kind of development.



*"Maroon conducting small scale farming"*  
Photo By: M. Morgan



*"Steep slopes of the Blue Mountain"*  
Photo By: M. Morgan

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### 4.b.ii Environmental Pressure

#### Alien Invasive Species

The main potential threat to the nominated property is the existence of alien invasive plant species. The plants that are of the greatest concern are: Wild Coffee or Mock Orange (*Pittosporum undulatum*), Ginger Lilly (*Hedychium gardnerianum*), Red bush (*Polygonum chinense*), Gleichenia sp (fern) and Molasses or Wynne grass (*Melinis minutiflora*). The most threatening of these is *Pittosporum undulatum*, which has been found to out-compete native species and prevent the regeneration of natural forests.

Wynne grass has proven to be a fire hazard. However, as it is found mainly in disturbed areas on the periphery of the Buffer Zone it presents a more imminent danger to the Buffer Zone communities than to the nominated property.

Since 2006, an active control programme has been employed for two alien invasive species - Wild Coffee and Ginger Lilly. Wild Coffee wildings are manually removed whilst the mature trees are injected with Round Up (Active Ingredient: Glyphosate) which kills them slowly, avoiding the creation of a gap that would promote growth of the seedlings which quickly germinate. Native species are planted near the dying invasive. Wild Ginger is being manually removed from plots. Regeneration of natural forest has been observed and sites where Ginger Lilly is being controlled now provide a source for native seedlings for restoration work.

#### Pollution

There is very little pollution of the nominated property, due to its distance from human populations and since water flows from this area downstream.

Potential pollution threats would be from agrochemical runoff entering streams and rivers, and the occasional poisoning of the aquatic environment with chemicals, for the purpose of catching crayfish and shrimp. This pollution is mostly evident in the lower reaches of the rivers and streams, near communities. However as river poisoning is an offence under Section 5 of the National Park's Regulation (1993), perpetrators are liable to be arrested and prosecuted. Enforcement strategies cannot



"*Pittosporum undulatum*" (Wild Coffee)  
Photo By: JCDT



"Rio Grande River"  
Photo By: M. Morgan

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

be applied on private land, so the Park's managers rely on indirect means for addressing the issue. Preventing farming within the Park's boundary is one strategy, while the continued education of farmers (in the Community Buffer Zone) about the personal and ecological dangers of agrochemicals is the other. Anti-River Poisoning Projects have and are being implemented, as described in detail in the management plan.

Littering is a source of pollution in the National Park's recreation areas which are at the periphery of the nominated area. Littering is an offence regulated by law (, and signs posted along trails and in recreational areas encourage the proper disposal of garbage.

### Climate Change

Soil erosion and associated land degradation are Caribbean-wide phenomena, and climate change is likely to increase their negative impacts through increased seasonal rainfall following long spells of drought (McGregor, 1995; McGregor et al. 2009) The Blue and John Crow Mountains region is particularly vulnerable because of the steep slopes, heavy rainfall and rapidly draining soils (Davis-Morrison 1998).

rainfall has the potential to increase soil moisture which can negatively impact the archeological cultural heritage located within the site. Currently the archeological sites are overgrown which provides a level of protection for the site, however once greater access is required then consideration will be given to terracing, retaining walls and "gabion basket" to assist in training rivers.

Protecting ecosystems through protected

area management, has been proven successful in buffering human settlements and resources from natural disasters such as hurricanes, landslides and flooding (Loh, 1996; IUCN, 2008). Further, forests and other ecosystems are important for carbon storage, reducing the amount of carbon dioxide that can contribute to global warming (Mackey et. al., 2008). Climate change is likely to result in a loss of community and ecosystem types, particularly those at climatic limits like montane communities. Impacts will also include changes in the proportion of community types, overall loss of biodiversity and establishment of new and possibly invasive communities (Bridgewater, 1996). In light of these and other likely impacts, protected area managers must plan and prepare for

climate change, including implementation of mitigation and adaptation strategies such as maintaining and restoring ecological buffers, and building human and social capacity Tompkins et. al. (2005).

As a high altitude forest, the nominated property will act as a refuge habitat in the face of increasing temperatures. Climate change mitigation and adaptation clearly requires the maintenance of natural forests.

The 2011 – 2016 Management Plan for the BJCMNP addresses climate change in more detail. In addition, Park management has prepared a number of papers addressing the issue and detailing the Park's multi-pronged strategic approach.



*"Sustainable agriculture training for local farmers"*  
Photo By: JCDT



*Mt. Horeb/Fairy Glade Trail – When Wild Ginger is controlled, native species seedlings spring back*

Park Management assumes that a large area of healthy forest will be more resilient to climate change impacts and therefore protection of existing and restoration of degraded forest are management priorities as shown by the on-going reforestation and forest rehabilitation programmes of the National Park. There has also been a focus on raising awareness and knowledge of local communities regarding climate change and the need for making their livelihood practices more environmentally sustainable. The approach has used both awareness and education strategies including training in sustainable agricultural practices such as contour planting and use of economically valuable plants e.g. pineapples and fruit trees for soil erosion control. The research prospectus in the Management Plan identifies climate change as a priority area for investigation.

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4.b.iii Natural Disasters and Risk Preparation

Hurricanes and tropical storms are of most concern to the Blue and John Crow Mountains, although these have not been very frequent in the past. However, their frequency and ferocity is expected to increase, as global warming becomes a more significant determinant of weather patterns in the Caribbean. However, native Jamaican forests have evolved with hurricanes and are adapted to recover quickly (Tanner, E.V.J., Kapos, V. and Healey, J.R. 1991:pg :513-531) . The negative effects of these storms such as landslides and soil erosion are more acutely experienced in deforested areas of the park and in the buffer zone. Damage to trees e.g. uprooting and loss of limbs is more prevalent in areas where there are gaps in the forest e.g. trails, recreation areas and around farms. Native species have been observed to recover quickly following the spate of hurricanes from 2004 – 2007, springing back with even more branches.

Although not able to specifically alleviate the problems that impact communities during these events, the JCDT has been actively promoting the conservation of the forest as a mitigation measure against such disasters. Projects and public awareness raising to address the issue of climate change have been implemented in several communities and is ongoing. For example, a DVD – “Hazards, Yes – Disasters No” was produced in 2013 and community meetings held to show the documentary (which is based on research conducted by a university student for

his M.Sc. project). The organisation has also assisted residents in the community buffer zone in making representation to the relevant authority for assistance in landslide clearing, road repairs and maintenance of drains.

.....  
*Native Jamaican forests have evolved with hurricanes and are adapted to recover quickly (Tanner, E.V.J., Kapos, V. and Healey, J.R. 1991:pg :513-531) ... Native species have been observed to recover quickly following the spate of hurricanes from 2004 – 2007, springing back with even more branches.*  
.....

Earthquakes are fairly infrequent and so far the magnitude of most tremors has been low; therefore this threat is considered low.

The threat of fires in the park has been deemed to be medium, and occurs mainly in the buffer zone, as well as communities beyond. Wynne grass, an alien invasive species has been identified as one of the main causes of fire. Wild fires have also resulted from agricultural activities of communities outside the buffer zone of the Park. However in recognizing the impact fires can have the Park’s management continue to train communities in the prevention and control of fires and intends to carry out more activities in terms of outreach to farmers to educate them on appropriate land clearing methods outside the National Park. In addition to the Country Fires Act which regulates the use of fires for agriculture, there is a National Park regulation which forbids the lighting of fires within the Park’s boundary. The property has a Disaster/Emergency Management Plan which is currently being revised and updated with the assistance of the Office of Disaster Preparedness and Emergency Management (ODPEM). It was prepared in 2006 by the Park’s former Chief of Corps who had military training and experience in planning for, and coping with disasters and emergencies. He was assisted by a JCDT Director, who is a former head of the Office of Disaster Preparedness and Emergency Management. ODPEM has recently (June, 2013) conducted training for National Park Rangers.

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### *4.b.iv Visitor and Tourism Pressure*

Tourism activities within the BJCMNP are managed by the JCDT, and as described in the Park's Management Plan, ecotourism is the management approach being used. There are two main recreational areas within the National Park: Hollywell and Portland Gap/Peak Trail, both of which are at the periphery of the nominated property (insert map) with the Peak Trail entering the nominated property where the Peak is located. The Cunha Cunha Pass and Corn Puss Gap trails as a part of the NTCHR cross the boundary of the National Park and the nominated property. Since 1993 all visits to these areas, including those organised by commercial tour companies are arranged through the JCDT, which regulates access by tour groups and ensures that high standards of safety and general conduct are maintained. It is important to emphasize here that public enjoyment of the park is encouraged in the Management Plan, but the document stresses that this is to be done only to the extent that it does not adversely affect the natural heritage of the Park.

Of the two recreational areas, Hollywell receives the most visitors, as it is the closest to the capital city of Kingston, and can be reached without 4WD vehicle. The area used for recreation is just over 10ha although the original Hollywell property is much larger. Prior to inclusion within the Forest Reserve it was a coffee plantation, and later it was used as a nursery for reforestation. The infrastructure development at this location is good. It was initially established by the Forestry Department in the 1970s and whilst many of the original buildings exist, these have been repaired and upgraded by the JCDT, and additional small structures constructed e.g. gazebos and toilet facilities. Hollywell is located in the Port Royal Mountains, within the buffer zone. The average visitation to Hollywell from 2002 to 2012 was 7,318 (see Table below showing detailed visitor statistics). There are significantly reduced figures in hurricane years when there may be damage to roads or facilities.

This averages out to between 12 and 23 visitors per day. However the majority of persons visit the area on weekends, thus on a Saturday or Sunday, there may be 100 – 150 persons with as many as 300 on a public holiday. Additionally, approximately

1,500 persons attend the annual Misty Bliss, but this is a one-day cultural event. Preliminary study suggests that Hollywell has a visitor carrying capacity of 300 persons per day and 2500 persons for 'one time special events' such as Misty Bliss.

There is an Ecotourism and Development Plan for Hollywell that guides activities at this recreational site, and to a lesser extent at others. Additionally, the impacts of recreational activities on the area are closely monitored. The attraction at Hollywell received Green Globe certification in 2005, and an environmental management system is in place to reduce environmental impacts. Certification will continue within the 2011 – 2016 management period.

Portland Gap, the visitor facility on the famous Blue Mountain Trail, received an average of 1,838 visitors/annum from 2002 to 2012. A decline was noted after 2003 but it is believed that there may actually be closer to 2,500 per annum and the decline may reflect fewer persons purchasing tickets. This issue is currently being addressed e.g. by increasing the number of outlets for sale of tickets and increasing promotions.

The Cunha Cunha Pass Trail as described in earlier sections, is a historic heritage trail first used by the Maroons, and later as a trade route between the parishes of St. Thomas and Portland, before the main road was built along the coast. The Corn Puss Gap Trail is an adjoining trail passing through the gap where the Blue Mountains join the John Crow Mountains. The trails are managed by the Bowden Pen Farmers Association, a community-based organisation who rehabilitated and re-opened the former trail in 2005 and the latter in 2013. This group has had a long relationship with the JCDT, and the two have signed a Memorandum of Understanding which guides their collaboration for the conservation of the natural and cultural heritage resources in the Upper Rio Grande Valley, including the management of the Trail. The numbers of hikers on the trail have been small, less than 200 in total. The Bowden Pen Farmers Association also operate an eco-lodge consisting of rustic cabins, at one end of the trail, and offer guided tours along other trails outside the property.

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### *Holywell Recreation Area Visitor Statistics*

Year	Resident Adults	Resident Children	Non Resident Adults	Non Resident Children	Total Visitors
2002					4,471
2003	5,363	1,540	330	66	7,299
2004	6,258	2,101	181	6	8,546
2005	3,430	1,020	77	0	4,527
2006	5,173	1,685	94	0	6,952
2007	5,322	1,445	127	0	6,894
2008	5,080	1,046	132	5	6,263
2009	7,059	2,503	41	0	9,603
2010	5,559	1,132	46	0	6,734
2011	8,036	2,184	41	0	10,261
2012	7,264	1,535	142	12	8,953

### *Portland Gap (Peak Trail) Area Visitor Statistics*

Year	Resident Adults	Resident Children	Non Resident Adults	Non Resident Children	Total Visitors
2002	2,891	451	216	43	3,601
2003	2,625	115	114	0	2,854
2004	1,749	1	30	0	1,780
2005	1,346	1	0	0	1,347
2006	1,464	2	0	0	1,466
2007	1,250	0	0	0	1,250
2008	1,683	0	0	0	1,683
2009	1,757	1	3	0	1,761
2010	1,652	13	2	0	1,667
2011	1,530	1	5	0	1,536
2012	1,243	0	26	0	1,269

Due to the rugged nature of the trails, to traverse it safely requires guides which are from the Maroon community. Access to sacred sites is only by express approval and visits are able to be controlled due to the difficult terrain to get to several sites along the cultural heritage route and in parts of the buffer zone as well. As a result, threats from tourism and visitor pressure, currently do not significantly impact the nominated site in the future, as access is difficult and the terrain is very rugged. However, the 2011 - 2016 Management Plan outlines strategies for the sustainable development of recreational facilities and opportunities within the area, particularly in the Community Buffer Zone.

Guided by the Park's Management Plan, a Plan for Sustainable Tourism in the Blue Mountains has been prepared by Heritage Design (an agency of the US Forest Service) under contract to JCDT, with funding from the Inter-American Development Bank. This Plan sees the National Park as the hub for recreation and tourism in the area, not so much as the main site, but as the centre for management of the area's natural and cultural heritage resources, and as a flagship for branding purposes. The Plan therefore seeks to strongly emphasize development within the Community Buffer Zone which comprises mainly the National Park, through community and private sector ventures. Hence, community tourism plans were developed with



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communities mainly Maroon, around the two existing recreational facilities within the National Park and in the Rio Grande Valley – with the Bowden Pen Farmers Association and the Moore Town Maroon Council, and in the Buff Bay Valley – with the Charles Town Maroons. JCDT is currently working on sourcing funding for the implementation of these plans.

A few private sector companies and individuals have guest houses and small hotels and some coffee farms conduct tours. The Jamaica Defence Force has several cottages at Newcastle which were originally built for use by their officers and later open more generally to the public, however they are currently in some disrepair. There is a growing interest in nature

and adventure tourism as evidenced by an upsurge in the number of small tour operators and guest houses. The Blue Mountains Sustainable Tourism Plan guides the establishment of tourism clusters with the Park's management providing secretariat and other services to maintain the sustainability of the product.



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### 4.b.v Number of inhabitants in the Property and Buffer Zone

Estimated Population within:	
Area of nominated property:	0
Buffer zone:	40,000
Total:	40,000
Year:	2011

National Park management has identified a “Community Buffer Zone” which is not legally designated but is an area about 1km radius around the National Park boundary, where the Park conducts community outreach. A rapid ecological assessment ((Muchoney et al, 1994) identified 59 communities with a total population of 40,000 mainly within this Community Buffer Zone (1991 census data). Using the 2001 national census data, the Statistical Institute of Jamaica was able to confirm the current existence of 51 of the 59 communities.

Total population of these communities was given as 30,864. JCDT also works with a few communities outside this 1km radius but along the roads leading to the Park’s recreation areas and the Charles Town Maroon community. When these were considered, the total population was about 33,614.. The 2011 census indicated a population of just over 30,000. This suggests that there has been a substantial decline in the population of the communities in and around the park over the last twenty years, possibly the result of out-migration from the area. This out-migration is most likely related to the lack of economic opportunities and the poor

road infrastructure in some areas, which exacerbate transportation difficulties. Based on maps and satellite imagery, the actual number of persons living within the Park’s boundary is known to be very small or non-existent. There are a few communities which border on the Park, particularly in the Hollywell area.

The Park’s Education and Public Involvement Programme is spearheading interventions into the Community Buffer Zone communities. Awareness and knowledge about the Blue and John Crow Mountain is being raised, and the approach to enforcement used by the Park Rangers, emphasises the importance of natural resource management, cultural heritage preservation and sustainable livelihoods.

A participatory planning approach was used for the development of both the 2005 -2010 and 2011 – 2016 Management Plans. An approach to working with community-based organisations for heritage conservation was also developed, and piloted with the In light of the current economic condition of the Buffer Zone communities and in line with global park management experience, there is a thrust towards ensuring that benefits to local communities are closely and tangibly linked to conservation of the Park’s resources. This has been proven to be beneficial in garnering support for the conservation and protection activities of the park. The low levels of literacy and the lack of empowerment among community members in the Community Buffer Zone is an existing impediment to ensuring that community members derive benefits from the enforcement, conservation and recreational activities carried out (or are available) in the Park. However

the JCDT is seeking to overcome this by also assisting the communities through projects that aim to: build capacity, train persons, and facilitate the development of sustainable community livelihoods.

*A rapid ecological assessment ((Muchoney et al, 1994) identified 59 communities with a total population of 40,000 mainly within this Community Buffer Zone (1991 census data).*



“Community members receiving certification”  
Photo By: JCDT

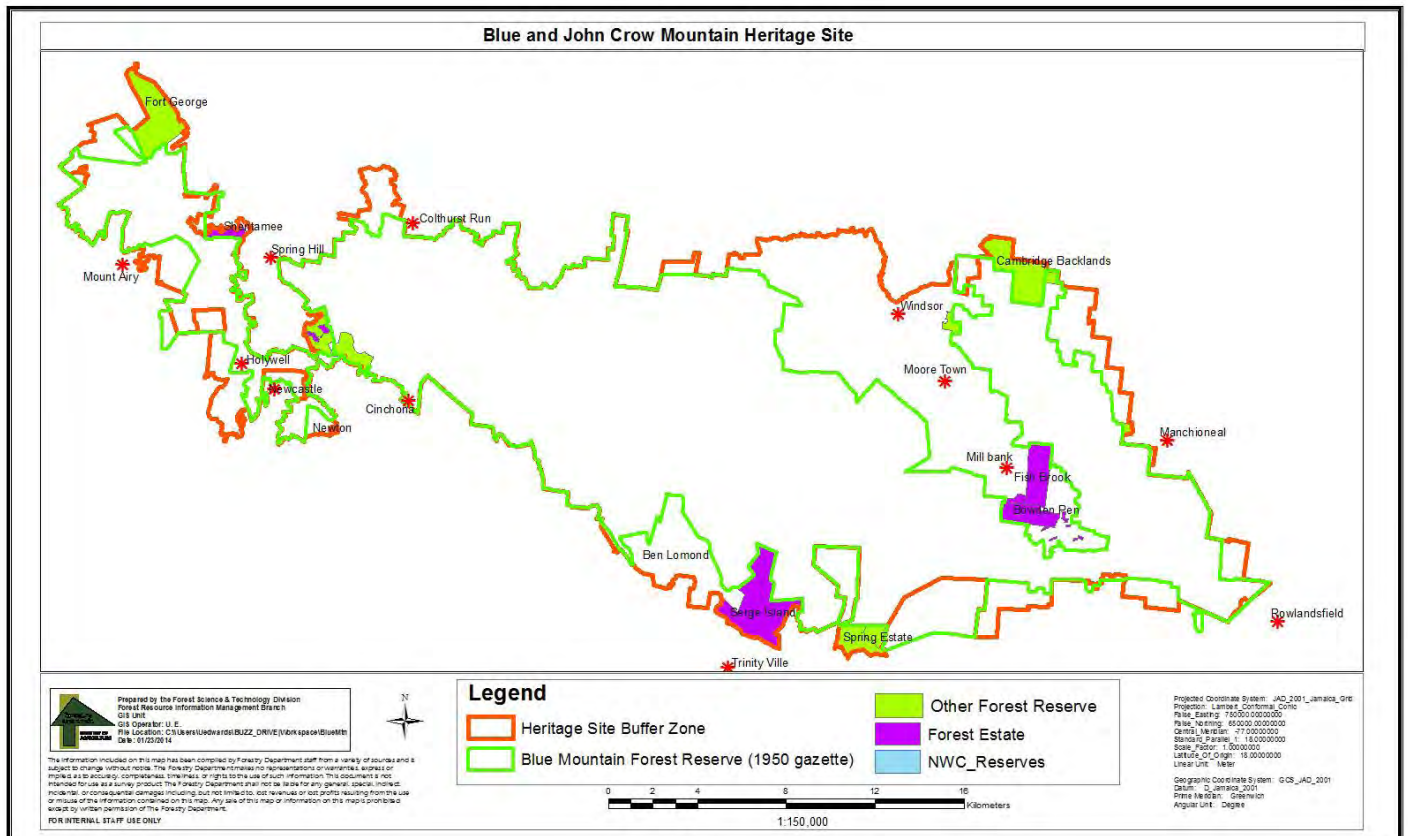
PART 5.  
PROTECTION AND  
MANAGEMENT

# 5a. Ownership

The lands in the nominated property are State owned. Specifically, they are vested in the Commissioner of Lands in trust for the Government of Jamaica, on behalf of the people of Jamaica. Most of the land within the Buffer Zone is State-owned as well, with most of this Zone, except for the Rio Grande Valley, located within the Blue and John Crow Mountains National Park (BJCMNP). Land within the Rio Grande Valley is mainly privately owned – with Maroon community members holding much of the land.

# 5b. Protective Designation

The nominated property is at the core of an area protected for both its natural and cultural heritage. The nominated property along with the Buffer Zone and Satellite Areas are designated as Protected National Heritage under the Jamaica National Heritage Trust Act (1985) since 2013 and most of this area is a National Park, designated under the Natural Resources Conservation Authority (NRCA) Act (1991) since 1993. In addition, the National Park and some areas around it are designated as Forest Reserve under the Forest Act (1996) and since 1950 under the earlier Forest Act (1937).



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The nominated property is the Core Preservation Zone of the BJCMNP which is managed as a National Park (Category II of the IUCN Protected Area Management Categories). The National Park was designated through the Natural Resources Conservation (Blue and John Crow Mountains National Park) Order which defines the boundary. This Order was made under the NRCA Act which establishes the NRCA as a body appointed by the Minister of the Environment to be responsible for management, conservation and protection of the natural resources of Jamaica through its agent, the National Environment and Planning Agency (NEPA). Section 5 of the NRCA Act allows the Authority to designate any area of land as a national park to be maintained for the benefit of the public and to establish other protected areas. Three pieces of legislation regulate use of the National Park, the:

- Natural Resources (National Park) Regulations (1993)

Natural Resources (National Park) (Amendment) Regulations (2003)

- Natural Resources (Blue and John Crow Mountains National Park) (User Fees) Regulations 2003.

The regulations provide for enforcement of the legislation by several government agency personnel e.g. Jamaica Constabulary Force (Police), Jamaica Defence Force (Army), Forest Officers and persons appointed as Park Manager and Park Rangers. The laws make several activities an offence within the National Park e.g. hunting, cutting a plant, cultivating, making a trail. Further, the laws provide for the punishment of a convicted offender through fines and prison sentences. The User Fee legislation provides for charging

of entry fees to the Park's recreation areas and for certain uses e.g. camping and filming for commercial gain.

The Forest Act of 1996 replaced the 1937 legislation and provides for the sustainable management of forest on State owned land including the designation of Forest Reserves and other protected areas. The Forest Regulations of 2001 has additional provisions for the regulation of forest use (See Appendices # and #). It is important to note that the 1996 legislation gives prominence to biodiversity conservation so that production forestry is no longer the focus for Forest Reserves in general, and this site in particular.

It is noteworthy that the nominated property has been under legal protection as a Forest Reserve from as early as the 1927 Afforestation Law and that the colonial government began to actively protect the forests of the Blue and John Crow Mountains for watershed management in the mid 1880s.

The Cunha Cunha Pass Trail which passes through the nominated property was designated as a National Monument in 2011 and the nominated property along with the Buffer Zone was designated as Protected National Heritage in 2013. These designations are legislated under the Jamaica National Heritage Trust Act which provides for the protection and preservation cultural heritage site and objects of significance.

In addition, to these main pieces of legislation, there are others which provide regulatory support such as the:-

- Wild Life Protection Act (1945) and relevant amendment orders and regulations

- Endangered Species (Protection, Conservation and Regulation of Trade) Act (2000)
- Country Fires Act (1942)
- National Solid Waste Management Act (2001)
- Water Resources Act (1995)
- Permits and Licences Regulations (1996)

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### 5c. Means of Implementing Protective Measures

The main institutions involved in planning and management of the nominated property through its National Park status are the:

- Natural Resources Conservation Authority (NRCA) through its agent, the National Environment and Planning Agency (NEPA)
- Jamaica Conservation and Development Trust (JCDT)
- Forestry Department (FD)
- Jamaica National Heritage Trust (JNHT)

The Windward Maroon communities of Moore Town, Charles Town and the Rio Grande Valley have traditional roles with respect to managing their sovereign lands and are also involved in the Advisory, Co-management and Maroon Heritage Committees of the National Park.

The lead agency for management of the nominated property is the Jamaica Conservation and Development Trust (JCDT). The JCDT is a non-government organisation involved in the establishment of protected areas in Jamaica since 1989 and has a delegation agreement with the NRCA through NEPA for Park management since 1996. The delegation agreement with the NRCA defines the roles and responsibilities of the two organizations and gives JCDT responsibility to inter alia, prepare five-year Management Plans for approval by the NRCA and report bi-monthly and annually to the Authority.

The NRCA provides an annual subvention of about 30% of the National Park's budget, mainly for support of the Ranger Corps. This team is not only responsible for the Enforcement and Compliance Programme but also conservation, monitoring and visitor management. The Delegation Agreement and User Fees Regulations allow the JCDT to retain all user fees and to generate income from the Park's recreational areas, for use in managing the National Park.

To ensure coordination and collaboration with the other agencies having legal responsibility for the site, a co-management agreement was signed by NEPA, the Forestry Department and the JCDT in 2000. This agreement is currently being updated bearing in mind the review and revision of the National Protected Area System Master Plan completed in 2013. The newest party to this agreement is the JNHT, as since 2011, Cultural Heritage Preservation has become a formal component of the

management of the Blue and John Crow Mountains National Park.

#### *Advisory Committee*

The National Park has an Advisory Committee which meets twice a year to guide policy level management. It is comprised of representatives from relevant government Ministries, agencies, private sector and community-based organizations.

#### *Co-Management Committee*

A Co-management Committee comprising representatives of the JCDT, the three key government agencies and a representative from the Maroon communities, meets at least three times a year.

#### *Maroon Advisory Committee*

The Maroon communities meet at least twice a year with Park management, to plan and organize for implementation of the Cultural Heritage Preservation Programme.



"BJCMNP Advisory Committee Meeting, 10 July, 2013"  
Photo By: JCDT

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### *Management Plan*

As per the National Park regulations, a five year plan is prepared using a participatory process to involve all stakeholders, and for the purpose of guiding Park management. IUCN and national (NRCA) guidelines are used in the development of the Plan. The current Plan for 2011 – 2016 was also guided by an Assessment of the implementation of the 2005 – 2010 Plan. The Management Plan guides the Park's work and fundraising in terms of sourcing sufficient budget for implementation of objectives.

### *Business Plan*

A Draft Business Plan for the BJCMNP was prepared by local consultants in 2012/13 and is being finalized with input from international consultants. This with funding under the UNDP GEF Strengthening operational and financial sustainability of the national Protected Area System

### *Annual Workplan and Reports*

An Annual Workplan identifying specific targets is prepared by the National Park manager (the JCDDT)

based on the Management Plan. It guides annual operations and is submitted to the NRCA along with the annual budget. Bi-monthly reports are prepared by JCDDT and submitted to the NRCA and shared with partner agencies. An annual report is prepared which assesses annual performance in relation to work-plan targets year.

### *Maroon Community Advisory Committee meeting*

This report also helps guide development of the workplan for the following year BJCMNP Programme Management

**Meetings** The Managers of the BJCMNP Programmes meet once a month to report on implementation of the programmes and identify challenges for joint attention as well as areas where closer collaboration between programmes and external organisations would increase management effectiveness. Managers then liaise with each other and with other staff, management partners and other stakeholders as necessary to implement programmes towards achievement of workplan targets.

### *BJCMNP Ranger Roster Meetings*

The National Park Rangers are the prime agents for implementation of most of the Park's Programmes. Led by the Chief of Corps, the Ranger Corps is responsible for activities under each of the Programmes and meet monthly to schedule these.

Activities include:

- Natural Heritage Conservation: supervision of native species nurseries, invasive species control and reforestation with native species
  - Cultural Heritage Preservation: assistance with trail restoration inclusive mapping of trails
  - Education & Public Involvement: outreach to local community members and assistance with school visits to the National Park and presentations in local schools
  - Recreation & Tourism: visitor management, particularly on weekends at the National Park's main Recreation Areas
  - Monitoring & Evaluation: conducting monitoring e.g. birds, freshwater macro-invertebrates and regular photo-monitoring
  - Enforcement and Compliance: Regular patrols particularly close to Park

boundary, investigation of possible offences

The National Park Ranger Corps is currently a team of 7, with 70% of the officers being from the National Park's Community Buffer Zone and all of these joining the Corps after having been involved in the Park's outreach to community youth e.g. through the Youth PATH programme funded by UNESCO and other donors between 2002 – 2009. Whilst the Rangers are the field officers on the ground, Programme Managers are responsible for designing and implementing appropriate activities based on the guidelines of the Management Plan. Programme Managers also analyse the information gathered by the National Park Rangers e.g. bird monitoring, photo-monitoring and observations from the field. ....

*“To ensure coordination and collaboration with the other agencies having legal responsibility for the site, a co-management agreement was signed by NEPA, the Forestry Department and the JCDDT in 2000.”*

.....

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World Heritage List

## 5d. Existing Plans relating to Municipality and Region



*"Moore Town Maroon community"*  
Photo By: M. Morgan

The nominated property is located in the eastern region of Jamaica, covering sections of three main parishes, Portland, St. Thomas and St. Andrew. There is no regional plan but there are two parish level plans which address conservation of the natural environment and in particular, the forest ecosystems of the Blue and John Crow Mountains.:-

1. "The Kingston and St. Andrew Sustainable Development Plan 2005 - 2025. Kingston and St. Andrew Corporation/Kingston and St. Andrew Parish Development Committee" undated  
This plan highlights the fact that Jamaica's first national park is located partially in the parish. The third goal of the Plan is, "to sustainably manage and conserve the natural, cultural and built environment" and the strategies elaborated deal with protecting the quality of the natural environment by directing intense development away from natural hazards and important natural resources, such as those in the Blue and John Crow Mountains. Recreational use and programmes to reduce habitat degradation are also noted.

2. "The Parish of Portland: A Sustainable Development Profile. Portland Parish Council and Parish Development Committee. December, 2000"

This plan mentions the Blue and John Crow Mountains National Park and the need for its conservation and the involvement of local communities through public education. The plan highlights the fact that the parish of Portland has the highest number of locally endemic species (47) of all the parishes in the island and that these are concentrated in the John Crow Mountains. Approximately 59% of the Blue and John Crow Mountains National Park is located within the parish of Portland and most of the Maroon communities and archaeological sites. The parish of Portland, as a tourism strategy, markets itself as a nature and "eco-oriented" destination with hiking, bird-watching and cultural heritage including the Maroons and the world-famous "jerk" meats which originated with the Taino and the Maroons.

The existing development plans for the region are supportive of conservation of the property.



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### *5.e Property Management Plan*

The current Management Plan is for the period 2011 – 2016 (Otuokon, 2011) and is appended to this document. This Management Plan was prepared with reference to the Report on Assessment of Implementation of the BJCMNP Management Plan 2005 – 2009 . The latter document provides information on management effectiveness, with respect to the meeting of outputs. Management of the property has been guided over the years since its declaration as a National Park by the BJCMNP Management Plan 2005 – 2010, BJCMNP Site Conservation Plan (2001), BJCMNP Development Plan (1997 –2001 and the BJCMNP Management Plan (1993).

The current Management Plan (2011 – 2016) is being actively implemented based on annual work plans which are submitted to NEPA and reported on bi-monthly and annually. An assessment of implementation for January, 2011 – June, 2013 has been prepared.

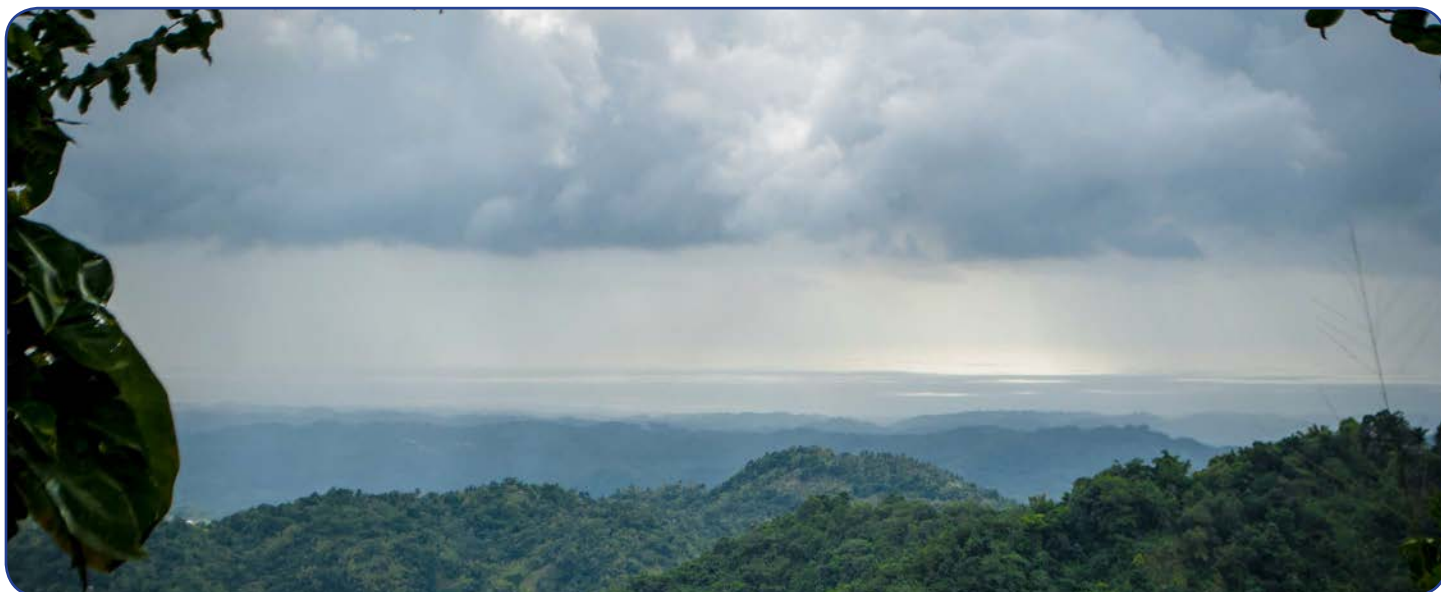
The over-arching goal of the BJCMNP highlight the natural heritage conservation and cultural heritage focus of management:

*To maintain and enhance the remaining area of closed broadleaf forest, component species of plants and animals and associated cultural heritage in the Blue and John Crow Mountains.*

The Mission Statement in the BJCMNP Management Plan 2011 – 2016 indicates clearly that sustainable development underpins Park management:

*To collaboratively manage the national park for its natural, cultural and recreational values, by striking the right balance between biodiversity conservation and socio-economic development, for the ultimate well-being of the people of Jamaica.*

Highlights of the Management Plan and its current implementation are provided below.



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### *1. Conservation of Natural Heritage*

2011 – June, 2013 – JCDT restored 20 ha with native species or by controlling invasive alien species and the Forestry Department reforested mainly with Caribbean Pine in an effort to provide wide scale ground cover to fill in later with natives. Between 2005 – 2009: JCDT restored 42 ha with native species and the Forestry Department reforested about 38ha.



*"Community farmer stands beside Beetwood sapling"*  
(Credit: JCDT)

### *2. Preservation of Cultural Heritage*

Improvements to Maroon centres to enhance promotion and preservation of Cultural Heritage e.g. tiling the Charles Town Maroon Museum, Steps and rails on Nanny Falls Trail to enhance safety and establishment of a Visitors' Centre/Office at Ambassabeth, Bowden Pen. All these were funded with monies from the JCDT accessed from the Forest Conservation Fund to help build local community capacity and strengthen cultural heritage tourism.



*"National park rangers receive training on cultural heritage"*  
Photo By: JCDT

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### *3. Enforcement and Compliance*

### *4. Education and Public Involvement*

This is described below re: Promotion of the National Park. Photos to be added.

### *5. Recreation and Tourism*

Repairs to Holywell and re-establishing the Trail from Gordon Town to Redlight to Greenwich (road to Holywell) was the highlight for 2012/13 in addition to the work on repairs and additions to the Maroon community tourism ventures. Photos to be added.

### *6. Monitoring and Evaluation*

Programmes in bird monitoring, freshwater monitoring, photo-monitoring etc. are described in Chapter 6

### *7. Governance and Administration*

Establishment of new Committees were the highlight of 2013.



"Misty Mountains"  
Photo By: M. Morgan

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### *5.f Sources and Levels of Finances*

As the nominated property is located within the Blue and John Crow Mountains National Park (also a Forest Reserve), it will be funded primarily through the budgets for those sites. Funding comes from multiple sources see table below both government and non-government.

The Jamaica Conservation and Development Trust (JCDT) plays the lead role, preparing annual budgets based on the National Park Management Plan. The Government of Jamaica through the National Environment and Planning Agency (NEPA) provides the JCDT with an annual subvention of about 30% of the National Park's annual budget (based on submission by the JCDT of annual work-plans and budget. The funds from NEPA cover the Enforcement & Compliance Operations, a significant portion of the Monitoring and Recreation & Tourism (Visitor Management) management programmes and a portion of Conservation and Education. Specifically the funds support a National Park Ranger Corps – salaries, subsistence, uniforms, equipment and transportation. The National Park Rangers conduct regular patrols to deter and to identify any illegal activity. They are supported in the field by officers from Forestry Department and NEPA as well as the Island Special Constabulary Force as required. The Forestry Department and NEPA also provide legal support e.g. for court cases where necessary. In addition, the National Park Rangers conduct the monitoring programmes (with data analysed by the Conservation Science Officer), visitor management at the National Park's two main recreation areas – particularly on weekends and holidays. The National Park Rangers also provide supervision for components of the Park's Conservation Programme e.g. native species nurseries and forest restoration. Finally, whilst the National Park Rangers are in the field, they stop and hand out brochures, talk to community members about protecting natural and cultural heritage. The funds from NEPA also support a portion of the Park Manager's salary, Recreation Area Bookings Clerk and other administrative and support expenses.

The National Park's Recreation Areas currently generate enough funds to maintain their operations. This amounts to about 10% of the budget and covers salaries for grounds staff, housekeepers, ticket clerk, fuel, cleaning and other supplies, utilities etc. as well as a portion of the Bookings Clerk salary. More funds are required for marketing although growing use is being made of social media. The Government of Jamaica contributes through the Ministry of Tourism and its agencies to events marketing e.g. for the International Maroon Conference and for capital improvements e.g. most recently at Holywell.

The Jamaica National Parks Trust Fund (JNPTF) contributes about 10% of the BJCMNP primarily to assist in covering administrative costs including Park Manager's salary. Therefore, the core management components of the National Park's budget (totaling about 50%) are covered from secured sources.

The JCDT raises the balance of the budget, which is primarily for forest restoration including invasive species control and for community outreach and sustainable livelihoods. Most of these funds (about 30% of the remaining budget) are from local sources such as the Forest Conservation Fund and the Environmental Foundation of Jamaica. The remaining 20% is raised by the JCDT from donors for projects e.g. capital improvements to community-based ventures and training and from fundraisers and donations to cover primarily administrative, accounting and indirect costs e.g. annual audits.

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Funding/Support available to the BJCMNP (US\$) Based on 2013 Budget							
Core Management Programmes Annual Budget					Additional to Cash Budget		Other Grants e.g. Capital Expenditure
NEPA (Mgmt Fee to JCDT)	Jamaica National Parks Trust Fund	JCDT (grants e.g. FCF, EFJ)	JCDT (Recreation Area Income – User & Other Fees)	JCDT donations/ fundraisers	FD	JNHT	Other e.g. Communities
113,130	30,000	178,000	40,000	27,000			50,000

### 5.g Sources of expertise and training in conservation and management techniques

Name of Organisation	Expertise and Training available to the BJCMNP	Example of assistance provided
<b>Governmental Organisations</b>		
National Environment and Planning Agency (NEPA)	Enforcement Officers & Legal expertise Biodiversity Conservation, Protected Area and Watershed Management expertise	Training of National Park Rangers Court cases Joint patrols
Forestry Department (FD)	Enforcement Officers & Legal expertise  Reforestation, GIS/remote imagery analysis	Training of National Park Rangers Court cases Major reforestation activities (hundreds of hectares – outside the nominated property to address degradation in the Restoration Zone of the National Park and outside that in Forest Reserves and other watershed areas)
Jamaica National Heritage Trust (JNHT)	Cultural Heritage – History and Preservation Legislation and Enforcement	Training of National Park Rangers re: cultural heritage preservation and relevant legislation Survey of sacred sites in conjunction with Bowden Pen Maroon community Technical assistance Archeological survey and investigation of cultural heritage sites
Institute of Jamaica (IOJ) – Natural History Museum of Jamaica (NHMJ)	Natural Heritage Inventory and Information	Identifying plant species
Institute of Jamaica (IOJ) African Caribbean Institute of Jamaica (ACIJ)	Cultural Heritage Research & Preservation technical assistance	Information and review of programmes
Ministry of Water, Land, Environment & Climate Change	Policy making	Technical assistance
Ministry of Tourism (and its agencies):-  Jamaica Tourist Board  Tourism Product Development Company  Tourism Enhancement Fund	Policy guidance, Technical Assistance and Information Marketing Assistance and Funding Training e.g. Tourism & Hospitality Certification, Tour Guide Certification, Tourism Standards & Certification Project funding	Eco-Trails building Guide Provided financial support for marketing of Misty Bliss (Park's Annual Festival at Holywell) and for Maroon community events Working with JCDT to licence main Recreational Area - Holywell 2012/13 Project – Improvements to Infrastructure at Holywell
<b>Other Organisations and Companies</b>		
University of the West Indies	Research & Technical Advice	Recent Hazards Mapping study
JCDT Board of Directors	Technical Expertise in conservation, tourism and eco-tourism, environmental education, hydrology, environmental management, disaster preparedness, emergency management, project management, financial management, marketing	Policy and practical guidance – through regular bi-monthly meetings and availability "on call" e.g. technical assistance and supervision for improvements to the Holywell Water Supply system (2012 – 13) was provided free of charge to the National Park

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

### *5.h Visitor Statistics and Facilities*

Whilst the National Park has two main recreation areas and portions of trails within it, the nominated property has only one of these – Portland Gap and a section of the Blue Mountain Peak Trail. Portions of the Peak Trail have been in existence since at least the late 19th Century with the first guesthouse (Whitfield Hall) opening in 1925. The Peak Trail takes hikers to the highest point in the island, the Blue Mountain Peak (2,256 m). There were other trails along the Grand Ridge but these are long since overgrown and impassable, with no plans for re-instatement to ensure conservation of the ecologically sensitive ecosystems.

The Peak Trail is about 9.3km from Abbey Green to the Peak passing Portland Gap (where the trail enters the National Park and the nominated property). Abbey Green can be accessed only with 4-wheel drive vehicle or by hiking about 4km from either Mavis Bank or Hagley Gap. From Portland Gap to the Peak is 5.6km and there is a Ranger Station along with rustic accommodation at the Gap but only shelter at the Peak. The accommodation at Portland Gap consists of 2 wood cabins (dormitories with bunk-beds in one cabin and floor space in the other), outdoor kitchen and toilet/shower facilities. The main attraction for hiking the Peak trail is the experience of montane forest including stunted elfin forest at the Peak and the achievement of hiking to the highest point in Jamaica. Many visitors hike in the early morning darkness with hope of catching sunrise at the Peak and a possible view of Cuba's coastline if the weather is crystal clear (which it seldom is). There are interpretive signs about the vegetation as well as directional signs and information signs about the distance remaining. Approximately 1,500 hikers/annum hike the Peak Trail though there may be additional unaccounted for and systems are being put in place to address this in addition to major repairs planned in 2014.

The hike from Abbey Green to the Peak takes between 5 to 8 hours and is primarily for hiking although some guests overnight at Portland Gap. The total area of the sites used for recreation (including the Trail) is about 3 hectares. Mavis Bank and Hagley Gap (from where one either hikes or takes 4 wheel drive vehicle) are about 2 hours drive from Jamaica's capital city of Kingston. Rangers are on duty on the weekend and a Caretaker during the week – all certified First Aid/CPR. In addition to providing information on the National Park, these personnel will provide emergency assistance, calling the Jamaica Defence Force (JDF) if medi-vac is required. The main recreation area within the Blue and John Crow Mountains National Park is Holywell at Hardware Gap between the Port Royal and Blue Mountains. This site is only about an hour's drive from Kingston and accessible using regular vehicles. The recreational area is well used by visitors, (about 10,000 per annum) primarily Jamaican, on weekends and during the holidays, especially summer. This site is about 10 hectares and was established as a recreational area on lands formerly used as a nursery by the Forestry Department and which prior to that had been an abandoned coffee farm, integrated into the Forest Reserve and later National Park. Hence, the picnic areas include a number of planted trees e.g Eucalyptus and Caribbean Pine, but the trails provide access into natural lower montane forest.

Facilities at Holywell include:-

- *Large picnic areas with 11 gazebos (some in the open areas and others accessible from trails) barbecue pits, toilet facilities, 5 camp sites and interpretive and directional signage*

- *Kids Discovery Zone – a children's play area with educational and interpretive activities*
- *Visitors Centre with exhibits (and where interpretive presentations are made)*
- *Three fully-furnished, self-contained cabins (bed space for 10)*
- *Ranger Station*
- *Trail network connecting picnic areas with cabin area, Ranger Station and Visitors' Centre*
- *Four (4) hiking trails: Oatley Mountain Interpretive Loop Trail, Waterfall Trail, Wag Water Trail and Shelter Trail*
- *One walking trail: Oatley Road*

Services at Holywell include:-

- *Educational tours for school groups (activities and guides vary according to the age-group)*
- *Guided tours – National Park introduction, trails, bird-watching, community*
- *Use of Visitors' Centre for workshops/retreats (during the week)*

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Holywell is manned by a National Park Ranger on weekdays and over the weekend (24/7) there are two Rangers on duty, as there are more visitors then. The site is used not only for recreation but also for conservation site e.g. invasive species control, native seedling nursery. The Holywell Disaster Preparedness and Emergency Management Plan has just been updated having received comments from the Office of Disaster Preparedness and Emergency Management (ODPEM) and following the conducting of training and planning workshops. The Jamaica Defence Force (JDF) has a training depot (Newcastle) about 2km downhill from Holywell and can provide medical and

security assistance including medi-vac, in an emergency.

In addition to these two sites, there are hiking trails – mostly within the Buffer Zone of the nominated property – most of which are operated and maintained by local community based organizations, particularly those of the Windward Maroons e.g. Cunha Cunha Pass and Corn Puss Gap Trails which pass through the property and which are managed by the Bowden Pen Farmers' Association, a Maroon group located in the Upper Rio Grande Valley. The JCDT works with this and the other Maroon organizations to assist them in the development and promotion of their

community eco-heritage tourism ventures. The Blue Mountains Sustainable Tourism Programme has been developed by the JCDT in collaboration with the Maroon and other targeted communities as a tool to generate income for both protection of the natural and cultural heritage and to benefit local communities. The Programme provides guidelines for governance, tourism product development, training, marketing and sales. The JCDT is currently seeking funding to implement the full programme whilst accessing funding to further improve the existing recreation areas and assist local communities with their plans and programmes.

### *5.i Policies and Programmes related to the presentation and promotion of the Property*

The National Park's Management Plan describes the goal, objectives and strategies for an Education and Public Involvement Programme for the National Park of which the nominated property forms the core. The programme description includes the policy and programmes related to the presentation and promotion of the Property, and the Addendum to the Management Plan provides more specific details related to the property with respect to World Heritage. The Education and Public Involvement Programme goal is, "To raise support for the conservation of the BJCMNP's natural and cultural heritage and improve resource management and the sustainability of livelihoods, particularly in the Buffer Zone communities". Under this goal, one objective relates to capacity building for resource management and sustainable livelihoods, particularly for local community members and the Maroons in particular, whilst the other objective addresses public awareness about the global and national importance of the National Park's natural and cultural heritage. The latter objective and its associated programme relate to the presentation and promotion of the Property in order to raise public awareness and support for the site and the protection of its heritage.

There are three main components of this programme, targeting different groups:-

(a) General Public Awareness focuses in particular on tertiary level students, persons interested in natural history and cultural heritage, private sector company and government agencies. Media used to raise public awareness are primarily:

- *Websites: [www.blueandjohncrowmountains.org](http://www.blueandjohncrowmountains.org) and [www.jcdt.org.jm](http://www.jcdt.org.jm) – which are updated generally at least annually and with respect to events, every few months*
- *Facebook Page: Blue Mountains, Jamaica – which is updated at least twice/month*
- *Brochures – there is a Blue and John Crow Mountains National Park brochure which is distributed at events and by the Rangers whilst on patrol in the communities around the Park*
- *Dissemination of Management Plan and other documents to government agencies and libraries.*
- *Newspaper/radio – articles/media releases and interviews – at least quarterly*
- *Exhibitions: JCDT mounts an exhibition on the National Park at a variety of public events annually, usually on World Water Day in March, Earth Day in April, World Environment Day in June, Wood & Water Day in October and International Mountains Day in*

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*December. In addition, from time to time, JCDT mounts an exhibit in a public space e.g. supermarket, library – to get the attention of people who may not otherwise come to special events.*

Celebration of the “birthday” of the National Park annually on the date of its legal designation on February 26th – the main event is usually Misty Bliss – a family oriented food and music festival at the Park’s main recreation area – Holywell, celebrating the natural and cultural heritage of the Blue and John Crow Mountains. This event features traditional music including the Charles Town Maroon Drummers and Dancers and local food prepared and sold by local community members, for example, the Bowden Pen Farmers Association with jerked wild hog, bussoo soup and crayfish rundown (crayfish cooked in coconut).

(b) Interpretation occurs primarily at Holywell, the National Park’s main and most accessible recreational area, through the Visitors’ Centre, signs, guided tours and the Kids Discover Zone.

At other sites there are signs with information about the National Park and communities in the Buffer Zone. The community signs promote pride in local natural and cultural heritage whilst others indicate that a trail leads into the Park boundary.

In addition, the Maroon communities are establishing museums, with Charles Town Maroon Museum being the furthest ahead, with recent refurbishing assisted with funds from National Park Manager: JCDT through the Forest Conservation Fund, amongst others.

(c) Community Buffer Zone Schools are visited at least once a year with a presentation on a different aspect of the Blue and John Crow Mountains. The presentation includes a pre- and post-test, analysis of which indicates that the students are absorbing the information about the site. In addition, targeted schools receive additional visits and are encouraged to participate in activities such as poster competitions, projects and tree planting. Further, teachers from the local schools are targeted with teacher training annually and provided with resource materials on the Blue and John Crow Mountains, for use in their classes. This component is critical for ensuring the presentation and transmission of natural and cultural heritage to future generations. Schools from the local communities and the whole island, are encouraged to visit Holywell for educational visits and since the students from local, rural schools tend to have limited funds, help is accessed where possible from corporate Jamaica to facilitate such visits.



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### 5.j Staffing levels and expertise

The National Park Management Plan's Governance and Administration Programme provide guidance regarding staffing requirements. These are listed below in the table which also indicates where additional assistance is obtained. The full-time and part-time staff and volunteers of the JCDT form the core of the property's management, supported by members of staff in co-management agencies, coordinated through the Co-Management Committee and direct liaison. In addition, through the National Park's Advisory Committee, assistance can be obtained from the various agencies represented.

Staff Requirements (as per Management Plan 2011 – 2016)	Status	Assistance Obtained from:
Park Manager (1) – minimum post-graduate education, specialized training and experience	Position filled by Executive Director of the JCDT (as JCDT is the delegated Park Manager) who has a Ph.D. in environmental management specializing in protected areas and ecotourism and 20 years experience.	JCDT Board of Directors NEPA (technical assistance and part-funding)
Chief of Ranger Corps (1) – tertiary level training and experience	Position filled	NEPA (technical assistance and full-funding) FD
National Park Rangers (12) – minimum: secondary level qualifications (in-house training provided)	Current complement: 6 Rangers have received significant in-house training inclusive bird and freshwater macro-invertebrate monitoring, reforestation, invasive species control, tour guiding, use of GPS etc.	FD (has Forest Rangers working in Eastern Jamaica Region which includes the National Park) NEPA (has Enforcement Officers working in Eastern Jamaica) and provides full-funding of Ranger Corps including stipend and transportation Community members
Conservation Science Officer (1) – post-graduate degree and experience	Position vacant since April, 2013	Park Manager (until position filled soon) Rangers/Chief of Corps University post-graduate students - volunteers
Education & Community Outreach Officer (1) – graduate degree and experience	Position filled	Trained Community Youth University students – volunteers
Assistant (1) – graduate degree and experience	Position vacant	Social Development Commission
Recreation & Tourism Officer (1)	Position vacant	Administrative Manager Rangers
Cultural Heritage Preservation	No position currently	Maroon Councils JNHT and IOJ – ACU
Administrative Manager (1) – minimum: tertiary level training and experience	Position filled	
Accounting Services (certified personnel)	Part-time Accountant Full-time Accounts Clerk	
Reception/Bookings Clerk (1) – minimum: secondary level education with training	Position filled	

PART 6.  
MONITORING

## 6. *Monitoring*

### *Natural Heritage*

As outlined in the Monitoring and Evaluation Programme described in the 2011-2016 Management Plan, there is both target-based and threat-based monitoring for the natural heritage. This formal system of monitoring was initiated under this new Plan.

Target-based monitoring focuses on outcome indicators such as further extinction and endangerment avoidance, population assessment of key species and percentage increase in natural forest cover. The key indicator for the forest monitoring programme is the percent increase in natural closed broadleaf forest. The Management Plan states that every five years there should be an analysis of satellite imagery in order to determine changes in forest cover. Through funding from the European Union and the Bill and Melinda Gates Foundation, doctoral research is being conducted on a comparison of forest cover over a longer timeframe. In light of the long term nature of changes in forest cover and the relatively high cost in terms of imagery and skilled personnel and time, a system of permanent photo-monitoring sites was established in 2006. Ten sites around the Park are photographed annually from exactly the same location and angle. This is intended as visual documentation of the forest type and health for these areas.

Forest and general Park ecological health is also being assessed through a freshwater-quality monitoring programme. In addition, an assessment of stream water quality focuses on indicators such as phosphates, nitrates and BOB, as well as temperature, pH and turbidity (total suspended solids). Temporal patterns in stream discharge are being used as an indicator

to assess the stream hydrological regime, while the relative abundance and diversity of benthic macro invertebrates (collected using one-minute kick samples) are being used as indicators of the structure of biological communities. Monitoring is conducted twice annually – during the wet and the dry seasons, at twelve points on nine major rivers.

The bird-monitoring programme uses as indicators both resident and migratory species of birds known to inhabit the Park. Fixed radius point counts are conducted at 120 points twice a year (breeding and non-breeding seasons) at a different location just inside and extending outside the Park boundary from good through to poor habitat quality, full cycle of sampling is completed every five years. Species extinction and endangered status is tracked with indicators such as the population density and distribution of species like the Giant Swallowtail Butterfly, the Jamaican Coney and the Jamaica Boa.

The threat-based monitoring programme began in January 2006. It focuses on activities such as illegal hunting, shooting and harvesting of the park's flora and fauna, as well as on the illegal conversion of forest to farmland. The rangers spearhead this monitoring activity and are also expected to exercise their powers of arrest when perpetrators are observed. The Rangers use portable GPS units to geo-reference incidents and sightings, and digital photographs are also taken. This information is recorded in a data-base which can be analysed using GIS software.

Monitoring of Cultural heritage  
Monitoring of cultural heritage sites requires the involvement of all agencies engaged in the co-management of the site

and local communities. These agencies include Jamaica Conservation Development Trust (JCdT), National Environment and Planning Agency (NEPA), Forestry Department (FD) and the Jamaica National Heritage Trust (JNHT).

The first co-management agreement, signed in 2000 was between NEPA, JCdT and FD. However, in ensuring adequate protection for the cultural heritage within the site, the JNHT has been involved with the co-management of the site with the intention to officially sign the new agreement (see related appendices).

To ensure the effective monitoring of cultural resources and recognizing that much of the cultural heritage of the site is archeological in nature, the JNHT has, in collaboration with all relevant agencies, engaged in the monitoring processes for the nominated property and its buffer zone. As there is a combined agency monitoring team, the JNHT has embarked upon a programme to train members in identifying cultural material should they come upon it. Training has started with the JCdT Rangers, however the JNHT is seeking to engage more of the monitoring agencies in understanding the cultural heritage of the site. It is evident based on the above that the JNHT has more of a regulatory role as much of the material is archeological and not easily accessed; it reduces the need for a daily onsite JNHT presence.

Further to this, traditional protection for the sites is also found within the Maroon community as primary stakeholders. They continue to participate by their involvement in the management of the site through the BJCMNP Advisory Council and Maroon Council meetings. Due to the spiritual significance of the site to the Maroon community, they remain commit-



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ted in having full and active involvement in its preservation. It is important to note that while several sites have increased forest growth due to very high rainfall in the areas, the Maroon communities to whom the sites are sacred continue to make their pilgrimage here to connect with their ancestors; as such the areas are consistently monitored and access to

them are by the approval and sanction by the Maroon leaders.

The JNHT is also involved in a programme of documentation and investigation of archeological and burial sites as invited to by the Maroon council (pers. communication May 2013; Col. Wallace Sterling) See Appendix showing letter inviting the JNHT

archeological investigation of the Quao sacred site. All the known sites representing the Maroon culture heritage have been inventoried by the JNHT with further investigations being planned to assist the Maroons with exploration of the sacred archeological and burial sites within the nominated property, its buffer zone and further afield within the Mountains.

## 6.a Key Indicators for measuring state of conservation

Indicator	Periodicity	Location of Records
Bird species composition and diversity	Annually	JCDT
Freshwater macro-invertebrates composition and diversity	Annually	JCDT
Giant Swallowtail Butterfly	Every patrol	JCDT
	Ad hoc Community reports	JCDT
Forest Cover percentage change	Every 10 years	Forestry Dept.

## *6.b Administrative arrangements for monitoring the property*

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The Jamaica Conservation and Development Trust (JCDT) is responsible for monitoring the property as part of its delegation agreement with the Natural Resources Conservation Authority (NRCA). The property is the core, Preservation Zone of the National Park and monitoring is conducted as per the Management Plan. The email address for the JCDT is: [jamaicaconservation@gmail.com](mailto:jamaicaconservation@gmail.com) and all other contact information are listed at Section 8 of this document.

In addition, since the site is within a Forest Reserve, the Forestry Department aims to access and analyse satellite and other remote imagery for the property on a regular basis. This activity is currently in progress (2013 imagery) and should be

completed in 2014. Satellite imagery is being sourced, however due to cloud cover over sections of the property, identifying suitable images has been a challenge and aerial photographs may have to be used. Prior to 2013, the last imagery for the property was obtained and analysed in 1998. The contact information for the Forestry Department is listed at Section 8 of this document.

The Jamaica National Heritage Trust has through the JNHT Act (1985) has designated the nominated property and buffer as protected national heritage. Through the Act the preservation scheme dictating level of disturbance on the entire property is dictated. Surveys have been carried out on the Quao sacred site with the intention

to further explore with the Maroon community sacred burial sites in places such as Pumpkin Hill, Watch Hill, Mammee Hill and Golden Vale Pers. Communication Col. Sterling, May 2013).

In addition, community groups such as the Bowden Pen Farmers Association continually monitor the Cunha Cunha Pass and other sacred trails and sites and regularly inform the JNHT in the event of assist with any necessary investigation regarding unlawful disturbance of the site. The Preservation Scheme describes administrative arrangements in detail of the cultural heritage of the nominated property and its buffer zone.

## 6.c Results of previous reporting exercises

Each year, National Park managers, JCDT prepares an Annual Report to assess achievement of the targets set in the annual work-plan. Every five years, as part of the National Park's management planning process, an assessment is done relating to achievement of goals, objectives and annual targets. A copy of this document (2005 – 2009) is located in the Appendices.

The 2013 analysis of satellite imagery and comparison with imagery from 2002 is currently underway, being conducted by the Forestry Department. The other studies are:

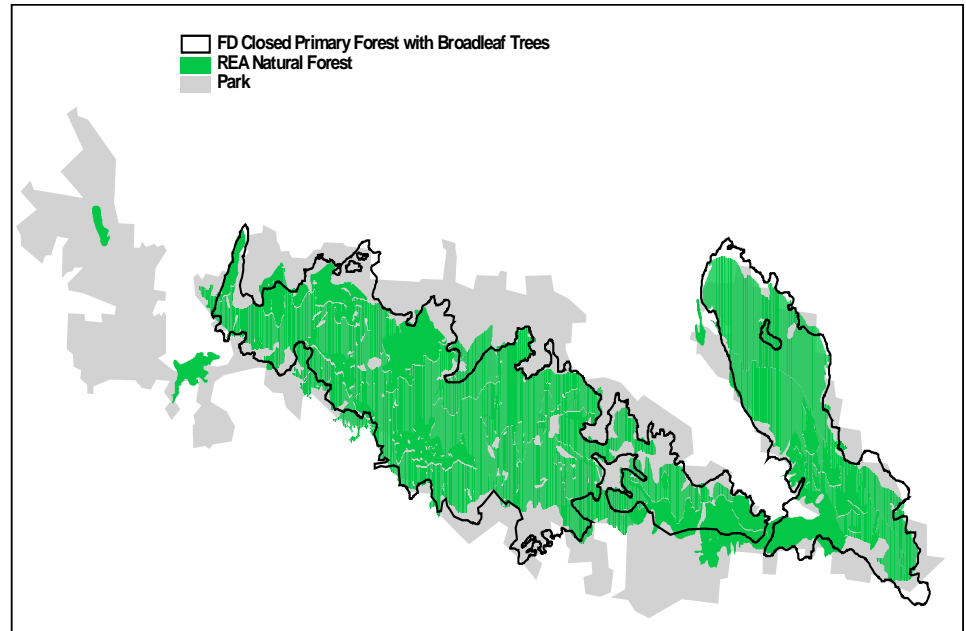
1. *Muchoney, D. M., S. Iremonger, R. Wright. 1994. A Rapid Ecological Assessment of the Blue and John Crow Mountains National Park, Jamaica. Analysis of satellite imagery (1992) along with ground-truthing identified the core natural forest at the core of the National Park (which is now the nominated property).*

2. *Forestry Department, Jamaica. 1999. Forest Cover Analysis of Jamaica.*

Forest cover and land use were mapped by the Forestry Department, based on Lands at imagery acquired in 1996 and 1998, aerial photography and ground reconnaissance.

A comparison of the results from the two studies is shown below. Essentially, they both indicate a core of healthy, intact forest at the core of the National Park.

Figure showing high quality forest as identified by the 1994 REA and 1999 Forestry analysis



Additional State of Conservation reports on the site include the following:

- Jamaica State of Environment Report (2010)
- The National Environment and Planning Agency Annual reports 2003 – 2009
- The Jamaica National Action Plan 2009
- Jamaica's National Report to the Convention on Biological Diversity (2003)
- Convention on Biological Diversity: Jamaica's Third National Report (2003-2004)
- Summary of Jamaica's Third National Report (2003-2004)
- "Living The Past" Protecting Heritage and Culture: Its Role In the Protected Areas System Plan and Impact on National Development (2005)
- Jamaica's Protected Area System Plan Biodiversity Report Categorization of Protected Areas in Jamaica (2004)
- Strategic Forest Management Plan (2010- 2014)
- Climate Change Policy Framework and Action Plan, Government of Jamaica (tableted in the Jamaica House of Parliament for review and discussion by the Ministry

of Water, Land, Environment and Climate Change)

- Financial Sustainability Plan –edited (2010)
- Jamaica's National Ecological Gap Assessment Report Final

Monitoring and Evaluation is one of the management programmes of the Blue and John Crow Mountains National Park and is described in the Management Plan and its WHS Addendum. This Programme focuses mainly on the monitoring and evaluation of natural heritage components, however each management programme has indicators used for monitoring and evaluation. The Management Plan Addendum addresses gaps which would be relevant for World Heritage Site status and in particular, monitoring for cultural heritage components.

### *Natural Heritage Monitoring*

There are two main aspects to monitoring the natural heritage of the Blue and John Crow Mountains:-

- Target-based monitoring which focuses

## Nomination of The Blue and John Crow Mountains for inscription on the World Heritage List

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on outcome indicators such as further extinction and endangerment avoidance, population assessment of key species and percentage increase in natural forest cover, and

- Threats-based monitoring which tracks active threats and their sources and impacts.

Target-based monitoring focuses on the conservation targets identified for the National Park and in particular: forest ecosystems (on shale and on limestone), birds, fresh-water ecosystems in addition to a few species which are not monitored on a formal basis.

### *Forest Ecosystems*

The key indicator for the forest monitoring programme is the percent increase in natural closed broadleaf forest. Forest ecosystems are monitored using the following methods:-

*(i) Analysis of Satellite Imagery every 10 years (currently comparing 2013 imagery with 2002)*

*(ii) Permanent Photo-monitoring Sites – JCDDT takes photographs of forest at different locations (from exactly the same point) on an annual basis. This is intended as visual documentation of the forest type and health for these areas.*

In addition to the above-mentioned monitoring, research and surveys have provided useful information. For example, photographs taken from a Jamaica Defence Force helicopter by the JCDDT Conservation Science Officer in 2009 were compared by the Forestry Department personnel, with imagery from 2002. The findings indicated that there had been no loss of cover. Chai's Ph.D. thesis and paper (Chai, Tanner & McLaren; 2009) compare satellite imagery from the 1983 – 1992 period (before Park establishment) with imagery from

the 1992 – 2002 period (after its establishment). The main finding was that, for the period studied, whilst forest clearance and fragmentation were still ongoing in the National Park, net deforestation had declined 63% due to increased re-growth of forests.

### *Birds*

Birds are excellent indicators of ecosystem health. The bird-monitoring programme uses as indicators both resident and migratory species of birds known to inhabit the park. Fixed radius point counts are conducted at 120 points twice a year (breeding and non-breeding seasons) at a different location just inside and extending outside the Park boundary from good through to poor habitat quality. A full five year cycle of locations has been monitoring and the second is about half way. Preliminary results are good indicating no changes in distribution or populations.



PART 7.  
DOCUMENTATION

7.a. Photographs and audio visual image inventory and authorization form

Id No	Format	Caption	Date of Photo (m/y)	Photographer/Director	Copyright owner	Contact Details of Copyright Owner	Non exclusive cession of rights
1.	Jpeg	Red-billed streamer tail hummingbird	Unknown	Ricardo Miller	Ricardo Miller	<a href="mailto:r.miller@nepa.gov.jm">r.miller@nepa.gov.jm</a>	No
2.	Jpeg	Misty Corn Puss Gap Trail	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
3.	Jpeg	Maroon showing the Janga	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
4.	Jpeg	Stone Marker	Unknown	Ricardo Miller	Richardo Miller	<a href="mailto:r.miller@nepa.gov.jm">r.miller@nepa.gov.jm</a>	No
5.	Jpeg	Moore Town Culture Centre	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
6.	Jpeg	Hiking Cuntha Cuntha Pass Trail	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
7.	Jpeg	Woman showing Janga	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
8.	Jpeg	View of the Mountains from Hayfield		Ricardo Miller	Richardo Miller	<a href="mailto:r.miller@nepa.gov.jm">r.miller@nepa.gov.jm</a>	No
9.	Jpeg	Three Finger Spring	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
10.	Jpeg	Jamaican Tody	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
11.	Jpeg	Spring along Cuntha Cuntha Trail	Unknown	S.Blair. Hedges	S.Blair. Hedges	<a href="mailto:sbh1@rsu.edu">sbh1@rsu.edu</a>	No
12.	Jpeg	Etched British Stone	1973	Unknown	Institute of Jamaica	<a href="mailto:pr.ioj@mail.infochan.com">pr.ioj@mail.infochan.com</a>	No
13.	Jpeg	Hiking along Cuntha Cuntha Pass Trail	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
14.	Jpeg	Maroon blowing the abeng	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
15.	Jpeg	View of the Blue Mountains	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
16.	Jpeg	Nanny Town Excavations	1990	K. Agorsah	K. Agorsah		No
17.	Jpeg	Step to Corn Puss Gap Trail	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
18.	Jpeg	Traditional dancing by Moore Town Maroons	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:inhti@cwjamaica.com">inhti@cwjamaica.com</a>	Yes
19.	Jpeg	Nanny - Queen of the Maroons	Unknown	Unknown	Unknown	Unknown	No
20.	Jpeg	Black-billed streamer tail hummingbird	Unknown	Ricardo Miller	Richardo Miller	<a href="mailto:r.miller@nepa.gov.jm">r.miller@nepa.gov.jm</a>	No
21.	Jpeg	Red-billed and black-billed streamer tail hummingbirds	Unknown	Ricardo Miller	Richardo Miller	<a href="mailto:r.miller@nepa.gov.jm">r.miller@nepa.gov.jm</a>	No

<b>Id No</b>	<b>Format</b>	<b>Caption</b>	<b>Date of Photo (m/y)</b>	<b>Photographer/ Director</b>	<b>Copyright owner</b>	<b>Contact Details of Copyright Owner</b>	<b>Non exclusive session of rights</b>
22.	Jpeg	Giant Swallowtail Butterfly	Unknown	<i>Vaughan Turland</i>	<i>Vaughan Turland</i>	Unknown	No
23.	Jpeg	Step to Corn Puss Gap Trail	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
24.	Jpeg	Trail to Quao River	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
25.	Jpeg	Quao River	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
26.	Jpeg	View of Mountains from Hayfield	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
27.	Jpeg	View of Mountains from Maroon Sacred Site	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
28.	Jpeg	Blue Mountains	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
29.	Jpeg	Moore Town Maroon	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
30.	Jpeg	Hiking Curnha Curnha Pass Trail	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
31.	Jpeg	Remains of British Military fortifications	1990	K. E. Agorsah	K. E. Agorsah	Unknown	No
32.	Jpeg	Bellamine Bottle Face Imprint	Sept. 2009	A. Brown	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
33.	Jpeg	White Clay Smoking Pipes Stems	Sept. 2009	A. Brown	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
34.	Jpeg	Zeni in situ	1990	UWI Arch. Dept	UWI	<a href="mailto:history@uwimona.edu.jm">history@uwimona.edu.jm</a>	No
35.	Jpeg	Buckle	1990	UWI Arch. Dept	UWI	<a href="mailto:history@uwimona.edu.jm">history@uwimona.edu.jm</a>	No
36.	Jpeg	Etched British Stone	1973	Unknown	Unknown	Unknown	No
37.	Jpeg	Hammer in situ	1990	UWI Arch. Dept	UWI	<a href="mailto:history@uwimona.edu.jm">history@uwimona.edu.jm</a>	No
38.	Jpeg	Wire Bottle in situ	1990	UWI Arch. Dept	UWI	<a href="mailto:history@uwimona.edu.jm">history@uwimona.edu.jm</a>	No
39.	Jpeg	Brownsfield Archaeological Site	1990	UWI Arch. Dept	UWI	<a href="mailto:history@uwimona.edu.jm">history@uwimona.edu.jm</a>	No
40.	Jpeg	Zeni in situ	1990	UWI Arch. Dept	UWI	<a href="mailto:history@uwimona.edu.jm">history@uwimona.edu.jm</a>	No
41.	Jpeg	Moore Town Maroons performing traditional drumming	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
42.	Jpeg	Entida gigas (Cacoon or Kakoon) and busso soup	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
43.	Jpeg	Basket used to catch 'Busso'	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes

Id No	Format	Caption	Date of Photo (m/y)	Photographer/Director	Copyright owner	Contact Details of Copyright Owner	Non exclusive cession of rights
44.	Jpeg	Barrettia monilifera	July 2008	Thera Edwards	Thera Edwards	theraedwards@gmail.com	Yes
45.	Jpeg	Ridges of the Blue Mountain	Sept. 2010	S. Walters	JNHT	inht@cwjamaica.com	Yes
46.	Jpeg	Blue Mountains	Unknown	David Lee	David Lee	Unknown	Yes
47.	Jpeg	Misted Capped Mountain	Dec. 2013	Marlon Morgan	JNHT	inht@cwjamaica.com	Yes
48.	Jpeg	Cascade Falls		Unknown	JCDT	jamaicaconservation@gmail.com	Yes
49.	Jpeg	Nanny Falls	April 2006	Jeremy Francis	JCDT	jamaicaconservation@gmail.com	Yes
50.	Jpeg	Three Finger Spring	Oct. 2013	Marlon Morgan	JNHT	inht@cwjamaica.com	Yes
51.	Jpeg	Rio Grande River	2013	S. Walters	JNHT	inht@cwjamaica.com	Yes
52.	Jpeg	Mountain View	Oct. 2013	Marlon Morgan	JNHT	inht@cwjamaica.com	Yes
53.	Jpeg	Forest of the Blue Mountains	Unknown	Unknown	Unknown	Unknown	Yes
54.	Jpeg	Cyathea sp. (Tree Fern) in montane forest of Blue Mountains	January 2005	Shauna Lee Chai	JCDT	jamaicaconservation@gmail.com	Yes
55.	Jpeg	Psychotria corymbosa	May 2005	JCDT	JCDT	jamaicaconservation@gmail.com	Yes
56.	Jpeg	Giant Swallowtail Butterfly		Vaughan Turland	Vaughan Turland	Unknown	Yes
57.	jpeg	Onycophora (Peripatus sp) velvet worms	2007	Shauna Lee Chaie	JCDT	jamaicaconservation@gmail.com	Yes
58.	Jpeg	Black Janga (Atya innocous)		JCDT	JCDT	jamaicaconservation@gmail.com	Yes
59.	Jpeg	Eleutherodactylus alticola	Unknown	S.Blair. Hedges	S.Blair. Hedges	sbh1@psu.edu	Yes
60.	Jpeg	Eleutherodactylus pentasyringos	Unknown	S.Blair. Hedges	S.Blair. Hedges	sbh1@psu.edu	Yes
61.	Jpeg	Spherodactylus dactnicolor	Unknown	S. Blair Hedges	S. Blair Hedges	sbh1@psu.edu	Yes
62.	Jpeg	Dendroica caerulescens (Black-throated Blue Warbler	Unknown	Paul Jones	Paul Jones	Unknown	No
63.	Jpeg	Nesospas nigerrimus (Jamaican Blackbird)	Unknown	Ricardo Miller	Ricardo Miller	r.miller@nepa.gov.jm	No
64.	Jpeg	Red-billed streamer tail hummingbird	Unknown	Ricardo Miller	Ricardo Miller	r.miller@nepa.gov.jm	No
65.	Jpeg	Coney or Hutia (Geocapromys brownii)	Unknown	JCDT	JCDT	jamaicaconservation@gmail.com	Yes
66.	Jpeg	Eptesicus lymani Shamel	Unknown	Andrea	NEPA	Nepa.gov.jm	Yes

Id No	Format	Caption	Date of Photo (m/y)	Photographer/ Director	Copyright owner	Contact Details of Copyright Owner	Non exclusive session of rights
		(Jamaican Brown Bat)		Donaldson/NEPA			
67.	Jpeg	Golden Vale, Portland with the Blue Mountains in the background 1824	1824	James Hakewill	James Hakewill	Unknown	Yes
68.	Jpeg	Jamaican Maroon Captain Leonard Parkinson, 1796.	1796	Unknown	Unknown	Unknown	No
69.	Jpeg	Spring Garden Estate, St. George	Unknown	James Hakewill	James Hakewill	Unknown	Yes
70.	Jpeg	View of the Mountains	Sept 2010	S. Walters	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
71.	Jpeg	Leonard Parkinson, 1796 Jamaican Maroon Captain	1796	BCC Museum	BCC Museum	Unknown	Yes
72.	Jpeg	Brownsfield Archaeological Excavation	1992	Unknown	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
73.	Jpeg	Nanny Town Archaeological Excavation	1990	UWI Arch. Dept	UWI	<a href="mailto:history@uwimona.edu.jm">history@uwimona.edu.jm</a>	Yes
74.	Jpeg	Remains of British Military fortifications	1990	K. E. Agorsah	K. E. Agorsah	Unknown	No
75.	Jpeg	Queen Nanny's Burial grave in Moore Town	April 2006	Jeremy Francis	JCDT	<a href="mailto:jamaicaconservation@gmail.com">jamaicaconservation@gmail.com</a>	Yes
76.	Jpeg	Nanny Day celebrations at Moore Town – October 21, 2013	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
77.	Jpeg	Colonel Sterling of the Moore Town Maroons receives award at Nanny Day celebrations	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
78.	Jpeg	Moore Town Maroons perform using traditional drums	Unknown	Moore Town Maroons	Moore Town Maroons	Unknown	Yes
79.	Jpeg	Traditional jerking techniques	Unknown	Charles Town Maroons	Charles Town Maroons	Unknown	Yes
80.	Jpeg	Cacoon Seeds	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes
81.	Jpeg	Eritida gigas (Cacoon or	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@cwjamaica.com">jnht@cwjamaica.com</a>	Yes

Id No	Format	Caption	Date of Photo (m/y)	Photographer/Director	Copyright owner	Contact Details of Copyright Owner	Non exclusive session of rights
82.	Jpeg	Kakoon) and busso soup Jokoto – Traditional Medicinal plants	March 2006	Adonna Jardine Comrie	JCDT	jamaicaconservation@gmail.com	Yes
83.	Jpeg	Cow Foot	March 2006	Adonna Jardine Comrie	JCDT	jamaicaconservation@gmail.com	Yes
84.	Jpeg	Anolis reconditus	Unknown	S.Blair Hedges	S.Blair Hedges	sbh1@psu.edu	
85.	Jpeg	Black-billed streamer tail hummingbird	Unknown	Ricardo Miller	Ricardo Miller	r.miller@nepa.gov.jm	No
86.	Jpeg	Red-billed and black-billed streamer tail hummingbirds	Unknown	Ricardo Miller	Ricardo Miller	r.miller@nepa.gov.jm	No
87.	Jpeg	Maroon draped in traditional ambush vines	Dec. 2013	Marlon Morgan	JNHT	inht@cwjamaica.com	Yes
88.	Jpeg	View of the Mountain Peak	2010	S. Walters	JNHT	inht@cwjamaica.com	Yes
89.	Jpeg	Silver Hills Falls	Unknown	JCDT	JCDT	jamaicaconservation@gmail.com	Yes
90.	Jpeg	National Park Rangers conduct water quality monitoring		JCDT	JCDT	jamaicaconservation@gmail.com	Yes
91.	Jpeg	Jamaican Boa	Unknown	Ricardo Miller	Ricardo Miller	r.miller@nepa.gov.jm	Yes
92.	Jpeg	Pitiosporum undulatum (Wild Coffee	2007	Thera Edwards	Thera Edwards	theraedwards@gmail.com	Yes
93.	Jpeg	Nanny Town Archaeological Site	1990	UWI Arch. Dept.	UWI	history@uwimona.edu.jm	Yes
94.	Jpeg	Maroon conducting small scale farming	Dec. 2013	Marlon Morgan	JNHT	inht@cwjamaica.com	Yes
95.	Jpeg	Steep slopes of the Blue Mountain	Dec. 2013	Marlon Morgan	JNHT	inht@cwjamaica.com	Yes
96.	Jpeg	Rio Grande River	Dec. 2013	Marlon Morgan	JNHT	inht@cwjamaica.com	Yes
97.	Jpeg	Community members receiving certification	Unknown	JCDT	JCDT	jamaicaconservation@gmail.com	Yes
98.	Jpeg	BJCMNP Advisory Committee Meeting	July 2013	JCDT	JCDT	jamaicaconservation@gmail.com	Yes

<b>Id No</b>	<b>Format</b>	<b>Caption</b>	<b>Date of Photo (m/y)</b>	<b>Photographer/ Director</b>	<b>Copyright owner</b>	<b>Contact Details of Copyright Owner</b>	<b>Non exclusive cession of rights</b>
99.	Jpeg	Moore Town Maroon Community	Oct. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@owjamaica.com">jnht@owjamaica.com</a>	Yes
100.	Jpeg	Community farmer stands beside Beewood sapling.	Unknown	JCDT	JCDT	<a href="mailto:jamaicoconservation@gmail.com">jamaicoconservation@gmail.com</a>	Yes
101.		National Park Rangers receive training in cultural heritage.	2013	JNHT	JNHT	<a href="mailto:jnht@owjamaica.com">jnht@owjamaica.com</a>	Yes
102.	Jpeg	View of the Misty Mountains	Dec. 2013	Marlon Morgan	JNHT	<a href="mailto:jnht@owjamaica.com">jnht@owjamaica.com</a>	Yes

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## *7.b Texts related to protective designation, copies of property management plans or documented management systems and extracts of other plans relevant to the property*

The relevant documents are listed below and are included as appendices:

### MANAGEMENT

- Blue and John Crow Mountain National Park Management Plan 2005- 2010
- Hollywell Ecotourism Development and Management Plan
- Hollywell Biodiversity Conservation Management Plan
- Hollywell Blue and John Crow Mountains National Park Signage Plan with Graphic Design Guideline
- Blue Mountain Peak Trail Biodiversity Conservation Management Plan
- Jamaica Conservation and Development Trust Strategic Plan 2005 – 2009
- Delegation Agreement
- Co-management Agreement

### LEGISLATION

- Natural Resources Conservation Authority (Blue and John Crow Mountains National Park) (Declaration) Order, 1993
- Natural Resources (National Parks) Regulations 1993
- Natural Resources Conservation Authority (Blue and John Crow Mountains National Park) (User Fees) Regulations 2003
- The Forest Act 1996
- National Forest Management and Conservation Plan 2001
- The Forest Regulations 2001

### STATUS REPORTS

- Annual reports on status of annual workplans 2005, 2006 and 2007
- Bird Monitoring Reports
- Freshwater Monitoring Reports

### OTHER PLANS

- Portland Sustainable Development Profile (extract Chapter 4: The Natural Environment)
- Kingston and St Andrew Sustainable Development Plan (extract Sections 4.2 – 4.10)



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### *7.c Form and date of most recent records or inventory of the property*

RECORD/INVENTORY	FORM	DATE
Bird Monitoring (annexed)	Report (MS Word/pdf)	2004 -2008
Freshwater Monitoring (annexed)	Report (MS Word/pdf)	2005 -2008
Threats monitoring	Digital images, reports	2006 -2008
Photo Monitoring	Digital Images	2005 – 2008
Maps, data, observation points, species sightings	Geographical Information System (raster and vector data)	2005 - 2009

### *7.d Address where inventory, records and archives are held*

INSTITUTION	RECORD CLASS	ADDRESS
Jamaica Conservation & Development Trust	Management Plans Annual Reports Biodiversity Monitoring Reports Threats Monitoring Photo Monitoring	29 Dumbarton Avenue Kingston 10 Jamaica
Institute of Jamaica	Plant and animal specimens Photographs	10 – 16 East Street Kingston, Jamaica
Jamaica National Heritage Trust	Photographs and maps	79 Duke Street Kingston, Jamaica
University of the West Indies	Artefacts Plant Specimens	Mona Kingston 7 Jamaica

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### 7.e Bibliography

Addresses where inventories, records and archives are kept:

Island Record Office, Twickenham Park, Spanish Town St. Catherine, Jamaica. Tel: 1-876-749-0550

Institute of Jamaica 10-16 East Street, Kingston, Jamaica. Tel : 1-876-922-0620

Jamaica National Heritage Trust , 79 Duke Street. Kingston Jamaica Tel :1-876-922-1287

National Archives of Jamaica, Emancipation Square, Spanish Town, St. Catherine, Jamaica.

Tel :1- 876- 984-2581

National Environment and Planning Agency, 10 Caledonia Avenue, Kingston 5. Jamaica Tel : 1- 876- 754 -7540

National Land Agency, 93 Hanover Street , Kingston. Jamaica Tel:1-876-946-5263

National Library of Jamaica, 12 East Street, Kingston. Jamaica. Tel :1-876 967-2516

University of the Technology Jamaica, Papine Jamaica Tel : 1-876-927 1680

University of the West Indies, Mona, Jamaica . Tel :1-876-927-1660

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National Land Agency October 2013 Map of Jamaica Showing the Nominated Property

Watershed management units originating in the nominated site.

(Credit: Meteorological Office of Jamaica)

Isohyetal Map of Eastern Jamaica prepared using 29 year rainfall records

Credit: (Metrological Office of Jamaica)

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PART 9.  
SIGNATURE ON BEHALF OF  
STATE PARTY



**Nomination of The Blue and John Crow Mountains for inscription on the  
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Lisa Hanna (Hon)  
Minister  
Ministry of Youth and Culture







The Cultural and Natural Heritage  
of the  
**Blue and John Crow  
Mountains**

**Management Plan  
2011 - 2016**

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*Plate 1: Blue Mountain Range (Source: JCDT)*

## FOREWORD

The Blue and John Crow Mountains National Park (BJCMNP) covers an area of 48,000 hectares and was designated under the Natural Resources Conservation Authority (NRCA) Act on 26 February 1993. The park has been managed by the Jamaica Conservation and Development Trust, a non-governmental organization since 1996. The BJCMNP forms an integral part of Jamaica's National System of Protected Areas which will contribute to the protection of Jamaica's biological diversity.

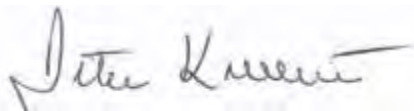
The BJCMNP protects one of Jamaica's finest and largest natural and cultural heritage sites. It contains the largest continuous block of natural, closed broadleaf forest remaining in the island, providing critical habitats for native, endemic and migratory species as well as the Blue Mountain Peak which at 2,256 metres, is the highest point in the island. In recognition of its international significance, the site was nominated by Jamaica in 2009, as a United Nations Educational Scientific and Cultural Organisation (UNESCO) World Heritage Site.

This Management Plan has been prepared in accordance with the NRCA Act of 1991 and provides for the protection and conservation of the national park and Forest Reserve designated in the 1950's under the Forest Act 1937. It outlines the management objectives and programmes to ensure that the natural, social and cultural values of the area receive an adequate level of protection.

The management of the BJCMNP contributes not only to fulfilling obligations under international conventions, such as the World Heritage Convention and the Convention on Biological Diversity, but to the achievement of Vision 2030 – Jamaica's National Development Plan Goal 4: "Jamaica has a Healthy Natural Environment". This goal includes three national outcomes, namely the sustainable management and use of the environmental and natural resources; hazard risk reduction and adaptation to climate change and sustainable rural and urban development. The programmes outlined in the Plan are key mechanisms to ensuring that these outcomes are realized.

The management of this National Park and Forest Reserve has been an example of an integrated approach by government and non-government entities to planning, financing, monitoring and programme implementation. The partnership between the Natural Resources Conservation Authority/National Environment and Planning Agency, Forestry Department, Jamaica National Heritage Trust and the non-governmental organisation – Jamaica Conservation and Development Trust, has also resulted in the improved management of one of the island's premier natural and cultural heritage sites.

The Plan will provide the management framework for the BJCMNP over the next five years. The National Environment and Planning Agency looks forward to the benefits that will accrue from the implementation of the Plan, particularly the sustainable management of natural and heritage resources for the benefit of present and future generations of Jamaicans.



Chief Executive Officer  
National Environment and Planning Agency

## PREFACE

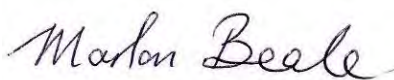
The Blue and John Crow Mountains National Park (BJCMNP) located in eastern Jamaica is 486.5 sq. km and includes the largest contiguous block of closed broadleaf forest (one-third of all that remains) in Jamaica. The wide variation in geology, altitude and climate within the property has resulted in a highly diverse flora and fauna in a variety of forest, stream and other ecosystems. The BJCMNP is recognised as a globally important site for the conservation of plant biodiversity. About 33% of Jamaica's endemic flowering plants occur in these mountain ranges, with 33% of the endemic flowering plants in the National Park being restricted in their entire global range to this area. The BJCMNP has been identified as a critical component of the Caribbean Biodiversity Hotspot with its main mountain ranges cited as two of the key biodiversity areas within the Hotspot which are 'wholly irreplaceable on a global scale' for their globally threatened endemic species.

The rugged and precipitous nature of the mountain ranges, cascading waterfalls, thick forest and wide variety of plants and animals provided all the resources that enabled the Windward Maroons to develop their unique culture and defend their freedom. As the resting place of the Maroon freedom fighters, the BJCMNP is a sacred natural site, its bulk and height providing a natural memorial to the Maroon ancestors and an inspiration for the overcoming spirit. The descendants of this strong, proud people maintain their heritage within the BJCMNP's Community Buffer Zone in the Rio Grande and Buff Bay Valleys.

The BJCMNP is managed as an IUCN Category II protected area, to conserve its natural, cultural and recreational values. It is managed by a non-government organisation, the Jamaica Conservation and Development Trust (JCDT) under delegation from the NRCA through the National Environment and Planning Agency (NEPA) and a collaborative management agreement with NEPA, the Forestry Department and most recently, the Jamaica National Heritage Trust.

The JCDT is honoured to manage this magnificent property, and particularly so, since despite the challenges, the site has received the highest management effectiveness (METT) score amongst natural protected areas in Jamaica (UNDP, 2010). A management plan is essential for effective management as it enhances focus on key objectives and targets, guides monitoring and evaluation and hence provides for adaptive management. Part I of this Management Plan describes the physical, biological, social and cultural features of the BJCM, the threats to the values being protected and the root causes of these threats. Part II describes the strategies for conserving the biodiversity, ecosystems and cultural heritage of the BJCMNP and its Community Buffer Zone.

The JCDT looks forward to working with its co-management partners and all stakeholders to improve conservation of the BJCMNP under this new Management Plan 2011 – 2016.



Acting Park Manager,  
Jamaica Conservation and Development Trust

## ACKNOWLEDGEMENTS

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The JCDT gratefully acknowledges the input of:-

1. all the members of the Park's Co-Management Committee – representing the following organizations:-
  - National Environment and Planning Agency
  - Forestry Department
  - Jamaica Conservation and Development Trust
2. Thera Edwards, Roderick Ebanks and Adonna Jardine-Comrie for their significant research and documentation in the preparation of the BJCMNP United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Site (WHS) nomination dossier, which has been used in the preparation of this Management Plan.

The JCDT thanks the almost 300 individuals from various agencies, organizations and communities who participated in the working groups, community meetings and public consultations. Special thanks to all the persons who reviewed the final draft and made comments that will make this document more accurate and useful.



*Plate 2: Volunteer Work-day at Holywell (Source: JCDT)*

## LIST OF ACRONYMS

ACIJ	-	African Caribbean Institute of Jamaica
BJCM	-	Blue and John Crow Mountains
BJCMNP	-	Blue and John Crow Mountains National Park
BM	-	Blue Mountains
BMST	-	Blue Mountains Sustainable Tourism
BOD	-	Biological Oxygen Demand
BPFA	-	Bowden Pen Farmer's Association
CANARI	-	Caribbean Natural Resources Institute
CBO	-	Community-based Organisation
CDC	-	Community Development Committee
CIB	-	Coffee Industry Board
CIDA	-	Canadian International Development Agency
CIDCO	-	Coffee Industry Development Company
CoC	-	Chief of Corps
CHO	-	Cultural Heritage Officer
CSO	-	Conservation Science Officer
CTMC	-	Charles Town Maroon Council
DAC	-	Development Area Committee
ECOO	-	Education and Community Outreach Officer
EFJ	-	Environmental Foundation of Jamaica
EMS	-	Environmental Management System
EU	-	European Union
FD	-	Forestry Department
FIDCO	-	Forest Industries Development Company
GIS	-	Geographical Information System
GOJ	-	Government of Jamaica
IDB	-	Inter-American Development Bank
IOJ	-	Institute of Jamaica
ISCF	-	Island Special Constabulary Force
IUCN	-	International Union for the Conservation of Nature
JAS	-	Jamaica Agricultural Society
JCDC	-	Jamaica Cultural Development Commission
JCDT	-	Jamaica Conservation and Development Trust
JCF	-	Jamaica Constabulary Force
JCM	-	John Crow Mountains
JDF	-	Jamaica Defence Force
JHTA	-	Jamaica Hotel and Tourist Association
JNHT	-	Jamaica National Heritage Trust
JNPTF	-	Jamaica National Parks Trust Fund
JTB	-	Jamaica Tourist Board
KDZ	-	Kids Discovery Zone

## LIST OF ACRONYMS continued

LAC	-	Local Advisory Committee
MIND	-	Management Institute for National Development
MTMC	-	Moore Town Maroon Council
NAI	-	National Association of Interpreters
NGO	-	Non-Government Organisation
NEPA	-	National Environment and Planning Agency
NFMCP	-	National Forest Management and Conservation Plan
NHMJ	-	Natural History Museum of Jamaica
NP	-	National Park
NRCA	-	Natural Resources Conservation Authority
NWC	-	National Water Commission
PIOJ	-	Planning Institute of Jamaica
PARC	-	Protected Areas Resource Conservation Project
PRM	-	Port Royal Mountains
PATH	-	Poverty Alleviation through Tourism and Heritage
REA	-	Rapid Ecological Assessment
RADA	-	Rural Agricultural Development Agency
RTO	-	Recreation and Tourism Officer
SDC	-	Social Development Commission
STAC	-	Scientific and Technical Advisory Committee
SNS	-	Sacred Natural Sites
TNC	-	The Nature Conservancy
UNESCO	-	United Nations Education and Scientific Council
USAID	-	United States Agency for International Development
UTECH	-	University of Technology (Jamaica)
UWA	-	Underground Water Authority
UWI	-	University of the West Indies
WHS	-	World Heritage Site
WTO	-	World Tourism Organisation

# BJCMNP MANAGEMENT PLAN

## EXECUTIVE SUMMARY

The Blue and John Crow Mountains National Park (BJCMNP) is Jamaica's first and only National Park. It was designated in February, 1993 through the Natural Resources Conservation (BJCMNP) Order and is also a Forest Reserve gazetted initially under the 1927 "Afforestation Law" and later in December, 1950 under the Forest Act of 1937. The National Park was established out of local and international concern for biodiversity and other natural resources, as it was recognized that destruction of the area's unique ecosystems was taking place at an alarming pace. The BJCMNP represents one of our nation's most prominent natural areas as it protects the largest contiguous area of natural (closed broadleaf) forest, and the only montane forest on shale, in the island. Culturally, the BJCMNP is significant as its forested mountains and springs played a key role in the establishment of the Windward Maroons, providing a refuge that sustained them through their conflicts with both the Spanish and British colonists, to their success in establishing the first Maroon free nation. In recognition of the site's natural and cultural heritage which is believed to be of outstanding universal value, the BJCMNP has been nominated by the people of Jamaica, as a UNESCO World Heritage Site.

The sustained management of the BJCMNP is critical to the survival of much of Jamaica's natural heritage, and for the socio-economic development of the nation. Without its rainforests, the island's capital and main urban population centre - Kingston along with the rest of eastern Jamaica, would be faced with a water crisis as the provision of water is but one of the essential ecosystem services which the BJCMNP performs. This floristically remarkable area represents one of the last few remaining habitats for threatened endemic animals like the Jamaican Coney (*Geocapromys brownii*), the Yellow Boa (*Epicrates subflavus*), the Giant Swallowtail Butterfly (*Pterourus homerus*) and the Jamaican Blackbird (*Nesopsar nigerrimus*). The majestic mountains are the last resting place of the Maroon freedom fighters who established the first Maroon society and culture in the post 1492 world. Few tangible remains linger, except at Nanny Town, originally a Taino sacred hill site and later the capital of the Windward Maroons, now just an archaeological site deep in the forests and rugged terrain of the Blue Mountains. The rich oral and intangible heritage of the Maroons however, has been retained by the Maroon communities who now live outside the boundaries of the BJCMNP, within its Community Buffer Zone.

A close review of the threats faced by the BJCMNP's natural heritage indicates that deforestation for agriculture and the growth of invasive species head the list. Further analysis of these problems indicates the following as essential strategies for the abatement of these threats:

- a) increased enforcement of environmental legislation, particularly related to boundary encroachment,
- b) adoption of more environmentally sustainable livelihoods by resource users, and
- c) rehabilitation of degraded forest penetrating the core natural areas.



With respect to the cultural heritage of the Maroons, loss of intangible heritage through assimilation of popular and religious beliefs and practices and reduced transfer of indigenous knowledge to younger Maroons was beginning to have a negative impact. However, this is being addressed with heightened internal and external awareness about the importance of Maroon heritage, and steps are being taken to record and revitalize the heritage. Sustained action in these areas is necessary for the continued existence of the forest ecosystems and the Maroon heritage of the Blue and John Crow Mountains.

In addition to supporting the achievement of Goal 4 of the National Vision 2030, the sustained and effective management of the BJCMNP contributes to the meeting of Jamaica's international obligations under several conventions including the:-

1. Convention on Biological Diversity
2. Convention to Combat Desertification
3. United Nations Framework Convention on Climate Change
4. Convention concerning the Protection of the World Cultural and Natural Heritage.

The management of the BJCMNP has been delegated to the Jamaica Conservation and Development Trust (JCDT) by the Natural Resources Conservation Authority (NRCA) through the National Environment and Planning Agency (NEPA). As the site is also a Forest Reserve, a collaborative management (co-management) agreement has been signed by the NRCA, JCDT and the Forestry Department (FD). In light of the added focus of cultural heritage conservation, the Jamaica National Heritage Trust (JNHT) will sign the agreement and join the team of co-management partners for the BJCMNP.

This Management Plan for the BJCMNP is for a five-year period (2011 – 2016). Its main purpose is to guide the management of the National Park around its three main areas of focus: i) the conservation of plants and other wildlife species, ii) the conservation of its intangible Maroon heritage and iii) the provision of natural and cultural heritage-based recreational opportunities. It will be implemented on a budget of estimated recurrent expenditure averaging JAS\$49 million or US\$568,209 per year. Capital and project expenditure is estimated at an average of JAS\$23.6 million or US\$273,953 per year (see Chapter 12). Actual expenditure depends on the sourcing of sufficient funding from the NRCA, Jamaica National Parks Trust Fund (JNPTF), donor agencies and fundraising. The plan will be reviewed and evaluated every two years and a full revision done after five years.

The management plan was prepared between 2009 – 2011 using a participatory process that involved 280 stakeholders through four thematic workshops with institutional stakeholders and technical experts, twelve buffer zone community consultations, review of the draft plan in a workshop, followed by editing and submission of the final draft to NEPA and FD to obtain comments for the final document. The process and content of the Plan were guided by several documents including publications of the International Union for the Conservation of Nature (IUCN) and the NRCA Draft Guidelines (NRCA, 1988). The management prescriptions incorporate lessons learned from past management experience (inclusive a detailed assessment of implementation of the previous management plan for the period 2005 – 2009) along with inputs from community,

government, academic and other technical stakeholders. Successful implementation requires the resources of the BJCMNP's co-management partners and other stakeholders.

### **BJCMNP Over-arching Goal**

The over-arching goal of preserving the area as a national park is to protect the remaining core area of natural (closed broadleaf) forest for its biological diversity, intangible cultural heritage and the maintenance of ecosystem services including water supply and recreational opportunities. This overarching goal will be achieved through strategies aimed at meeting seven goals and implemented under seven programmes. These programmes are described in detail in Part II of the Plan. The programmes are:

- **Conservation of Natural Heritage**
- **Conservation of Cultural Heritage**
- **Enforcement and Compliance**
- **Education and Public Involvement**
- **Recreation and Tourism**
- **Monitoring and Evaluation**
- **Governance and Administration**

It should be noted that:-

1. Activities under the Conservation Programmes include research aimed at improving management effectiveness, however Park management does not anticipate being able to support all the research needed, hence a research prospectus has been prepared to promote research in areas where the management planning process has highlighted a gap in knowledge. In light of the nomination of the site as a UNESCO World Heritage Site for both cultural and natural heritage, the 2011 – 2016 Management Plan includes a chapter providing guidance on conservation of the Maroon heritage within the BJCMNP and its Community Buffer Zone. Most of the funds for conservation of cultural heritage will come at least during this period, from projects.
2. The issue of sustainable livelihoods is dealt with under both the Education & Public Involvement, and the Recreation & Tourism Programmes.
3. The Monitoring and Evaluation Programme will focus on monitoring of threats and outcomes, and each Management Programme has its own monitoring and assessment system.
4. The budget, financing and self-sufficiency are dealt with in the Governance & Administration Programme and the Recreation & Tourism Programme.

The seven BJCMNP Management Programmes for 2011 – 2016 are summarized below with their respective goals and an outline of the strategic approaches and key activities. A summary costing (including administrative overheads) has been provided below. The details of the strategies and activities including justification for these approaches are laid out in Part II of this Plan. Chapter 4 describes zoning of the National Park and the following chapters explain each of the above-mentioned Programmes in detail, with a tabular summary of key programme components at the end.

**NATURAL HERITAGE CONSERVATION PROGRAMME**  
**Goal 1: To maintain and enhance the remaining area of closed broadleaf forest and component species of plants and animals that exist in the BJCMNP.**

<b>STRATEGIC APPROACH</b>	<b>KEY ACTIVITIES</b>	<b>COST</b>
Enforcement of national park and forest legislation and environmental education can be considered as components of conservation or natural resource management, but this programme speaks to activities that are more directly related to the resources rather than the resource users. This programme is focused on practical, 'on-the-ground' conservation action as identified through research. To date, research and best practice in protected area management indicate that maintenance of natural habitats and rehabilitation of degraded areas are the best approaches as this protects both the ecosystems and the species within. As research identifies more specific approaches, these will be implemented.	<ol style="list-style-type: none"> <li>1. Implementation of suitable rehabilitation practices such as planting native fast-growing trees (mainly non-lumber), and the removal of targeted invasive species in priority zones.</li> <li>2. Propagation of native species for use in forest rehabilitation.</li> <li>3. Maintenance and promotion of a research prospectus to universities and researchers. Facilitating researchers and liaising with them to encourage training, ensure proper monitoring of research and the delivery of research documentation.</li> <li>4. Implementation of conservation measures (as identified through research) for threatened biodiversity focusing on forests, streams, birds, epiphytes, the Jamaican Coney, Yellow Boa and Giant Swallowtail Butterfly.</li> </ol> <p><b>Monitoring:-</b> see Goal 5</p>	<p><b>5 Year Budget (2011 – 2015)</b></p> <p>Recurrent: J\$23 million (US\$269,775)</p> <p>Capital: J\$32.5 million (US\$377,907)</p> <p><b>Budget (2011)</b></p> <p>Recurrent: J\$4,000,814 (US\$46,521)</p> <p>Capital: J\$2,800,000 (US\$32,558)</p> <p>Includes M&amp;E Prog. costs</p>

**CULTURAL HERITAGE CONSERVATION PROGRAMME**  
**Goal 2: To maintain and enhance the appreciation for and practice of the Maroon heritage associated with the Blue and John Crow Mountains.**

<b>STRATEGIC APPROACH</b>	<b>KEY ACTIVITIES</b>	<b>COST</b>
Work with the Maroon Councils, Jamaica National Heritage Trust and other organizations to:- <ol style="list-style-type: none"> <li>1. Facilitate the conservation of the tangible cultural heritage e.g. trails, Nanny Town site</li> <li>2. Facilitate the conservation of the intangible cultural heritage through development and implementation of appropriate strategies including the Blue Mountains Sustainable Tourism Programme</li> <li>3. Promotion of awareness and appreciation of the oral and intangible Maroon heritage through festivals, education and tourism</li> <li>4. Promotion and facilitation of</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop guidelines for conservation of natural and cultural heritage on trails</li> <li>2. Assist in refining guidelines for work at archaeological sites in the BJCMNP</li> <li>3. Assist in preparation and implementation of plans for trail development and use.</li> <li>4. Monitor trails during enforcement patrols</li> <li>5. Meetings for planning and monitoring of strategies</li> <li>6. Blue Mountains Sustainable Tourism Programme</li> <li>7. Education Programmes for schools and Interpretive Programmes associated with tourism</li> <li>8. Promotion of research through the research prospectus and linkages with relevant organizations</li> </ol>	<p><b>5 Year Budget (2011 – 2015)</b></p> <p>Recurrent: in Conservation, Education &amp; Recreation</p> <p>Capital: J\$9.6 million (US\$111,628)</p> <p><b>Budget (2011)</b></p> <p>Recurrent: As above</p> <p>Capital: J\$2,800,000 (US\$32,558)</p>

research that will aid in the conservation of cultural heritage	9. Facilitation of research 10. Use of information from research to guide conservation  <b>Monitoring:</b> See Conservation Indicators	
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**ENFORCEMENT AND COMPLIANCE PROGRAMME**  
**Goal 3: To stop encroachment of the BJCMNP boundary and destruction of forest and wildlife within.**

STRATEGIC APPROACH	KEY ACTIVITIES	COST
<p>Enforcement and compliance of environmental legislation is often regarded as the most important, yet most deficient area of resource management. Park management will seek to improve this situation using the following approaches:</p> <ol style="list-style-type: none"> <li>1. Strengthen the Park's Enforcement and Compliance Programme by increasing the level of presence of enforcement officers.</li> <li>2. Use technology (e.g. digital photography and GIS) to better detect and monitor breaches of environmental legislation.</li> <li>3. Take action to stop and deter illegal activities and resolve boundary and other resource use conflicts.</li> <li>4. Use an interpretive and collaborative approach.</li> <li>5. Address disaster prevention and emergency management issues.</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase the effective number of Park enforcement officers to 15 by employing more National Park Rangers and obtaining assistance from other agencies and community members.</li> <li>2. Roster National Park Rangers for systematic and strategic patrols and field presence</li> <li>3. Organise regular joint patrols between the FD, NEPA, ISCF and JCDT.</li> <li>4. Raise the level of awareness of legislation, particularly amongst local stakeholders.</li> <li>5. Assist the lead agency FD in resolving boundary discrepancies and re-establishing and marking critical boundary points.</li> <li>6. Improve readiness to address disasters and emergencies.</li> </ol> <p><b>Monitoring:-</b> Photo-monitoring geo-referenced sites and aerial/satellite imagery of forests.</p>	<p><b>5 Year Budget (2011 – 2015)</b></p> <p>Recurrent: J\$78.8 million (US\$916,121)</p> <p>Capital: J\$6.1 million (US\$70,930)</p> <p><b>Budget (2011)</b></p> <p>Recurrent: J\$11.6 million (US\$135,213)</p> <p>Capital: J\$3.5 million (US\$40,698)</p> <p>Community components covered under Education</p>

**EDUCATION AND PUBLIC INVOLVEMENT PROGRAMME**  
**Goal 4: To raise public support for conservation of the BJCMNP's natural and cultural heritage and improve resource management and the sustainability of livelihoods, particularly in Buffer Zone communities.**

STRATEGIC APPROACH	KEY ACTIVITIES	COST
<p>Education is geared at empowering and mobilising individuals and communities to participate in environmental management and sustainable livelihoods. The National Park's Education Programme is aimed at increasing public involvement by targeting:</p> <ol style="list-style-type: none"> <li>1. Buffer zone communities:- - youth.</li> </ol>	<ol style="list-style-type: none"> <li>1. Employ community members, wherever possible and involve as many of them as possible in park management activities.</li> <li>2. Facilitate capacity building including training, working through existing community-based organizations, in order to promote sustainable livelihoods and environmental management</li> <li>3. Public and community awareness</li> </ol>	<p><b>5 Year Budget (2011 – 2015)</b></p> <p>Recurrent: J\$38.7 million (US\$450,121)</p> <p>Capital: J\$24 million (US\$279,070)</p>

<ul style="list-style-type: none"> <li>- working with existing CBOs for environmental action</li> <li>- students and teachers</li> <li>- community members generally.</li> </ul> <p>2. The general public through public awareness programmes, using the media.</p> <p>3. Visitors to the park's recreation areas through Interpretive Programmes.</p>	<p>raising programmes, using a variety of media to reach different target groups.</p> <p>4. Implement interpretive programme at Holywell and the National Park's other recreation areas.</p> <p>5. Implement buffer zone community school programme to engage successive generations in caring for natural resources.</p> <p><b>Monitoring:-</b> Using questionnaires and photo-monitoring e.g. of community projects.</p>	<p><b>Budget (2011)</b></p> <p>Recurrent: J\$6.5 million (US\$75,421)</p> <p>Capital: J\$5.9 million (US\$68,605)</p>
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### RECREATION AND TOURISM PROGRAMME

**Goal 5: To provide recreational opportunities for local and international visitors, using ecotourism principles, in order to generate income and support for the BJCMNP.**

STRATEGIC APPROACH	KEY ACTIVITIES	COST
<p>A national park is designated as such partly to provide recreational opportunities to present and future generations, and, therefore, the areas zoned for recreational use must be managed in a manner that is not damaging to the park's resources.</p> <p>In addition, recreational use by resident and non-resident visitors will be geared towards garnering support for park management by:-</p> <ol style="list-style-type: none"> <li>1. Income generation - directly through entry and user fees, concessions, merchandise etc.,</li> <li>2. Voluntary donations in cash or kind</li> <li>3. Provision of educational opportunities</li> <li>4. Employment and income generating opportunities for local community members, thus encouraging their support for park management and conservation of the resources they depend on for their livelihoods.</li> </ol>	<ol style="list-style-type: none"> <li>1. Implement the Blue Mountains Sustainable Tourism Programme designed to market the National Park's recreation areas along with local attractions and accommodations through tours and packages, using a system that will generate support for the National Park's conservation and sustainable development of its Community Buffer Zone.</li> <li>2. Improve business planning, development and management, inclusive marketing, of the Park's recreational areas and related Buffer Zone opportunities.</li> <li>3. Provide quality interpretive opportunities and materials, including signs and exhibits for each recreational area in targeted Buffer Zone communities.</li> <li>4. Increase visitor spend by providing opportunities for purchase of products and services.</li> </ol> <p><b>Monitoring:-</b> Income/Expenditure statements, visitor statistics and questionnaires, community research.</p>	<p><b>5 Year Budget (2011 – 2015)</b></p> <p>Recurrent: J\$54.2 million (US\$631,041)</p> <p>Capital: J\$51.9 million (US\$603,488)</p> <p><b>Budget (2011)</b></p> <p>Recurrent: J\$9.4 million (US\$109,464)</p> <p>Capital: J\$6.21 million (US\$72,209)</p> <p>Some aspects Cultural Heritage Conservation covered here</p>

### MONITORING AND EVALUATION PROGRAMME

**Goal 5: To track and record both the threats and the changes to ecosystem health so that it is possible to assess whether or not the BJCMNP is achieving its overarching conservation goal.**

STRATEGIC APPROACH	KEY ACTIVITIES	COST
Tracking both of the threats posed to the ecosystems of the park	1. Gathering information from Rangers' observations regarding threats.	All costs included within

<p>(Threats/Ranger based monitoring), and the changes occurring in the ecosystems themselves (Outcomes monitoring) are the two most important aspects of monitoring for management effectiveness in the BJCMNP. Outcomes monitoring will focus on the Park's conservation biodiversity targets as indicators of ecosystem health.</p>	<ol style="list-style-type: none"> <li>2. Monitoring of forest area and encroachment using permanent photo-points, remote sensing and helicopter reconnaissance.</li> <li>3. Monitoring the quality of freshwater, using bio-monitoring techniques</li> <li>4. Monitoring the distribution of birds.</li> <li>5. Monitoring the populations of key threatened species.</li> </ol>	<p>Conservation and Enforcement &amp; Compliance Programmes</p>
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**GOVERNANCE AND ADMINISTRATION PROGRAMME**

**Goal 6: To provide efficient, effective and sustained management that will allow the BJCMNP to meet its overarching and other goals.**

<b>STRATEGIC APPROACH</b>	<b>KEY ACTIVITIES</b>	<b>COST</b>
<p>Governance from policy through to operations is necessary for the management of any activity or resources, particularly in the case of natural and cultural heritage, which have multiple stakeholders. As such, collaboration, and the involvement of stakeholders is a critical component in the management of the BJCMNP. In addition, appropriate and functioning administrative systems must be in place. This programme will seek to ensure the efficient and effective management of the park and to engender support to ensure a sustained approach to park management.</p>	<ol style="list-style-type: none"> <li>1. Coordinate management at the policy level through establishment of a Park Advisory Committee comprising of key public, private sector and community stakeholders who will meet twice a year.</li> <li>2. Coordinate management at the operations level through regular meetings of the Co-Management Committee (management partners as per relevant agreements).</li> <li>3. Seek short and long-term funding for park management through grant funding, government subvention, donations, sponsorship and income generation through opportunities provided by the Recreation and Tourism Programme and other ventures.</li> <li>4. Provide supervision, project management, financial management and administrative support for the park's programmes.</li> <li>5. Ensure adaptive management through monitoring and evaluation of all programmes.</li> </ol> <p><b>Monitoring:-</b> level of stakeholder involvement, funding, forest and wildlife status.</p>	<p><b>5 Year Budget (2011 – 2015)</b></p> <p>Recurrent: J\$53.5 million (US\$622,815)</p> <p>Capital: J\$4.2 million (US\$48,837)</p> <p><b>Budget (2011)</b></p> <p>Recurrent: J\$9.1 million (US\$106,163)</p> <p>Capital: J\$100,000 (US\$1,163)</p> <p>N.B.: Annual Prog. cost about 30% Progs. Total</p>

	<b>Five-Year Budget (2011-2015)</b>	<b>Budget (2011)</b>
Total Recurrent Expenditure	J\$248 million (US\$2.9 million)	J\$40.6 million (US\$472,782)
Total Capital Expenditure	J\$121 million (US\$1.4 million)	J\$18.5 million (US\$215,232)
<b>TOTAL</b>	<b>J\$369 million (US\$4.3 million)</b>	<b>J\$59 million (US\$688,014)</b>

**N.B.: US\$/J\$Exchange Rate used for calculations in Oct, 2010 (86:1)**



**BLUE AND JOHN CROW MOUNTAINS  
NATIONAL PARK**

**MANAGEMENT PLAN**  
**(2011 – 2016)**

**PART I**

**BACKGROUND TO THE PLAN**



# Chapter 1

## Introduction

### *Vision Statement*

*A national park that is:*

*native rainforest and home to thriving populations  
of endemic species, and  
majestic mountain memorial to the Maroon Freedom Fighters  
managed through active programmes that conserve  
natural habitats and intangible heritage by*

- *restoring degraded areas,*
- *reducing and mitigating against threats,*
- *facilitating the provision of essential ecosystem services, and*
- *promoting the revitalization of Maroon traditions,*

*whilst providing quality income-generating, recreational and educational  
experiences for Jamaicans and foreigners, alike.*

This Management Plan for the Blue and John Crow Mountains National Park is a five-year plan designed to guide management activities over the period 2011 to 2016. It was prepared over an 18 month period between 2009 and 2011 by the Jamaica Conservation and Development Trust (JCDDT), with funding mainly from the Environmental Foundation of Jamaica (EFJ). The planning process was guided by the National Park's Co-management Committee - Forestry Department (FD), National Environment and Planning Agency (NEPA) and the Jamaica Conservation and Development Trust (JCDDT). In addition, publications from the International Union for the Conservation of Nature (IUCN) and draft NRCA guidelines directed the planning process, the format and the content of the Plan.

In developing this Management Plan, a participatory approach was employed, not only to take advantage of the wealth of knowledge among the various stakeholders, but also to garner their support in implementing the management activities proposed. The process benefited from the input of a wide cross-section of stakeholders ranging from rural buffer zone community members to scientific experts. Almost 300 participants shared their

ideas through twelve community consultations, four major consultative workshops, discussions with several specialists, and a final draft presentation and review workshop.

The IUCN guidelines for protected area management planning (Thomas and Middleton, 2003) provide a simple definition for a Management Plan, “a document which sets out the management approach and goals, together with a framework for decision making, to apply in the protected area over a given period of time”. These guidelines further note that “Management Plans should be succinct documents that identify the key features or values of the protected area, clearly establish the management objectives to be met and indicate the actions to be implemented”.

The purpose of BJCMNP Management Plan is to guide the management of the National Park around its main areas of focus – the conservation of biodiversity, associated cultural resources and ecosystem health, and the provision of natural and cultural heritage-based recreational opportunities by all its co-management partners. In light of the need for as much financial self-sufficiency as possible, this Management Plan addresses this issue for each Programme, particularly Recreation and Tourism and Governance and Administration. Whilst the Management Plan lays out a clear framework of the vision, mission, goals and programmes, the strategies and activities are not set in stone, but maintain a level of flexibility in order to adapt to changing conditions and our ever increasing knowledge base.

***Goal***

*To maintain and enhance the remaining area of closed broadleaf forest, component species of plants and animals and associated cultural heritage, existing in the Blue and John Crow Mountains.*

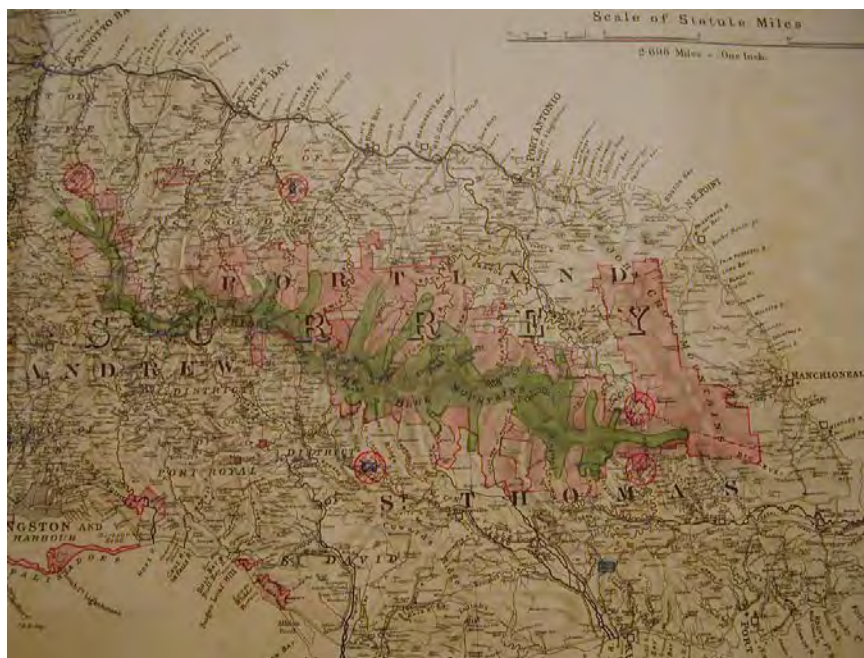
***Mission Statement***

*To collaboratively manage the national park for its natural, cultural and recreational values, by striking the right balance between biodiversity conservation and socio-economic development, for the ultimate well-being of the people of Jamaica.*

## 1.1 Management History

In 1728, Governor, Sir Nicholas Lawes brought the first coffee seedlings to Jamaica from Hispaniola. Excellent coffee was found to be produced in the Blue Mountains where the high elevation and associated mist led to a long growing season resulting in beans with superb flavor. By the late 1700s, the Government began awarding land grant patents for Crown Lands in the Blue Mountains in order to grow coffee. For example, Colonel William Whitfield in 1776 was awarded a patent to grow coffee high in the Blue Mountains, creating the Whitfield Hall estate. By the mid 19<sup>th</sup> century concern was raised about denudation of the mountains and the likely impact on water supply.

The protection of the BJCM was initiated following Hooper's 1885 'Report upon Forests of Jamaica' which recommended that "the first and most important work to be done is reservation of the highlands of the Blue Mountains". He proposed not to take any new tenants nor allow existing tenants to clear additional land to "protect the springs from drying up and regulate the flow of the Portland rivers". Further, Hooper stated, "at all hazards, the main ridge should be preserved from all cutting and any proprietor holding such land should be invited to relinquish it". In response, Law 37 of 1889, The Mountain and River Reserves Law was enacted to exchange and purchase patents and another piece of legislation (Law 5 of 1871) was used to forfeit lands to her Majesty, on which outstanding taxes and quit-rents had not been paid. By 1923, most of the land proposed for the Reserve was back in Government's possession, and in 1927, the Afforestation Law was passed which gazetted formerly patented properties in St. Andrew, St. Thomas, St. Mary and Portland, as forest reserves (JCDT, 2009).



*Plate 3: Map showing proposed extent of the BJCM forest reserve (pink); green shading shows Grand Ridge of the Blue Mountains (courtesy Jamaica Archives)*

The Forest Act was passed in 1937 establishing the Forestry Branch under the Lands Department, and the BJCM forest reserves were put under its control. The Forestry Department (FD) was established within the Ministry of Agriculture in 1942, with the mandate to manage the island's forest reserves and plantations. This included reforestation, boundary surveys, construction of roads and buildings, silvicultural research and biophysical inventories. The FD also established a number of recreation areas including Holywell and Clydesdale.

In 1979, the Forest Industries Development Company (FIDCO) was established with the mandate to develop industrial forestry particularly Caribbean Pine plantations and harvesting. With FIDCO's establishment came a splitting of the forestry sector and as a result, the activities of the FD were severely disrupted and became very limited in the 1980s. FIDCO's activities centered on pine plantations, but much of these were destroyed by Hurricane Gilbert in 1988. FIDCO ended its operations in 1999.

***Box 1.1: BJCMNP Management History at a Glance***

1885 *Hooper's Report upon Forests of Jamaica*  
 1889 *Government begins to reclaim lands for Blue Mountains Forest Reserve*  
 1927 *Afforestation Law protects major portions of the Blue Mountains as Forest Reserve*  
 1937 *Passage of Forest Act*  
 1942 *Formation of Forest Department*  
 1950 *Declaratio: Blue Mountain Forest Reserve*  
 1979 *Establishment of FIDCO*  
 1989 *Launch of PARC project*  
 1990 *Launch of BJCMNP project*  
 1991 *Promulgation of the NRCA Act*  
 1993 *BJCMNP gazetted*  
 1997 *End of PARC Project (Phase II)*  
 1996 *Promulgation of Forest Act*  
 1996 *First Delegation Agreement ( NRCA/JCDT)*  
 1999 *FIDCO ends operations*  
 2000 *Co-Management Agreement*  
 2002 *Second Delegation Agreement*  
 2004/5 *Preparation: 2005-2010 Management Plan*  
 2009/11 *Preparation: 2011 – 2016 Management Plan*

The CIDA-funded Trees for Tomorrow project which started in 1992 significantly strengthened the FD, at all levels. A new Forest Act was promulgated in 1996 and the National Forest Management and Conservation Plan produced in 2001. The new Act clearly stated the department's role in biodiversity conservation and provided for greater involvement of stakeholders in forest management. In 2008, the Forestry Department became an Executive Agency.

With the documentation of the threat to Jamaica's few remaining areas of natural habitat in the Country Environmental Profile (1987), the USAID/GOJ funded Protected Areas Resources Conservation (PARC) project was launched in 1989. Phase I

involved the establishment of the Montego Bay Marine Park and the Blue and John Crow Mountains National Park. Activities spanned five years, with the Planning Institute of Jamaica (PIOJ), NRCA and JCDT collaborating on the initiative, which included:

1. preparation and enactment of park legislation,
2. preparation of a protected areas system plan, and
3. establishment of the Jamaica National Parks Trust Fund through a debt for nature swap. This was to assist in financing the parks.

The BJCMNP project was launched in 1990 and this site became the first actively managed terrestrial national park in Jamaica, gazetted in February, 1993. It served to sensitize the Jamaican public about conservation and sustainable use of natural resources and provided the foundation for a national parks and protected areas system in Jamaica - an environmental management tool that aims to protect the best and most representative areas of the island's natural heritage. Under the criteria for site selection in the National System Plan (JCDT, 1992), the BJCMNP was selected due to its: (i) high ecological value, (ii) high socio- economic value, and (iii) high level of community interest. The management feasibility of the area was however, thought to be very difficult.

## **1.2 Role of the BJCMNP in the National Protected Areas System**

Jamaica is in the process of developing a Protected Area Master Plan to meet its Biodiversity Convention commitments. This process is being led by NEPA using a participatory process to involve key stakeholders, particularly other government agencies with responsibility for protected areas in Jamaica e.g. FD and the Jamaica National Heritage Trust (JNHT). The Policy for Jamaica's System of Protected Areas (GOJ, 1997) cites six goals of the system. These are:

- i) economic development,
- ii) environmental conservation,
- iii) sustainable resource use,
- iv) recreation and public education,
- v) public participation and local responsibility, and
- vi) financial sustainability.

The BJCMNP is an important component of this Protected Areas System, playing a pioneering role in management of protected areas in Jamaica and currently (being the most actively managed) makes perhaps, the most significant contribution towards implementing System goals. Further, and most importantly for System management, many lessons can be learned from the experience of managing the BJCMNP and JCDT has numerous documents and personnel that can share this knowledge.

The BJCMNP falls under Category II of the IUCN's protected area management categories - national park, defined as a protected area that is managed mainly for biodiversity conservation, ecosystem protection and recreation. It is one of the nation's most prominent natural areas, with major biodiversity, cultural, environmental and tourism values. Approximately one third of the island's remaining natural habitat is in the BJCMNP including unique ecosystems, hence it is of critical importance to the National System of Protected Areas. The BJCMNP is representative of montane rain forest and contains vegetation associations important for biodiversity and watershed protection (aquifer recharge, soil erosion control, flood protection). Approximately one-half of the island's ferns are found in the BJCMNP and 40% of the flowering plants are endemic to the area. The National Park provides critical habitats for rare, endangered, endemic species such as the Jamaican Coney or Hutia (*Geocapromys brownii*), Jamaican

Blackbird (*Nesopsar nigerrimus*), Black-billed Streamertail Hummingbird (*Trochilus scitulus*), Ring-tailed Pigeon (*Columba caribaea*), Jamaican Boa (*Epicrates subflavus*), *Eleutherodactylous* frogs, the Giant Swallowtail Butterfly (*Pterourus homerus*) and numerous land snails.

The BJCMNP possesses scenic and recreational qualities including undeveloped waterfalls, panoramic views of tropical mist forests, trails, camping grounds and accommodation that are important both to Jamaicans and tourists for recreation and enjoyment of the nation's natural heritage. It provides the ecological basis for a number of industries including tourism, agriculture and forestry.

The most prominent cultural heritage feature of the BJCMNP is intangible, being the direct association of the site with the archetypal example of Grande Maroonage exhibited by the Windward Maroons who formed the first free Maroon state in the post-1492 world. The traditions and beliefs of the Windward Maroons are still alive today, maintained by three Maroon communities around the BJCMNP in Moore Town, Charles Town and Scots Hall. The former two are considered to be located within the BJCMNP's Buffer Zone and the Maroon Heritage of Moore Town was recognised by UNESCO in 2005 as a "Masterpiece of the Oral and Intangible Heritage of Humanity". This heritage includes language, music, dance, constitutional and religious traditions and a reverence for the BJCM as the final resting place of their ancestors who sacrificed their lives for freedom. The tangible heritage of the Windward Maroons located within the BJCMNP includes sites such as Nanny Town and trails such as the Cunha Cunha Pass. Within the BJCMNP's Buffer Zone, there are historic houses and coffee works and the military hill station - Newcastle. Such sites form the key cultural resource features of the BJCM area and are important for the preservation of our natural and cultural heritage.

Given the ecological integrity of the BJCMNP, the property is a major centre for field research for both locals and foreigners, and provides an excellent opportunity for environmental, ecological and cultural heritage education for schools and communities.

### **1.3 Policy and Legislative Basis of the Management Plan**

Jamaica is a party to the United Nations Convention on Biological Diversity which under Article 8 requires contracting parties to ensure in-situ conservation of their biodiversity through a system of protected areas amongst other activities. Jamaica's Policy for the National System of Protected Areas defines a protected area as:

"an area of land or water that is managed for the protection and maintenance of its ecological systems, biodiversity and/or specific natural, cultural or aesthetic resources" (GOJ, 1997).

According to the International Union for the Conservation of Nature (IUCN) guidelines for applying protected area management categories a protected area is: "a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" (Dudley 2008, 8).

Jamaica's Policy for a System of Protected Areas (GOJ, 1997) states that a national park's purpose is "... biodiversity and ecological protection, tourism, recreation, scientific research and education".

IUCN Category II protected areas, often referred to as 'national parks', are defined as: "large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities" (Dudley 2008, 8).

The Blue and John Crow Mountains National Park was designated in February, 1993 through the Natural Resources Conservation (BJCMNP) Order, under the NRCA Act, 1991. Section 5 of the NRCA Act allows the Authority to designate national parks, protected areas and marine parks and Section 38 provides for the making of regulations to guide management of these areas.

The Natural Resources (National Parks) Regulations of 1993 set the framework for the protection and legal use of the BJCMNP by describing offences and punishment for contravention of these, the provision of permits for research and commercial activities and the roles of the Park Manager, National Park Rangers and Advisory Council. Section 27 provides for zoning of a national park and Section 28 requires the preparation of a management plan. The National Policy for the System of Protected Areas (GOJ, 1997) states that such plans should be prepared for every protected area and the NRCA has developed draft guidelines.<sup>1</sup> The Natural Resources Conservation (BJCMNP) (User Fees) Regulations of 2003 establishes user fees for entry to the Park's recreation areas and trails and for camping. The Natural Resources (National Parks) (Amendment) Regulations of 2003 provide for charging of fees for commercial activities within national parks. The Forest Act of 1996 and Forest Regulations of 2001 are also used in managing the BJCMNP as it is a gazetted Forest Reserve. Other legislation such as the Wild Life Protection Act (1945) and its relevant amendments, orders and regulations are pertinent to management of the Park. Appendix 3 provides a review of these regulations and other relevant legislation and Appendices 15 – 17 provide copies of the BJCMNP Order and Regulations. Chapter 7 highlights issues regarding the enforcement of the legislation.

(GOJ, 1997) articulates the principle of collaboration between organizations, with respect to management of protected areas; and the NRCA Act, 1991, Section 6 allows the NRCA to delegate any of its functions (other than the power to make regulations) to another party. It is within this legislative and policy framework, combined with the limited resources in any one agency and the interest and concern of civil society that non-government organizations (NGOs) have become involved in protected area management.

The JCDT is a non-government organisation and a registered charity, established in 1988. It played a lead role in the implementation of the Protected Areas Resource Conservation (PARC) project (a GOJ/USAID effort) which established protected areas and a protected

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<sup>1</sup> *NRCA Guidelines related to Management, Operations and Financial Plans Development and Design, Manual Number 1 Draft, 1998.*

areas framework in Jamaica between 1989 and 1995. Since its establishment, the JCDT has maintained and strengthened its interest in the management of the Blue and John Crow Mountains National Park (BJCMNP) and in 1996 signed a delegation agreement with the NRCA for management of the Park, with a new ten year agreement signed in September, 2002. Under the delegation agreement, a management plan must be prepared every five years and submitted to the NRCA for approval. The 2005 – 2010 Management Plan was approved in 2005 and this Plan should be approved in 2011.

## **1.4 Collaborative Management**

The BJCMNP was established on the boundaries of the Blue Mountains and other forest reserves, at a time when the Forest Act, 1937 was more geared towards watershed management and production forestry than towards conservation. In 1996, a new Forest Act was promulgated that speaks to the issue of biodiversity conservation and the participation of civil society in the management of forest resources.

A collaborative management agreement was signed in 2000 by the FD, NRCA and JCDT. This agreement seeks to guide operational management of the park by identifying different roles and responsibilities for the various organizations involved. A Co-management Committee with representatives from each of the co-management parties meets three times a year to coordinate and implement the management activities of the Park. Since 2009, work has been in progress to update and renew the Co-management Agreement, and it should be signed in 2011. The JNHT will be signing this Agreement and joining in co-management of the BJCMNP particularly for conservation of the property's cultural heritage.

Further, BJCMNP management seeks involvement from stakeholders, particularly local ones through participatory planning and involvement in its programmes and projects.

## **1.5 Previous Management Plans and Justification for the Current Plan**

In 1992, under the PARC Project, the first management plan was prepared for the BJCMNP for the 1993 to 1996 period. Whilst a variety of plans for different aspects of park management were prepared subsequent to this (BJCMNP Development Plan 1998 – 2000 and BJCMNP Site Conservation Plan, 2001), a completely updated and thorough management plan was not prepared until the 2005 - 2010 Management Plan. During its preparation, it was found that many of the strategic actions proposed in 1992 and attempted, were effective in achieving their intended goals, hence several of the approaches were included. However, few if any *measurable* objectives and monitoring programmes were identified from which success could be judged, and the 2005 - 2010 Management Plan sought to rectify this situation. This 2011 - 2016 Management Plan continues in the same vein of adaptive management, taking lessons learned from the assessment of implementation of the 2005 – 2010 Management Plan over the last five



years (Otuokon, 2010c), to improve on strategies for the next period. This assessment was made possible by the clear objectives and setting of annual workplans and targets.

Funding continues to be a critical issue impacting the implementation and maintenance of necessary management activities e.g. enforcement patrols and community outreach. This has been a challenge to management of the BJCMNP since initial PARC Project funding ceased. Achieving financial sustainability is, therefore paramount to the success of the present Management Plan. Based on international experience however, it cannot be expected that the BJCMNP's programmes themselves will be self sustaining but rather there is a need for dedicated, reliable funding from government supported by funding from foundations, private sector, and the property's own income generating activities.

Planning is an essential part of management, as are monitoring and evaluation. Using the latter two activities, BJCMNP managers will be able to assess how well it is doing – are the goals, objectives and targets being met; which strategies are working and which are not; what are the challenges that must be addressed and the opportunities to be taken advantage of. Using this information (particularly if obtained using a participatory process that involves the stakeholders) BJCMNP managers can then revise or prepare completely new plans as necessary. When funds are limited, planning is particularly important, as it helps keep management focused on the priorities and helps to identify synergies which can reduce costs and increase benefits.

## **1.6 Management Planning Process for the 2011 - 2016 Plan**

Preparation of the 2011 – 2016 BJCMNP Management Plan benefited heavily from the existence and implementation of the 2005 – 2010 Plan, and in particular, the detailed information available in the form of reports and other documents. This Plan is essentially an edited and updated version of the older Plan which was generally successfully implemented though with numerous financial and hence other resource challenges. The preparation of both this Plan and the 2005 – 2010 Plan were guided by international and national guidelines, in particular those from the International Union for the Conservation of Nature (IUCN) and the NRCA (see References and Bibliography). In addition to guidance from literature, JCDT is a member of the IUCN and personnel involved in the preparation of the National Park's Management Plans are active members of the IUCN World Commission on Protected Areas and have participated in relevant conferences and training workshops. Further, some of these personnel have participated in training courses on National Park management conducted by the US National Parks Service.

Funding was approved by the Environmental Foundation of Jamaica in 2008 under a BJCMNP Monitoring and Evaluation Programme Support Project. Additional funding was made available through a small grant from the Caribbean Natural Resources Institute Action Research Learning Group Project. The process began with the assessment of five years (2005 – 2009) of implementation of the 2005 – 2010 Plan, and two interns (undergraduate and graduate level) sponsored by the Jamaica Energy Partners played an important role in assisting JCDT staff with this process. JCDT conducted its own

Institutional Self Assessment and Strategic Planning in November and December, 2009, and this process (which also involved interviews with stakeholders) benefitted the whole management planning process. The completion of the UNESCO World Heritage Site Nomination Dossier for the National Park in 2009, provided useful information, particularly with respect to the strengthening of the Cultural Heritage components.

A summary of this evaluation was presented to stakeholders during workshops to obtain input into the new Plan. A report was prepared detailing the discussions and recommendations of the stakeholders (Otuokon 2011 and 2010b). A report was also prepared detailing the results of the assessment of five years of implementation of the 2005 – 2010 Management Plan (Otuokon, 2010c). All this information including from a literature review, was used to prepare a draft plan. Following a review of the Draft Management Plan by stakeholders at a workshop in early July, it was revised and sent to NEPA as the government agencies with ultimate authority for management of the site and to FD as a co-management partner. Comments from these agencies were also obtained during the previous consultations and all comments received were used for a final revision of the document which was then sent to NEPA for NRCA’s approval.

**Table 1: Management Planning Process Summary**

<b>Major Planning Activities in the Development of the BJCMNP Management Plan 2011 - 2016</b>	<b>Time-frame</b>
1. Literature Review (see References and Bibliography)	From July, 2009
2. Stakeholder Identification	From July, 2009
3. Evaluation of implementation of 2005 - 2010 Plan	July, 2009 – June, 2010
4. Twelve Buffer Zone Community workshops – Bangor Ridge, Cascade/Section, Sherwood Forest, Claverty Cottage (Portland), Woodford, Irish Town/Redlight, Mavis Bank (St. Andrew), Minto/Hagley Gap, Cedar Valley (St. Thomas), Millbank (Portland) and the Charles Town and Moore Town Maroon Councils (243 participants)	January - April, 2010
5. Four thematic workshops involving organizational stakeholders and specialists (35 participants from 18 organisations) addressing the following themes:- <ul style="list-style-type: none"> <li>• Conservation Science</li> <li>• Education and Public Awareness</li> <li>• Recreation and Tourism</li> <li>• Enforcement and Compliance</li> </ul>	February - March, 2010
6. Meetings and consultations with conservation experts	February - July, 2010
7. Draft Management Plan Review Workshop – (37 participants from 22 organisations and 8 communities)	July, 2010
8. Editing	February – Oct, 2010
9. Draft Management Plan to NEPA and FD and chapter on Cultural Heritage Conservation to JNHT for comments.	October, 2010 February, 2011
10. Comments received.	Dec. 2010; May, 2011
11. Final Editing	Dec. 2010 – January, 2011; June – July, 2011

## Chapter 2

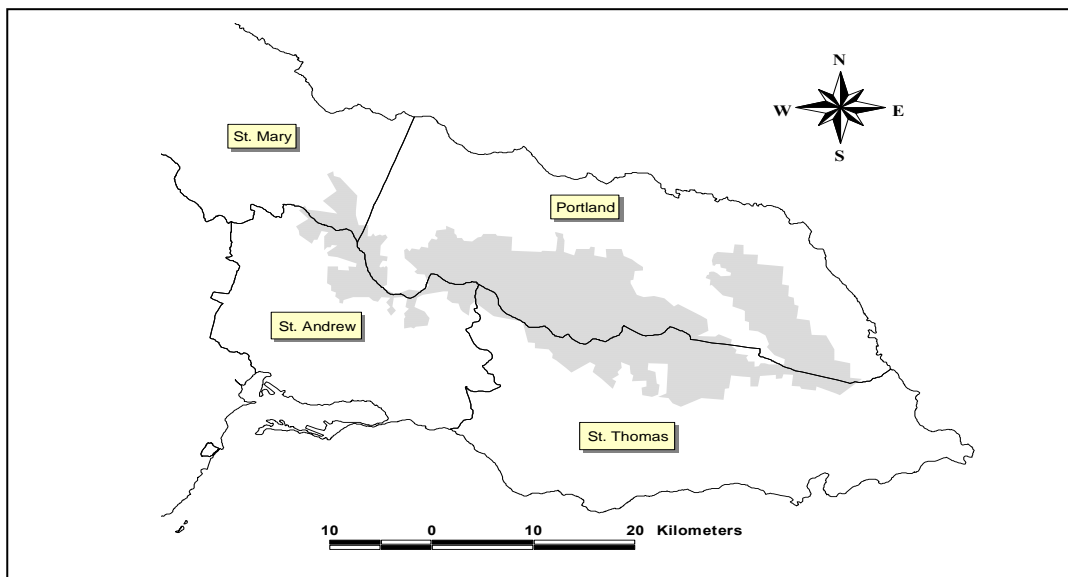
# Physical Features and Biological Diversity of the BJCMNP

## 2.1. PHYSICAL FEATURES

### 2.1.1 Geographical Location and Size

Stretching over four parishes in eastern Jamaica, the Blue and John Crow Mountains National Park (BJCMNP) extends over a planimetric area of 486.5 km<sup>2</sup> (48,650ha) and represents 4.4% of Jamaica's land surface (Table 2.1 & Fig. 2.1)<sup>2</sup>. A majority of 59.7% of this area is located in the parish of Portland, with 25.9% in St. Thomas, 10.8% in St. Andrew and 3.6% in St. Mary. The BJCMNP represents 35.6% of the area of Portland, 17.4% of St. Thomas, 11.8% of Kingston and St. Andrew and 2.9% of St. Mary. The topographic area (about 78,000 ha) exceeds the planimetric area by about 60%, indicating the mountainous nature of the BJCMNP which contains the highest point in Jamaica (2,256m) and the second highest peak in the Caribbean. The perimeter of the BJCMNP boundary is 984.6km and at its greatest east-west distance, it measures 58 km and 19 km at its greatest north-south distance. The Zonation Plan (Chapter 5) describes a buffer zone around the Preservation Zone and a 'Community' Buffer Zone which is not legally defined (as it is outside the BJCMNP boundary) but extends 1km from the boundary covering an area of 267 km<sup>2</sup> (26,711ha) incorporating 51 communities.

**Figure 2.1: Location of the BJCMNP**

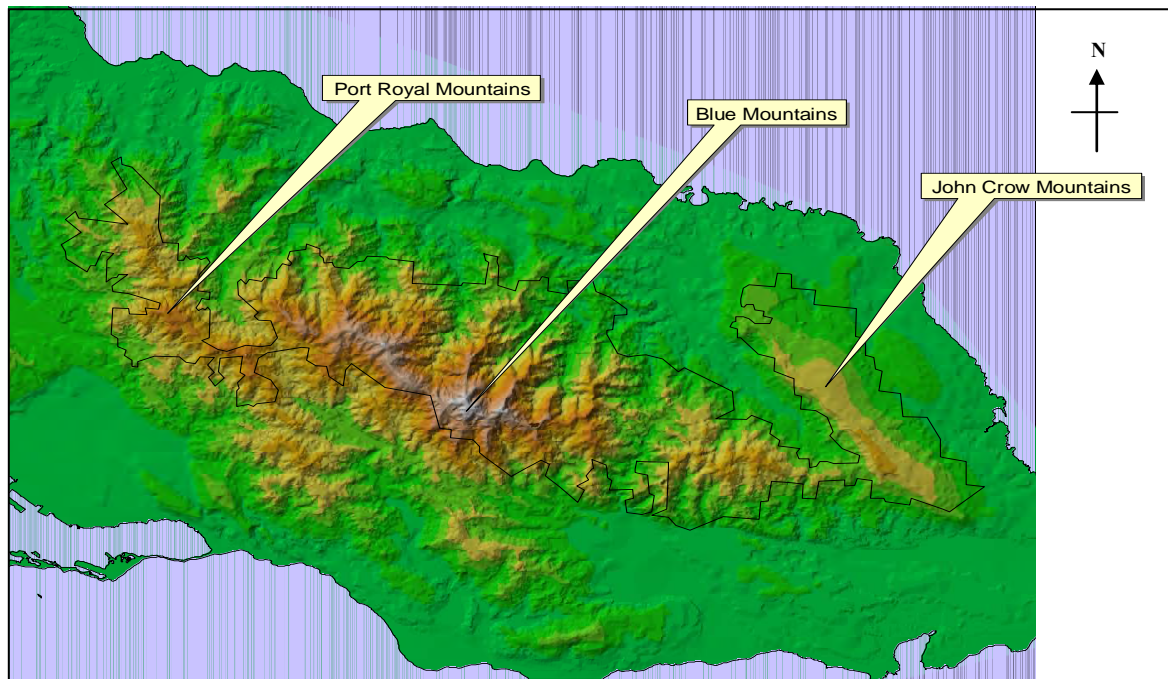


<sup>2</sup> The indicated size of the BJCMNP area is based on FD digital maps outlining forest reserves as the boundaries are congruent with the forest reserves in the Port Royal, Blue and John Crow Mountains.

## 2.1.2 The Mountain Ranges

The BJCMNP consists of three mountain ranges (Fig. 2.2), the northern and central sections of the Port Royal Mountains (PRM) (14.8% of the BJCMNP area) in the west, the Blue Mountains (BM) (65.7%) in the centre and the John Crow Mountains (JCM) in the east (19.5%). While both Port Royal and John Crow Mountains run mainly north to south, the Blue Mountains run mainly west to east. Along their major axis, the Port Royal Mountains extend about 20 km within the park area, the Blue Mountains about 39 km, and the John Crow Mountains about 21 km.

**Figure 2.2: Mountain Ranges of the BJCMNP**



From north to south, major peaks in the Port Royal Mountains are Mount Telegraph (ca. 1290 m), Mount Horeb (ca. 1490 m) and Catherine's Peak (1539 m). A paved road leading through Hardwar Gap in the PRM connects the north and south coast. Silver Hill Gap (ca. 1050 m) separates the Port Royal from the Blue Mountains.

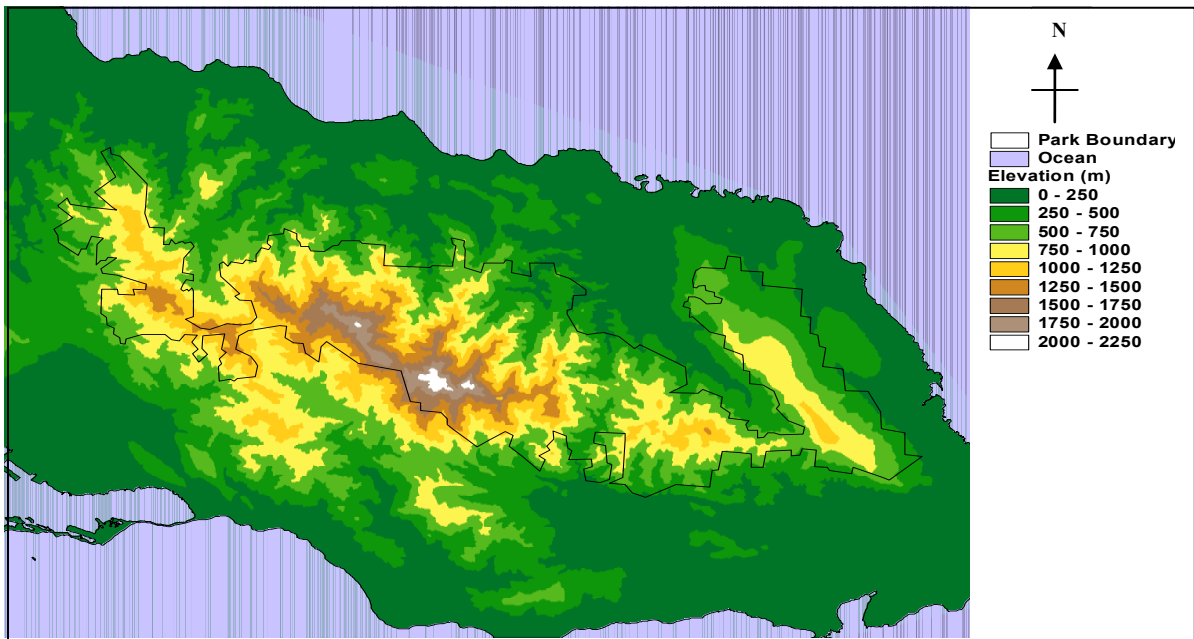
The Blue Mountains rise steeply (sometimes in excess of 70° and frequently more than 50°) within 5 km of the coast and are characterized by steep-sided valleys with deeply gorged rivers. The Grand Ridge forms the backbone of the BM range, reaching the highest elevation in the country. The major peaks are Blue Mountain Peak, composed of Middle Peak (2256 m - the highest point in Jamaica); East Peak (2246 m); Sugar Loaf Peak (c. 2150 m); High Peak (2082 m); Mossman's Peak (2028 m) and Sir John's Peak (1927 m). (Figure 2.3).

The John Crow Mountains is a prominent cuesta or coastal ridge, formed by a strongly tilted limestone plateau, which rises gently from the east and dips towards the north-east. The mountains rise to an elevation of 1140 metres above sea-level (masl), with a scarp face on the western side, and an unusual landscape of sinkholes and outcrops. They are separated from the BM by the Rio Grande Valley, and both ranges converge at Corn Puss Gap (640 m) at the boundaries of the parishes of Portland and St. Thomas.

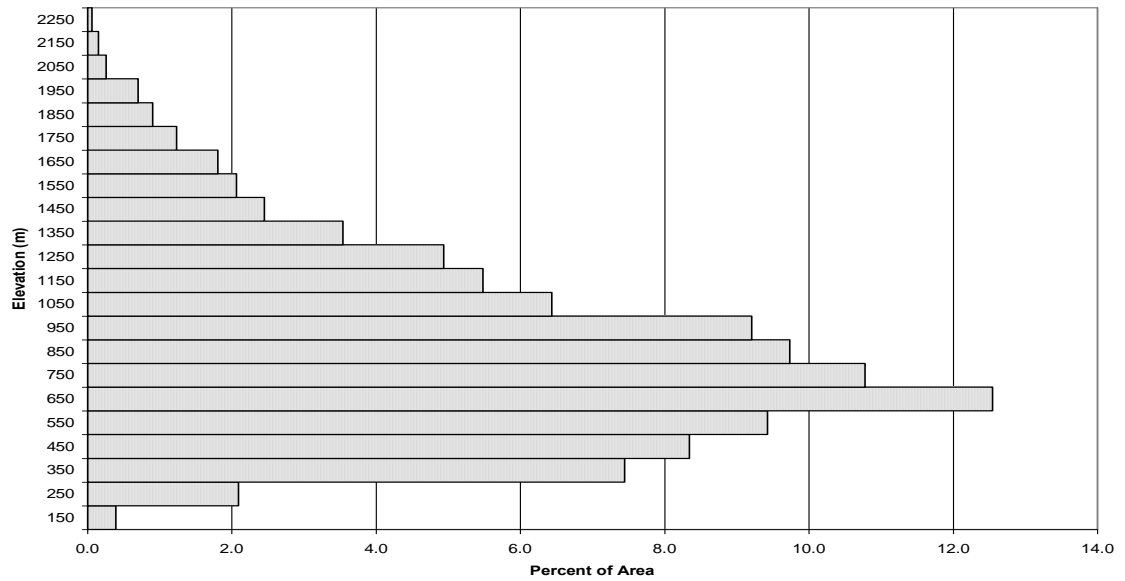
### 2.1.3 Altitude Profile

Along northern, south-eastern and eastern sections of the BJCMNP the altitude falls occasionally to about 150 m, while the central sections of the Blue Mountain Ridge lie above 1500 m; maximum altitude is – as indicated above – 2256 m (Fig. 2.3). The best represented altitudinal levels (Fig. 2.4a) are 600-700 m (12.5 % of planimetric area) and 700-800 m (10.8%). About 70% of the BJCMNP area is below 1000 m, and about 50% is below 800 m (Fig. 2.4b). Thus, the BJCMNP is much more than a high altitude protected area; it includes substantial areas at lower altitudes and is equally important for the conservation of forest ecosystems at lower and upper levels in eastern Jamaica.

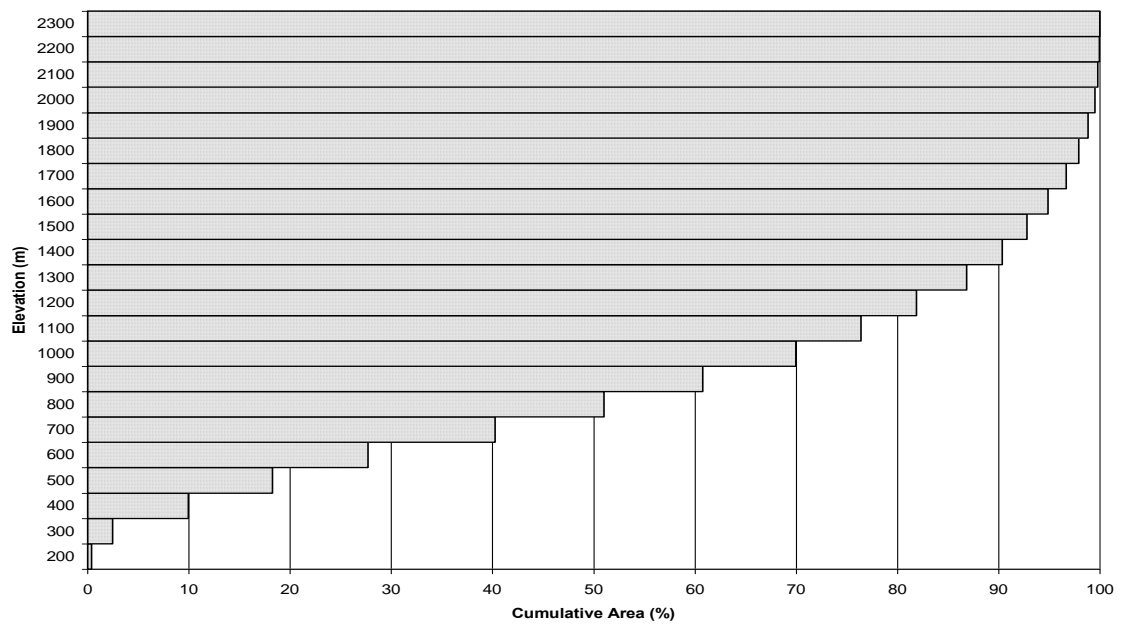
Figure 2.3: Elevation Map of the BJCMNP



**Figure 2.4a: Elevation Profile of the BJCMNP**



**Figure 2.4b: Elevation Profile (cumulative) of the BJCMNP**



## 2.1.4 Geology and Soils

The BJCMNP contains a unique geology that is critical to understanding the evolution of the Caribbean region. The rapid uplift of this area over the last 14 million years has created a spectacular and impenetrable landscape.

The BM and PRM have a complex geology which reflects a varied history of sedimentation, volcanism, plutonism, and metamorphic activity. The rocks found in and

around the Blue Mountains record a 100 million year history of the development of the Caribbean Tectonic Plate, and are the oldest geological formations in Jamaica. Eastern Jamaica can be divided into four regions: the John Crow Mountains Belt, the Blue Mountains Block, the Wagwater Belt, and St. Thomas Shelf; with the BJCMNP including parts of the first three.

The oldest rocks are found in the Blue Mountain Inlier (an inlier is an area of older rocks surrounded by younger rocks) in the Blue Mountain Block. The BM Inlier is dominated by cretaceous, volcanic and igneous rocks, with minor sedimentary (limestone) and metamorphic units. Metamorphic rocks are found in a thin belt along the southern margin of the Grand Ridge of the Blue Mountains. These rocks include blueschists (their name due to the presence of the blue mineral glaucophane) which formed at very high pressures (that is, great depths within the Earth) but relatively low temperatures, and serpentinites that represent metamorphosed material derived from the Earth's mantle. The ages of these rocks are still unknown. In the south-eastern part of the Blue Mountains is a succession of basaltic pillow lavas, the term 'pillow' coming from the pillow-like form of the lavas, and indicating eruption under water. These are Cretaceous rocks (about 90 million years old). The north-eastern part of the Blue Mountains is represented by a succession of lavas and associated sedimentary rocks. The lavas were erupted in shallow water and on land and have a chemistry indicating formation within an island arc setting, much like the modern-day volcanoes of the Lesser Antilles. The associated sedimentary rocks include conglomerates, sandstones and shales, and limestones. Two limestones of particular importance are present, called the Back Rio Grande and Rio Grande limestones. These yield abundant fossils of rudist bivalves (an extinct type of tropical clam), including the bizarre *Barrettia monilifera* (the Blue Mountains were the first location in the Greater Antilles where such fossils were found and hence recognised as the Type Locality).

To the east and west of the Blue Mountain Block lie the John Crow Mountain Belt and the Wagwater Belt (including the Port Royal Mountains), containing younger rocks than the Blue Mountain Inlier, deposited in narrow seaways formed by extension of the crust. The Wagwater Belt contains a 9,000 m thickness of conglomerates, sandstones, shales and lavas, deposited some 60 to 50 million years ago and has been largely uplifted. The rocks found in the John Crow Mountains consist of an older set of sandstones and shales, known as the Moore Town Shales, overlain by younger limestones (part of the White Limestone Group). The shales give rise to steep slopes on the north-east slopes of the Rio Grande Valley that contrasts with the karstic topography characteristic of the White Limestone in the John Crow Mountains.

The massif of the JCM is like much of the island (e.g. the Cockpit Country in the west) composed of hard, massive, white limestone formed during the late Eocene (40-35 million years BP). Unlike the sharp peaks of the BM, the erosion of limestone on the JCM has left a summit with a slightly tilted plateau. This has formed an unusual rugged landscape of sinkholes and stark, steep, rocky knolls. Fossils are plentiful in these formations and are mostly composed of corals, benthic mollusks and foraminifera. There are numerous deep caves created in this type of landscape, many of which are

unexplored. The Rio Grande Valley consists of sedimentary rocks which are a sequence of marine sandstones and shale overlain by limestone deposits formed in the Paleocene (56 M years BP).

There are two distinct groups of soils within the BJCMNP and this is reflective of the fundamental difference in underlying geography between the ranges. BM and PRM soils are derived from the metamorphic and igneous rocks that constitute the range, except for the limestone outcrops and vegetation types are strongly correlated with soil type (Grubb and Tanner, 1976). BM soils are generally highly porous and subject to heavy leaching, resulting in a low nutrient content (especially Nitrogen & Phosphorus), and low pH. As is characteristic of forest soils, decomposition of organic matter is slow in the BM forest, especially at higher altitudes and soils on steep slopes are highly susceptible to erosion. Mainly eutric regosol soil types are found at the higher altitudes in the BM and in the western parts, cambisols derived from shale are predominant. Lithosols derived from metamorphic, igneous rocks and shale are found over the eastern and northern slopes and the lower reaches contain dystric regosols and cambisols. On the eastern slopes of the John Crow Peak in the Blue Mountains, Grubb and Tanner identified and described for the first time an unusual humic soil together with a distinct forest type associated with it, which they called Mor Ridge. This soil-type was found to be very rare and confined only to knolls at the western end of the range.

The bedrock limestone of the JCM is often at or just below the surface. Soils are shallow and stony, forming pockets between outcrops of rock. Deeper soils, usually in the form of sticky clay, are found in hollows and on ridge tops and there is only a thin litter layer above the humus enriched stratum. The soil types of the JCM are all derived from either limestone or calcareous shale. On the eastern slopes there are eutric cambisols and chromic vertisols. The western escarpment soils are well drained, shallow, yellow brown loams and on the summit plateau, soils are rendzinas and eutric cambisols which are well drained shallow loams under a thin humic layer.

### **2.1.5 Climate**

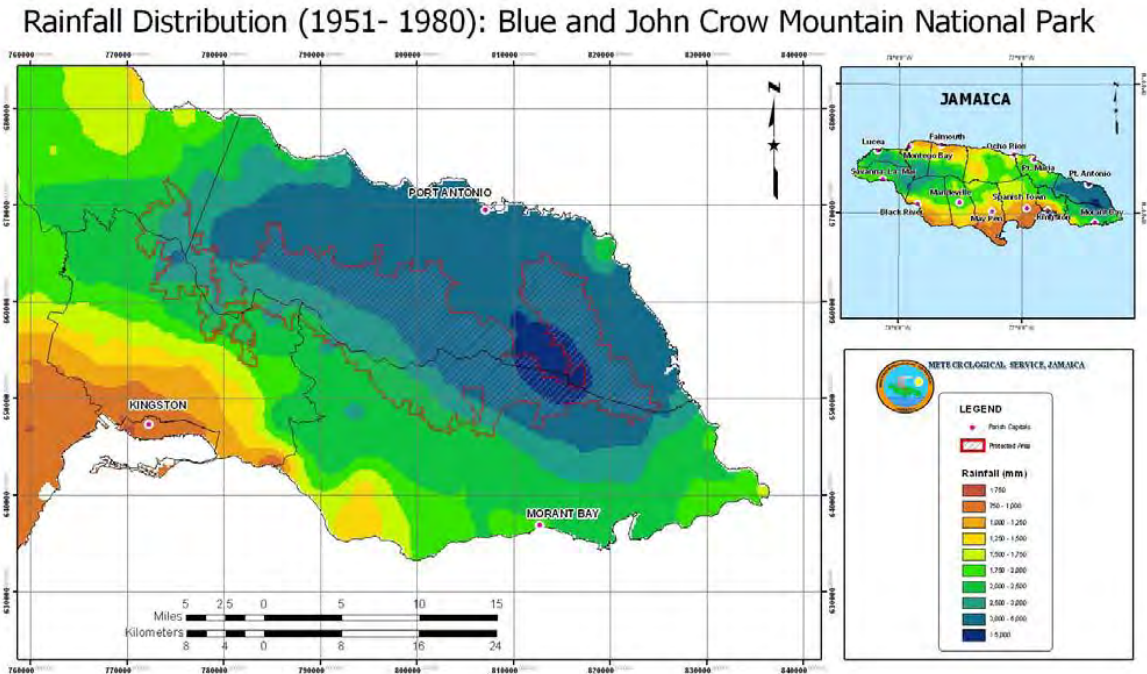
The copious rainfall in the BJCMNP is an important climatic factor that influences the ecology of the area. Most of the Park lies within the parish of Portland which receives the highest amounts of rainfall in the island and hence the number of rain days in the Park is always high.

The mountains of the BJCMNP govern the climate in the eastern parishes. The north-east trade winds are the prevailing moisture laden winds that rise in the Atlantic Ocean and blow in a south-westerly direction to reach the coastal areas of Portland. These winds sweep inland and rise up the northern slopes of the BJCM causing precipitation as the air cools, resulting in the northern slopes and the wind corridor of the Rio Grande Valley being the wettest parts of eastern Jamaica. As the rain clouds pass over the Grand Ridge from north to south, they lose much of their moisture content in a marked rain shadow effect, and so the southern side of the Grand Ridge receives less precipitation (Fig. 2.5).



The southern slopes receive about 2,600 mm of rain annually, while the northern slopes typically receive 3,300 mm of rain. Blue Mountain Peak receives 4,300 mm of rain annually and is often shrouded in a dense mist. There are two rainy seasons per year in the months of May and October, but rainfall is very variable throughout the year and between years. Frequent rain and thunderstorms exert a profound influence on the BJCMNP in the form of floods and landslides, especially given the steep terrain of the mountains. Prior to 2000, hurricanes were infrequent, usually passing by the island, however global climate change has shifted this trend. Between 2004 and 2008 there were several hurricanes and major tropical storms which impacted Jamaica, with Hurricanes Ivan ('04) and Dean ('07) and Tropical Storm Gustav ('08) being particularly severe. Much of the damage was to rinate forest, recreational areas and coffee plantations where there are gaps in cover. There was also significant damage to roads (from breakaways caused by landslides) and also to buildings, particularly roofs.

**Figure 2.5: Isohyetal Map of eastern Jamaica (BJCMNP rainfall) - prepared using 20 year rainfall records (Source: Metereological Office of Jamaica)**



Although the vast majority of precipitation falls as rain, the higher elevations of the BJCMNP are often covered in a blanket of mist - over 70% of daylight hours on the northern slopes and about 30% of daylight hours on the southern slopes. This mist increases the humidity and cuts incident light to about one quarter of the normal levels. This condition slows evapo-transpiration rates and photosynthesis in the vegetation thereby affecting the physiology of the plants and the entire forest ecosystem.



*Plate 4: Mist rolling in over the mountain at Holywell (Source: JCDT)*

Mean monthly temperature in the park lies between 18.5 and 20.5°C. As a general rule, temperatures decrease by 0.6°C for every 100 m ascended in the BJCMNP. The highest recorded temperature in Middle Peak (the highest point in the park) between 1890 and 1900 is 24°C and the lowest record is 0.7°C.

### **2.1.6 Hydrology**

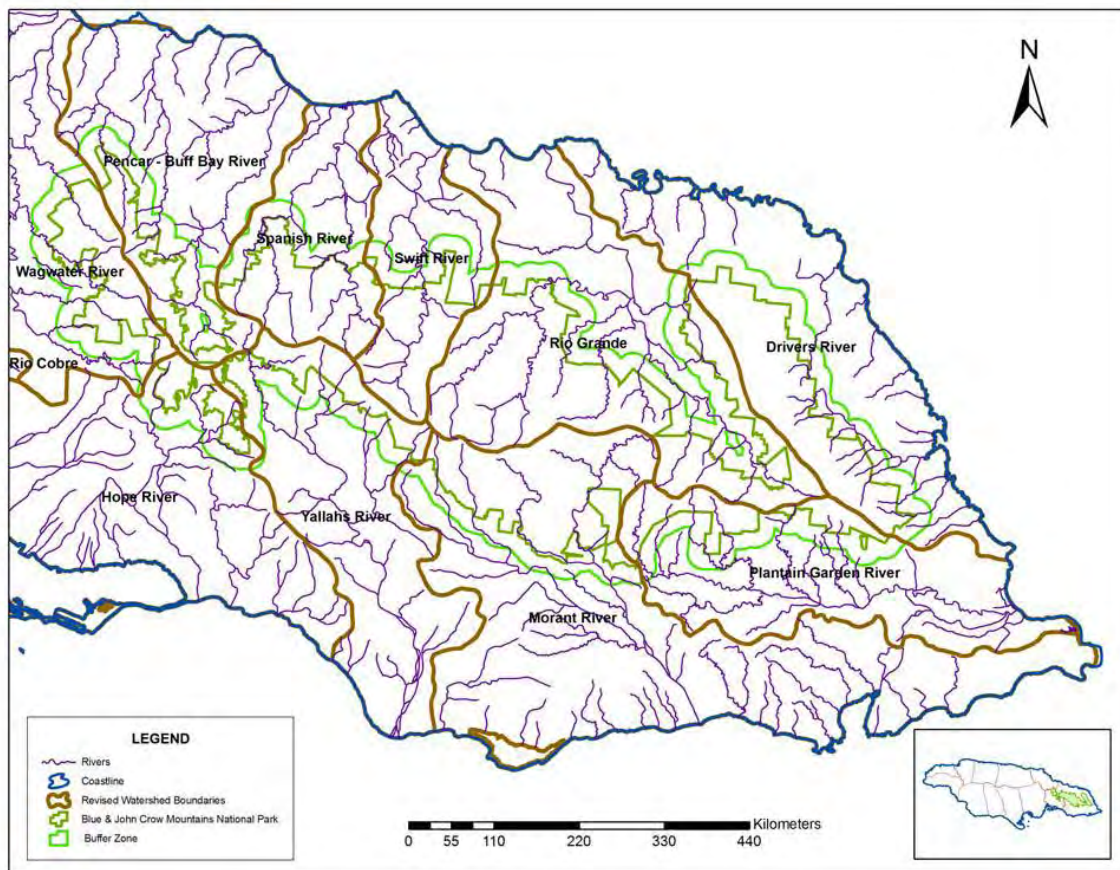
The headwaters of 10 watershed management units originate from within the boundaries of the Park - the Wagwater River, Pencar-Buff Bay River, Spanish River, Swift River, Rio Grande, Drivers River, Plantain Garden River, Morant River, Yallahs River and Hope River as shown below in Figure 2.6.

These basins occupy an area of 2,187 km<sup>2</sup> constituting 20% of the land area of Jamaica and drain a series of steep, narrow ridges – the John Crow Mountain ridge, the Blue Mountain ridge and the Port Royal Mountains ridge. The rivers flow off these ridges to the north, south and east, through steep narrow valleys, traversing 20 to 30 km to the sea. The Blue Mountain and Port Royal Mountains ridges are made of low permeability rocks of volcanic and volcanoclastic origin, occupying about 64% (1,400 km<sup>2</sup>) of the basins and characterised as aquiclude. These rocks are near totally framed by limestones (aquifers and aquicludes), occupying 23% (496 km<sup>2</sup>) of the basins and permeable river valley and coastal alluviums (aquifers) constituting a further 13% (291km<sup>2</sup>).

The NE Trade Winds produce orographic rainfall over the basins which range from 2,000 to 6,250mm/year on the NE facing slopes of the Blue Mountain ridge and 2,500 to 1000mm/year on the SW facing slopes, in its rain-shadow. Some 33% (2,967 million cubic metres (Mm<sup>3</sup>/yr) of the rainfall on those sections occupied by aquiclude converts to surface runoff in rivers, whereas about 5% (441 Mm<sup>3</sup>/yr) has been accounted for as groundwater discharge via coastal and submarine springs. River flows are characterized

by very high flows in the rainy season (September/November and May/June) and very low flows in the dry season (December to April). The reliable (dry season) surface water yield of the Blue Mountain basins has been estimated to be 413 Mm<sup>3</sup>/yr, only 14% of the average annual surface water runoff. The natural ability of the limestone aquifers to store water underground in spaces within its geological fabric results in about 343 Mm<sup>3</sup>/yr (53%) of its average annual groundwater runoff being available for utilization during the dry season, a significantly higher proportion when compared to surface water runoff.

**Figure 2.6: Major Rivers and Watershed Management Units of the BJCMNP (Source: WRA)**



The surface waters and ground waters of the Blue Mountain basins are suitable sources for all conventional water uses. The surface waters and ground waters are both classified as calcium bicarbonate type, the surface waters having a lower mineral content (Total Dissolved Solids < 150mg/l) than the ground waters (Total Dissolved Solids – 300mg/l). The surface waters are characterised by high rainfall induced turbidity, whereas the ground waters are affected to a much lesser extent.

North-flowing streams are perennial and drain more rapidly than those arising on the southern slopes of the BM. There are numerous waterfalls in the BJCMNP, especially in the upper reaches of north-draining rivers and these are replaced in the lower reaches by a cascade of alternating still pools and rapids. The Swift River, typical of northern BM

rivers with most of it running through forested area, is low in minerals such as sodium and magnesium and has a resulting low conductivity and alkalinity, but high pH and high nitrate content at the headwaters. In contrast, high levels of alkalinity, hardness, calcium, magnesium and bicarbonate have been recorded in the Yallahs River - a river typical of southern BM rivers flowing beyond intact forest catchments. In the Yallahs River conductivity, sodium, magnesium and chloride all increase downstream and high levels of nitrate are found beyond the forested catchments, linked to agricultural pollution.

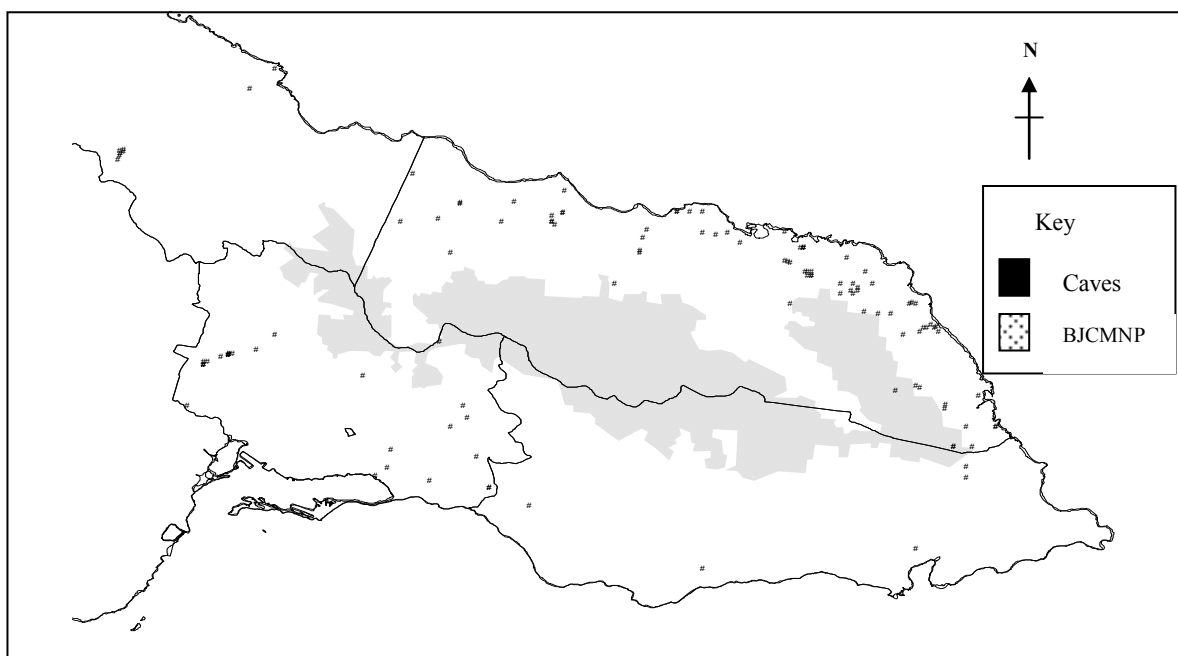
Domestic (including tourism) and agricultural water demands within the Blue Mountain basins have been estimated at a total 66 Mm<sup>3</sup>/yr for the year 2000, growing to 77Mm<sup>3</sup> /yr by 2020. With 647 Mm<sup>3</sup>/yr of surface and groundwater available, clearly there is more than enough water to fully satisfy the present and projected demands. The availability of such a large water reserve of over 570 Mm<sup>3</sup>/yr has prompted the conceptualization of a 'Blue Mountain Scheme' to divert surplus water from the north flowing rivers, by pipeline and tunnel through the Blue Mountain ridge into Kingston. The Yallahs pipeline which brings water from the Yallahs River in St. Thomas into the Mona Reservoir in Kingston may be seen as implementation of the first phase of the Blue Mountain Water Supply and Hydro-power Scheme.

There are several hydrological features of importance to the economy and cultural heritage of the Blue Mountains. Most of the waterfalls within the Park are not mapped, generally inaccessible, and best viewed from a helicopter. However, within the BJCMNP's Buffer Zone and further afield are several more easily accessible. Those closer to the coast such as Somerset and Reach are already well-developed tourism attractions. Others such as Quao and Nanny Falls in the Upper Rio Grande Valley are of cultural heritage significance because of their use in battles where the Maroons escaped by disappearing behind these waterfalls. The community of Cascade, Portland is said to have been named because of its numerous waterfalls, including Cascade Falls which is 1,330 metres above sea level, and is Jamaica's second highest waterfall. There are numerous springs (including hot springs) within and outside the Park, most famous of which are the Bath Hot Springs in St. Thomas. The Rio Grande River is the one of the longest rivers in Jamaica and is used for rafting as a tourist attraction.

### **2.1.7 Caves**

Over 1,000 caves and larger sinkholes have been identified in Jamaica. Most of these underground systems are situated in limestone. Consequently, caves are virtually absent in the PRM and BM (Fig. 2.7). A series of caves occur along the Park's eastern periphery in the JCM such as Nonsuch Caves (a tourist attraction) and Fox's Cave (less known attraction); however, few are situated within the Park and they are all small. Possibly in the future, more caves will be discovered in the hard-to-access interior parts of the JCM.

**Figure 2.7: Caves in Eastern Jamaica (Source JCDT)**



## **2.2 BIOLOGICAL DIVERSITY**

### **2.2.1 Terrestrial Ecosystems**

The BJCMNP contains a variety of different ecosystems that support a rich floristic diversity. This is a result of the different substrate types, soils, high and variable rainfall patterns, and high altitude in the mountain environment, making the flora correspondingly different as they are influenced by these factors. Tanner (1986) found a 41% endemism in his research plots in the BM, whilst in other parts of the BJCMNP, such as in the upper reaches and on the summit of the John Crow Mountains, 50% of the plant species are endemic (Muchoney et. al. 1994). The BJCMNP is a critical habitat for threatened and endangered trees. Of the 324 taxa of trees in Jamaica listed as threatened or endangered by the IUCN, 106 of these can be found in the nominated property.

Various classifications have been developed over the years for the different plant communities found in the BJCMNP (Shreve 1914, Asprey & Robins 1953, Grubb & Tanner 1976, and Muchoney et al. 1994). Table 2.2 provides an overview of the natural communities following Muchoney et. al. (1994). The variety of forest types can generally be divided into lower and upper montane forest over shale and limestone in the Blue and John Crow Mountains, respectively, with rainfall, temperature and altitude being the most influential factors. The transition from lower to upper montane forest occurs at around 1000 m altitude in the BM and around 600 m in the JCM. Montane is often considered to refer to the soil type and hence the forest in the JCM may be considered wet limestone forest rather than montane. The natural vegetation of the upper slopes and mountain tops

consists of thickets and scrubs; small areas of montane summit savanna occur on a few peaks in the BM. It is important to note that the forests of the Blue Mountains represent the only high altitude rainforest on volcanic soils in Jamaica.

A wide variety of modified (disturbed) and anthropogenic ecosystems can be distinguished. These include modified lower and upper montane forests, ruinate woodlands with pronounced exotic components, anthropogenic swards, plantations and a few residential areas.

**Table 2.1: Natural Communities as Identified in the Rapid Ecological Assessment**

<b>Substrate</b>	<b>Limestone (mainly JCM)</b>	<b>Shale (mainly PRM and BM)</b>
Lower montane forest	Typical	Typical Gully Transitional
Upper montane forest	Typical Edaphic variant BM variant	Typical Typical variant Selaginella variant Mor Ridge
Formations on upper slopes and mountain tops	Upper montane thicket	High altitude scrub Montane summit savanna
Sparsely vegetated formations	Cliffs and landslides Dominated by seed plants and ferns Dominated by lichens and bryophytes Rock rubble	

### 2.2.1.1 Blue Mountains Forests and Flora

The forests of the BM are unique to the island as other mountain ranges in Jamaica do not attain such high altitudes and are usually composed of limestone rather than volcanic rock. The flora of the Blue and Port Royal Mountains is quite well known, as many botanists have worked in the area. There are however, still large unexplored areas of the northern slopes and it is likely that new species may be found, especially as bryophytes and lichens are poorly known. Over 500 species of flowering plants have been collected from the BM and PRM. About 40% of the higher plants are endemic and many rare and endangered species persist, especially those locally endemic to the BM (Muchoney et. al. 1994). Excellent photographs of much of the flora of these two ranges can be found in Iremonger’s book on Plants in the Blue Mountains.

Iremonger (1993) reported that 275 vascular plant species and 14 varieties of the more than 600 species of flowering plants in the BJCMNP are endemic to Jamaica. In addition, it was discovered that of the many endemic species, approximately 33% of the flowering plants were restricted in their entire global range to specific forest communities in the BJCMNP. Genera which are well represented by endemic species in the flora of the park are *Pilea* (12 spp.), *Lepanthes* (12 spp.), *Psychotria* (12 spp.) and *Eugenia* (11 spp.).



*Plate 5: Bromeliads in a Tree at Holywell (Source: JCDT)*

The BJCMNP is believed to house about 50% of the 530 ferns known from Jamaica. Tree ferns are a spectacular feature of the mountains and 15 of the 21 species found in the island are endemic to BM. Eighteen species of filmy ferns are found especially at higher altitudes and 41 of the 51 epiphytic ferns in Jamaica of genus *Grammitis* are present.



*Plate 6: Tree Ferns at Mount Horeb (Source: JCDT)*

**Slope Vegetation.** The northern slopes of the BM are still largely forested but the drier and sunnier southern slopes which were cleared for coffee in the past now bear subsistence farming, leaving only small patches of disturbed forest, except within the boundary of the BJCMNP. The northern (windward) slopes of the BM receive higher

rainfall and the ravines are rich in epiphytes - mosses, liverworts, ferns and lianas. Typical trees are Alligator wood (*Guarea glabra*), Soapwood (*Clethra occidentalis*), Mountain bullet (*Bumelia montana*), and Dovewood (*Alchornea latifolia*) which are widely spaced and quite large, with a dense herbaceous layer of ferns and scattered shrubs dominated by the Melastome and coffee families underneath.

Little pristine forest remains on the southern slopes outside the National Park. Southern slope vegetation growing on the driest areas of the leeward side include trees that are generally denser and of lesser diameter (Soapwood, Mountain bilberry (*Vaccinium meridionale*), Fiddlewood (*Litharexylum caudatum*), Juniper (*Juniperus lucayana*), Dovewood and Winterberry (*Ilex macfadyenii*) over a fairly dense shrub layer. The herb layer is dominated by flowering plants like the orchid *Spiranthes speciosa* and scattered ferns and lianas which are abundant. The herb layer also includes dense thickets of Climbing bamboo (*Chusquea abietifolia*) and there are less epiphytes than on the northern slopes. Trees such as Rodwood (*Eugenia monticola* and *E. virgultosa*) and Burn nose (*Daphnopsis cumingii*) are apparently restricted to the southern slopes.

**Grand Ridge Vegetation.** Grand Ridge vegetation is generally lower in stature than those on slopes. These forests on or near to the Grand Ridge are typically dominated by Soapwood, Mountain yacca (*Podocarpus urbanii*), Beetwood (*Cyrilla racemiflora*) and Headache bush (*Hedyosmum arborescens*). Common shrubs are from the coffee family and include *Palicourea alpine* and *Psychotria corymbosa*. Lianas are less common than on slopes although climbing bamboo is a common feature. A unique forest type - Mor Ridge Forest (Grubb & Tanner, 1976) comprises some of the Grand Ridge vegetation. Mor Ridge Forest is characterized by a deep layer of acidic humus (to 50 cm) and one of the most conspicuous features is the presence of bromeliads (usually epiphytic in trees) at ground level. The small endangered tree *Laplacea villosa* is restricted to this forest type.

**High Altitude Forest.** Above 1,800 m, the vegetation is more stunted and species poor. Some species such as *Eugenia alpine* and *Clethra alexandra* are restricted to these high altitudes. Above 2,000 m in the region of BM Peak, the forest is known as Elfin Forest due to the stunted and gnarled appearance of the trees. Trees get up to only 3 to 6 m in height and only 1.5 to 2 m on the highest peaks. These forests lack a shrub layer and beneath the canopy, herbs such as *Lobelia martagon* and *Odontocline laciniata* which are endemic to high altitude forests occur. The short stature of the forest is likely due to the low temperature, limited exposure to sunlight and low nutrient content of the soils. These forests experience high rainfall and are rich in epiphytes including hanging mosses, ferns and tiny orchids, many of which are restricted to these high altitudes. Lichen flora is also a distinct feature of these forests, with moss forming cushions on rocks. Above this elevation is an extremely rare community of natural grassland comprised of Tussock grass *Danthonia domingensis* that is restricted to near the summit of Sir Johns Peak and High Peak.





Plate 7: *Psychotria corymbosa* at Holywell. (Source: JCDT)

### **2.2.1.2 Port Royal Mountains Forests and Flora**

On the Port Royal Mountains (PRM), forest only remains above the altitudinal limit of 1200 m. Forests are similar to BM forests and share the same wet - dry distinction between forests of the windward (Mt. Horeb) and leeward (southern slopes of Catherine's Peak) slopes.

### **2.2.1.3 John Crow Mountains Forests and Flora**

These forests are exposed to the highest levels of rainfall in the island and are characterized by rich fern and bryophyte flora particularly due to the high rainfall, high humidity and shade from the canopy. The lower reaches of this mountain range support the only remaining lower montane forest in Jamaica. Trees reach a canopy height of 24-28 m with emergents getting up to 40 m. The canopy is dominated by Santa Maria (*Calophyllum calaba*) due to other more useful species being cut. Other common trees are Popnut (*Omphalea triandra*), Breadnut (*Brosimum alicastrum*), Mutton wood (*Turpinia occidentalis*), Galipee (*Dendropanax arboreus*), Water mahoe (*Hernandia catalpifolia*), Slug wood (*Beilschmiedia pendula*), Soapwood, Rodwood, Long thatch palm (*Calyptrotrichia occidentalis*), members of the coffee family and tree ferns.

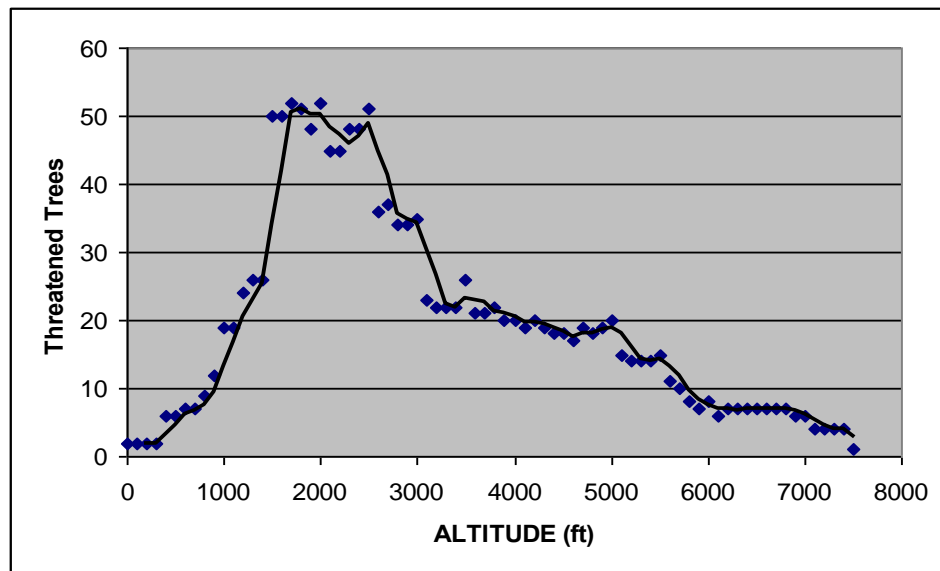
The native forests of the JCM support a high proportion of flowering plants with limited geographical range. Portland has the highest number of flowering plant local endemics of all the parishes in the island and the JCM is refuge for all 47 flowering plant species that are endemic to Portland. Orchids, bromeliads, ferns and bryophytes abound in these forests and trees have structural adaptations like buttress roots due to the high rainfall and shallow soil.

Current species lists for the BJCMNP cannot be considered to be exhaustive, since there are locations within the park that have not yet been explored or where the exploration was preliminary. This includes the northern slopes of the Blue Mountains and vast areas of the John Crow Mountains. In addition, the aquatic plant communities have not been surveyed, so the potential exists for the discovery of many more endemic and ‘new to science’ species of terrestrial and freshwater plants.

### 2.2.1.4 Conservation Status of Plant Species

Jamaican plants are highly threatened and endemic species even more so than non-endemic species (Kelly, 1988). The IUCN Red List contains 324 taxa of threatened and near-threatened trees occurring in Jamaica. Of these, 106 taxa find refuge within the forests of the park. Threatened trees can be found at all altitudes of the park, with the largest number occurring at mid-altitudes (see Fig. 2.8). Chai and Tanner (2010) found that, “The conservation value of the remaining lowland forest is high because of its high endemism (18% of species in our plots) and beta diversity”. The most important factors endangering plant species are habitat degradation and conversion. Unsustainable harvesting and the spread of alien invasive species are additional threats.

**Figure 2.8: Threatened Tree Species in Eastern Jamaica, by Altitude.** (*Tree species according to IUCN Red List; altitudinal distribution according to Adams*)



Chai et. al. (2009) report that the net deforestation rate within the Park declined by 68% to 0.26% yr<sup>-1</sup> in the 1992 – 2002 time interval after National Park designation in 1993, compared to a rate of 0.80% yr<sup>-1</sup> in the 1983 - 1992 period. Forest Department comparison of photos from a JCDT/JDF helicopter monitoring trip in 2009 found no differences in forest cover when compared with satellite imagery from 2002. Funds are to be sought to conduct a study comparing the 2002 – 2012 time interval in order to see if there has been a further decline in the deforestation rate, from the increased level of Park management activity.

## 2.2.2 Terrestrial Fauna

### 2.2.2.1 Invertebrates

With only a few exceptions, the diversity of the invertebrate fauna of the BJCMNP has been very poorly studied so far. This is reflected in new studies finding numerous species not yet known to science. Rosenberg is reported to have discovered more than 100 undescribed species including snails, millipedes, grasshoppers, earthworms, crabs, isopods and dipluran insects in a 2004 study. Three endemic species of *Sesarma* crabs occur within the BJCMNP. For most of the described species little is known except one or very few localities of occurrence. In addition, the literature on the park's invertebrates is widely scattered across a highly specialized scientific literature that is very difficult to access from within Jamaica. This is an area requiring taxonomic research, and has been listed in the BJCMNP's Research Prospectus.

**Land Snails.** A total of 561 species of land snails with 505 endemics have been recorded from Jamaica. This means that the island has one of the world's most diverse terrestrial mollusk populations. This extraordinary level of diversity for an island of only 11,500 km<sup>2</sup> is impressive. Still, about 36 of the snail species collected in an ongoing land snail study have not been identified to date, and more will surely come to light as we continue sorting micro-snails from litter samples. Nine out of 15 species of snails found on Blue Mountain Peak, the highest point in Jamaica, are un-described. At least three



*Plate 8: Land snail shell of unknown species (Source: JCDT)*

members of the snail family – Punctidae - occur at high altitude in Jamaica; the family has not previously been reported from the island.

**Insects.** The BJCMNP is home to a huge variety of insects belonging to a wide range of families. Some of the more familiar species include peenywallies and click beetles (Elatedae), blinkies and fireflies (Lampyridae). Forty five of 48 firefly species are endemic to Jamaica but there has been no specific study conducted within the BJCMNP. Dragonflies (Order Odonata), Caddisflies (Order Trichoptera) and Mayflies (Order Ephemeroptera) are common along rivers and streams and their larvae are the main macro-invertebrates counted in the BJCMNP's fresh-water monitoring. Butterflies are the best-studied group of terrestrial invertebrates in Jamaica.

**Moths.** Similar to the snails, Jamaica's moth fauna is extremely diverse containing probably over 1,000 species of which about 40% are endemic to the island. Matthew Barnes collected several thousands specimens representing about 500 species of moths at a single location in the southern Blue Mountains near Mavis Bank (Stoneleigh Plantation) between 1988 and 1989. Eric Garraway from the University of the West Indies and his postgraduate students collected several hundred species at various localities close to the periphery of the BJCMNP.

**Butterflies.** There are 119 species of butterflies in Jamaica, with 19 species and 12 subspecies endemic to the island. A number of butterflies, both endemic and non-native are present in the BJCMNP. The area is of particular importance for the following endemic species: *Atlantea pantoni*, *Greta diaphane*, *Leptotes perkinsae*, *Calisto zangis* and *Eurema adamsi*. Most of these can be found in the virgin forests of the John Crow Mountains between 300 and 600 metres. However, a number of species both endemic and non-native are common in the mist forests and elfin woodlands of the Blue Mountains between 900 - 1500 meters. In the most extreme part of the habitat, that is, 1200 – 2100 meters in the Blue Mountains, three species of butterfly are likely to be encountered: *Vanessa cardui*, *Calisto zangis* and below 1800 meters, *Eurema adamsi*. The latter two are endemic to the island. Also, the BJCMNP forms one of two remaining habitats for the Giant Swallowtail Butterfly (*Pterorous homerus*) formerly *Papilio homerus*. Just outside the BJCMNP's boundary, there is a population of the endemic Jamaican Kite Swallowtail (*Eurytides marcellinus*).

**Threats.** No specific information is available concerning threats to invertebrate species, except the Giant Swallowtail Butterfly (*P. homerus*). Once inhabiting seven of the 14 parishes in the island, this species now only survives in two isolated and diminishing populations in the country – the Cockpit Country and the JCM (Emmel & Garraway, 1990). This magnificent Jamaican endemic is the largest butterfly in the Americas and has been chosen as the feature animal on the logo of the BJCMNP. It has a bold black and yellow coloration, with huge spatulate tails and wing tips that span an impressive 15 cm. This species is restricted to virgin forest on mountain slopes and along mountain streams at low elevations (150 - 600 m) (Emmel & Garraway, 1990), emphasizing the need to protect the threatened low-land areas of the park and to work with local communities within the BJCMNP's Buffer Zone.

The Giant Swallowtail is threatened by commercial collecting and destruction of rain forest habitat, with their survival also being dependent on the abundance of the endemic water mahoe (*Hernandia catalpifolia*), as adult females lay eggs only on this species of tree. Deforestation causes increased mortality in the egg and larval stages due to the butterfly's vulnerability to parasitic attacks in open areas.

The Giant Swallowtail Butterfly is protected under the Wild Life Protection Act (1945) – having been added to the Act's schedule in 1988. It is listed as 'Endangered' on IUCN's Red List (1994), meaning that the animal faces a very high risk of extinction in the wild, in the near future. It is also a Convention on International Trade in Endangered Species



*Plate 9: Giant Swallowtail Butterfly (P. homerus) at Bowden Pen (Source: JCDT)*

of Wild Flora and Fauna (CITES) Appendix I species, which means that it is threatened with extinction and that trade may be a causal factor in its decline. Its trade is subject to particularly strict regulations and only authorized in exceptional cases. In the 1980s, prices for a specimen ranged from US\$400 - \$1500. Despite significant reduction in this trade, partly due to the Education and Enforcement Programmes of the Park, hunting of the Giant Swallowtail still occurs, with reports coming in as recently as 2004.

Emmel & Garraway (1990) reported that the remaining localities of the Giant Swallowtail comprise an area of about only 10 km<sup>2</sup>. However, over the last six years (2005 – 2010) there have been an increasing number of sightings by National Park staff and community members, but there have been no reports published using data from this period. The Bowden Pen Farmers' Association in the Upper Rio Grande Valley, have been very alert with respect to possible hunting, and have been using the Water mahoe in their reforestation programmes. In 2009, National Park Rangers were able to report to Garraway of a previously unknown population in another part of the Blue Mountains. Despite this the conservation status of the Giant Swallowtail is still of concern.

**Scolytid and Platypodid Beetles.** The most recent reviews recorded 62 species of *Scolytidae* (Bark beetles) and seven species of *Platypodidae* (Ambrosia beetles) from Jamaica and included all known records from the island (Bright, 1972). Nearly 40% (26 species) were described as new to science. The number of endemic species was tentatively given as 31. However, the discussion of regional and global distribution was extremely difficult since these beetles are very poorly known elsewhere in the Caribbean and Central America. A large majority (25) of the 31 endemic species has only been taken at the type locality. Nine species were exclusively collected at Hardwar Gap alone and the total number of island endemics occurring in the Blue Mountains amounted to 20.

**Other invertebrates.** Jamaica is a centre in the distribution of the small phylum Onychophora. Due to its wet climate, the BJCMNP provides an excellent habitat for these unique animals. The Onychophora (velvet worms or walking worms) are a small phylum of about 70 species of interesting and ancient animals. They are shy creatures that are able to hide in very tight crevices and so they are rarely seen. Onychophorans are of great interest to biologists, as they appear to be related to both annelids and arthropods, and give an idea of what the ancestors of the arthropods may have been like.



*Plate 10: Velvet Worm (Peripatus sp.) found near BM Peak Trail (Source: JCDT)*

Crabs have not been well studied, however three endemic species of *Sesarma* crab are known to occur in the BJCMNP. Jamaica has a total of 9 endemic species of land crabs, which are unique in their exceptional adaptations to terrestrial life. The crabs in the Park like other Jamaican land crabs exhibit the only active brood-care for larvae and juveniles known in crabs worldwide.

### **2.2.2.2 Amphibians**

Jamaica has 23 species of native frogs, all of which are endemic to the island. Frogs are the only amphibians native to Jamaica and they are distributed in two major centres across the island – the Cockpit Country and the BJCM. The BJCMNP supports 11 of the

23 endemic frogs (Table 2.2). Five of these frogs are endemic to the park: *Eleutherodactylus andrewsi*, *E. orcutti*, *E. pentasyringos*, *E. alticola* and *E. nubicola*.

Frogs in the park are distributed along an altitudinal gradient, with *E. glaucoreius*, *E. gossei* and *E. pantone* occurring at lower altitudes (760-1220 m), *E. andrewsi*, *E. jamaicensis*, *E. nubicola*, *E. orcutti*, *Osteopilus brunneus* and *Hyla wilderi* occurring in mid-altitude forests (910-1830 m) and *E. alticola* occurring only above 1680 m in the BM. Highest diversity is reached within the Blue Mountain range of the park. Several species of *Eleutherodactylus* frogs show distinct morphological patterns between the Blue and John Crow Mountain range.

**Table 2.2: Amphibians Recorded in the BJCMNP**

FROGS				
Scientific Name	Family	Distribution	Status	Distribution in Jamaica
<i>Eleutherodactylus alticola</i>	Leptodactylidae	endemic	Critically Endangered	Known from few populations in the upper regions of the Blue Mountains
<i>Eleutherodactylus andrewsi</i>	Leptodactylidae	endemic	Endangered	Restricted to Blue and John Crow Mountains
<i>Eleutherodactylus glaucoreius</i>	Leptodactylidae	endemic	Near Threatened	eastern Jamaica
<i>Eleutherodactylus gossei</i>	Leptodactylidae	endemic	Least Concern	islandwide
<i>Eleutherodactylus jamaicensis</i>	Leptodactylidae	endemic	Endangered	islandwide
<i>Eleutherodactylus nubicola</i>	Leptodactylidae	endemic	Endangered	Restricted to higher elevations of the Blue Mountains
<i>Eleutherodactylus orcutti</i>	Leptodactylidae	endemic	Critically Endangered	Restricted to streams in Blue Mountains; has greatly declined since 1985, may be extinct.
<i>Eleutherodactylus pantoni</i>	Leptodactylidae	endemic	Near Threatened	islandwide
<i>Eleutherodactylus pentasyringos</i>	Leptodactylidae	endemic	Vulnerable	Restricted to Portland and St. Thomas to the north of the Blue and John Crow Mountains
<i>Hyla wilderi</i>	Hylidae	endemic	Endangered	islandwide
<i>Osteopilus brunneus</i>	Hylidae	endemic	Least Concern	islandwide

**Threats.** A recently completed global assessment of amphibian conservation status reports a gloomy picture for the Jamaican frogs. Only four of the 23 native frogs are considered safe, while two are near threatened and the vast majority of 17 threatened (including seven critically endangered). Seven, including all local endemics of the 11 frogs known from the BJCMNP are considered threatened and an additional two near-threatened. Several reasons have contributed to this alarming situation:

- ▶ Many of the *Eleutherodactylus* frogs have very limited geographical ranges and are thus at special risk of extinction,
- ▶ Many of these frogs are very sensitive to habitat destruction, being replaced by introduced competitors in converted areas, and
- ▶ *E. orcutti* has suffered a massive contraction of its range over recent decades for unknown reasons and may be extinct. Similar trends have been observed in other stream-adapted frogs at high altitudes in the Caribbean.

Globally amphibians are apparently becoming extinct at rapid rates, some due to infection by a chytrid fungus, however it is not known if that fungus is affecting Jamaican populations, but a study is to be done at the UWI starting in 2010.

### 2.2.2.3 Reptiles

**Lizards.** Most of Jamaica's 24 lizard species can be found in the BJCMNP (Table 2.3). The species - *Anolis reconditus* is restricted to the Blue and Port Royal Mountains above altitudes of 1100 m, in the vicinity of Hardwar Gap and the headwaters of the Buff Bay River. Another species belonging to the genus *Sphaerodactylus* is also apparently restricted to the Blue and Port Royal Mountains, in forests above the army camp at New Castle.

Giant Galliwasp are lizards restricted to the Neotropics. They are rarely seen, skink-like lizards with snout to vent lengths (SVL) of greater than 200 mm. Four species of the genus *Celestus* collectively known as West Indian Giant Galliwasp, occur or used to occur in Jamaica and Hispaniola. *C. occiduus* is endemic to Jamaica and these Giant Galliwasp are impressive lizards, worthy of conservation resources as a unique group of animals. Most have extremely limited ranges and an apparent predisposition for extinction. It is not known whether they exist within the BJCMNP.

The distribution as well as the taxonomy of many Jamaican lizards is at present poorly known. There appears to be distinct morphological features of some BM and JCM lizards, which on genetic analysis, may reveal themselves to be subspecies or separate species. Habitat partitioning is well known in lizards especially *Anolis*, but they partition differently at higher altitudes.

**Threats.** Giant Galliwasp often have significance in the cultures of indigenous people who often fear the lizards and consider them venomous. Lynn and Grant (1940) described how Jamaicans regarded galliwasp: '*They are greatly feared by the natives*



and are the subject of many yarns and fables.' Currently, a widely held belief in Jamaica is that galliwasp are venomous and that if a bite occurs and the galliwasp reaches water first, the person dies but if the person reaches water first, the galliwasp dies.

**Table 2.3: Reptiles Recorded in the BJCMNP**

Scientific Name	Family	Distribution	Status	Distribution in Jamaica
<b>TURTLES</b>				
<i>Trachemys terrapin</i>	Hylidae	WI	rare	Scattered localities throughout Jamaica.
<b>LIZARDS</b>				
<i>Aristelliger praesignis</i>	Gekkonidae	WI	common	Islandwide at lower elevations.
<i>Sphaerodactylus argus</i>	Gekkonidae	neotropic	common	Islandwide
<i>Sphaerodactylus goniorhynchus</i>	Gekkonidae	endemic	common	Islandwide; may comprise undescribed threatened species in Blue Mountains.
<i>Sphaerodactylus oxyrhinus</i>	Gekkonidae	endemic	rare	Two subspecies with restricted ranges in western and eastern Jamaica, respectively.
<i>Anolis garmani</i>	Iguanidae	endemic	common	Islandwide
<i>Anolis grahami</i>	Iguanidae	endemic	common	Islandwide
<i>Anolis lineatopus</i>	Iguanidae	endemic	common	Islandwide
<i>Anolis opalinus</i>	Iguanidae	endemic	common	Islandwide
<i>Anolis reconditus</i>	Iguanidae	endemic	vulnerable	Restricted to sections of the Blue Mountains.
<i>Celestus cruscus</i>	Anguidae	WI	common	Islandwide
<b>SNAKES</b>				
<i>Typhlops jamaicensis</i>	Typhlopidae	endemic	common	Islandwide
<i>Epicrates subflavus</i>	Boidae	endemic	vulnerable	Scattered localities in various sections of Jamaica.
<i>Arrhyton callilaemus</i>	Colubridae	endemic	common	Islandwide at lower elevations.
<i>Arrhyton polylepis</i>	Colubridae	endemic	vulnerable	Scattered localities in eastern Jamaica.

**Snakes.** Four of the island's six extant snake species - all endemic to the island - can be found in the national park - *Epicrates subflavus* (Jamaican Boa or Yellow Snake), *Arrhyton callilaemus*, *Arrhyton polylepis*, and *Typhlops jamaicensis*). The Jamaican Boa is the most threatened and most impressive of these species. This mostly nocturnal

creature preys on birds and their eggs, small mammals such as rats and mongooses and occurs in low densities even in its larger populations. Although this boa can attain a large size of over 3m in length, the animal is seldom seen, making it difficult to assess its population. The possibly extinct Black Racer (*Alsophis ater*) was recorded in the past within areas that include the present park. *Tropidophis haetianus* (Dwarf Boa or Water Snake) is a non-endemic snake found in the Park.



Plate 11: Jamaican Boa or Yellow Snake (*Epicrates subflavus*) (Source: NHMJ – IOJ)

Yellow Snakes are known to depend on low altitude forest of elevations, less than 900m. This emphasizes the need to protect the remaining forests in these threatened lower altitudinal areas. In the BJCMNP, there are scattered reports of boas especially in the eastern BM, the north-eastern slopes of the Back Rio Grande catchment and the south-eastern slopes of the Plantain Garden River catchment. In the JCM, boas are reported from the Rio Grande Valley.

**Threats.** The Jamaican Boa is listed in the IUCN Red List as ‘Vulnerable’ and the current distribution of this species suggests that habitat fragmentation may be causing declines in population numbers. While boas appear to be adaptable to non-natural forest areas, they depend on large tracts of forest to maintain a viable breeding population. There have been reports of boas being hunted for their skin and meat and although this may not be on a large scale, many Jamaicans share a morbid fear of snakes and the misbelief that they are poisonous, causing the animal to be often killed on sight. Other sources of snake mortality include predation by dogs, cats and mongooses.

#### **2.2.2.4 Birds**

The montane rain forests of the BJCMNP provide one of the most important habitats and refuges for both Jamaican and migratory birds of the island. The BJCMNP is the largest contiguous tract of remaining forest in the island, covering a large range of habitat types

and altitudinal zones. All of Jamaica's 28 endemic species of birds can be found in the Park and indeed, most of the island's 256 species of indigenous land birds occur in the Park. Common endemic birds of the Park include the Crested Quail Dove (*Geotrygon versicolor*) – also known as Mountain Witch, White-eyed Thrush (*Turdus jamaicensis*), Jamaican Becard (*Pachyramphus niger*), Jamaican Tody (*Todus todus*), Jamaican Woodpecker (*Melanerpes radiolatus*), Red-billed Streamertail (*Trochilus polytmus*), Jamaican Vireo (*Vireo modestus*) and Blue Mountain Vireo (*Vireo osburni*). A common resident often heard at Holywell is the Rufous-throated Solitaire (*Myadestes genibarbis*).

Insectivores are common, with fewer frugivores at higher altitudes as species diversity becomes low in the Elfin Forests of the highest peaks. The lower montane forests of the BM, especially the northern slopes, are the chief remaining habitat for the island's most threatened bird - the Jamaican Blackbird or Wild-pine Sergeant (*Nesopsar nigerrimus*). This species is known to occupy primary forest habitats where there is an abundance of bromeliads and other epiphytes, in which these birds forage for insects. The JCM supports some of the greatest bird diversity found in Jamaica. This area supports populations of larger frugivores and omnivores, like the endemic Yellow-billed Parrot (*Amazona collaria*), Black-billed Parrot (*Amazona agilis*), Jamaican Crow (*Corvus jamaicensis*) and the Jamaican Owl (*Pseudoscops grammicus*). The JCM is the principal habitat for the Black-billed Streamertail (*Trochilus scitulus*), recently confirmed as a distinct species from the more common Red-billed Streamertail.

Eight of the 28 Jamaican endemics are thought to be decreasing in population numbers - the Ring-tailed Pigeon (*Patagioenas caribaea*), Crested Quail Dove, Yellow-billed Parrot, Black-billed Parrot, Jamaican Mango (*Anthracothorax mango*), Rufous-tailed Flycatcher (*Myiarchus validus*), White-eyed Thrush and Jamaican Blackbird (Haynes *et al.*, 1989). At least two species and two sub-species of endemics have become extinct in the last 150 years. These are the Jamaican Macaw, the Jamaican Pauraque, the Jamaican Black-capped Petrel and the Jamaican Uniform Crake.

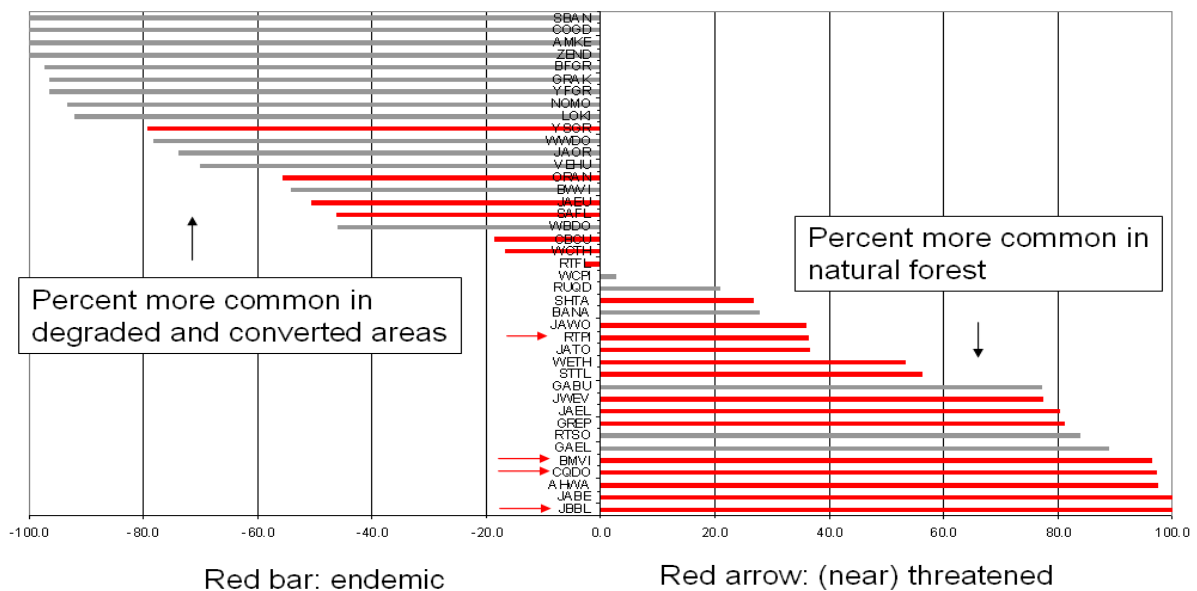


Plate 12: Jamaican Tody (*Todus todus*) (Source: JCDT)

The Blue and John Crow Mountain National Park serves as a permanent or winter home to 220 migrant and resident bird species. Thus the area is an important habitat for resident birds and has been identified as the second most important bird area in the island (Bird Life, Jamaica, 2003). It is also the largest intact wintering habitat blocks for migratory birds in the insular Caribbean (Haynes et al, 1989).

Birds of the BJCMNP have been found to be sensitive to forest conversion, degradation and destruction (Mundle, 1997 & Vogel, 2004). Analysis of bird distribution in the park (Fig. 2.9) shows that most endemic and threatened birds thrive best in natural rainforest. Less were seen in ruinate areas and coffee habitats were found to have the most different bird composition (which included dry forest birds) when compared with natural forests (Fig. 2.9 and Vogel, 2004). Mundle (1997) found that coffee habitats had significantly fewer species and individuals than all other habitats. In ruinate areas, birds typical of open dry habitats were observed. Many birds e.g. Jamaican Blackbird, Jamaican Becard and Crested Quail Dove are dependent on natural forest for their survival.

**Figure 2.9: Comparison of Bird Composition in Natural Forest versus Degraded and Converted Areas (based on JCDT's bird counts)**



**Threats.** Habitat destruction, especially in the form of conversion to agriculture and plantation forestry, is among the most serious threats faced by birds of the Park. Other threats include hunting and pesticide abuse (Experts workshop, 1999). All birds in Jamaica are protected under the Wild Life Protection Act except those in the 2<sup>nd</sup> Schedule including the parasitic Shiny Cowbird (*Molothrus bonariensis*), domestic chickens and game birds which can be hunted only in the prescribed season and according to annually prescribed amounts. The game birds found in the Park are the Mourning Dove (*Zenaida macroura*), White-winged Dove (*Zenaida asiatica*), Pea Dove (*Zenaida aurita*) and White-crowned Pigeon or Bald-pate (*Columba leucocephala*) however hunting is not permitted within the Park. Birds like the Jamaican Blackbird, the Ring-tailed Pigeon, the Blue Mountain Vireo and the Jamaican Elaenia (*Myiopagis cotta*) have small populations

that are on the decline and contracting ranges. Development pressure from ecotourism, coffee and lumber extraction could cause local extinction of some of these species (Mundle, 1997).

**Migrant Birds.** Approximately 40 terrestrial bird species (mainly new world warblers) are regular winter residents in Jamaica. Others may use Jamaica as a stop en route to wintering grounds in South America. Common migrants are: the Black-throated Blue Warbler (*Dendroica caerulescens*), the American Redstart (*Setophaga ruticilla*), the Black and White Warbler (*Mniotilta varia*), Oven bird (*Seiurus aurocapillus*) and the Common Yellowthroat (*Geothlypis rostrata*). Swainson's warbler (*Lymnotheros swainsonii*) though no longer common can still be found in the Park. A few species migrate from South America during summer to breed in Jamaica and return to South America in the winter. Some areas of the park, especially in the region of Mount Horeb and Morce's Gap are very well studied but less is known about the central and eastern regions of the BM, as well as altitudes below 1000 m (Vogel, 2004). This is being addressed to a limited extent by the BJCMNP's Bird Monitoring Programme which in 2004/5 expanded the areas being monitored. In addition there is current relevant research being conducted for Ph.D. thesis at the University of the West Indies.

#### **2.2.2.5 Mammals**

**Jamaican Hutia (Coney)** The Jamaican Hutia or Coney (*Geocapromys brownii*) is endemic to the island and is the only remaining non-volant terrestrial mammal. The species is protected under the Wild Life Protection Act (1945) and its status is listed as 'Vulnerable' according to the IUCN Red List. This means that the animal is facing a high risk of extinction in the wild in the medium-term future. Hutias inhabit solution cavities in sedimentary limestone as well as holes formed by roots, hollow trees and crevices in rock-fall areas. The animal is nocturnal and about the size of a rabbit, hence the local name 'mountain rabbit'.

Formerly distributed throughout the island, the Hutia has become increasingly restricted in its range over the last few decades, with significant population declines reported in some areas and extinction in others. It has been recorded in most parts of the JCM and there have been scattered sightings in the BM range (elevation 600 - 1800+ m) and especially the Cunha Cunha Pass Trail.

**Threats** The Hutia or Coney is threatened by deforestation and encroachment, hunting pressure and predation from introduced animals especially dogs, rats and mongooses. Coneys have been hunted as a source of protein since the arrival of the Arawaks and hunting pressure remains intense, resulting in the loss of several hundred individuals each year (Oliver & Wilkins, 1988). The tradition of hunting coneys is very prevalent in the JCM. They have become scarce in all of the more accessible areas and are believed to be most abundant in the less accessible forests above 750 m.

Hunting has also increased in the Rio Grande Valley, with one of the main markets being returning residents who purchase coney meat for J\$500 per coney. The method of catching coneys in this area is also very disturbing as there are reports of coney holes being destroyed with sledge hammers. Human encroachment, agriculture and deforestation are also contributing factors in the coney's decline (Oliver & Wilkins, 1998). The most recent population assessment conducted (Oliver, 1982) suggests that the coney persists in most of the places one would expect it to; due to its innate inconspicuousness, adaptability and the availability of limestone hole systems.



Plate 13: Jamaican Hutia or Coney (*Geocapromys brownii*). (Source: NHMJ – IOJ)

**Bats** Jamaica has 21 species of extant bat and Genoways et al., 2005 identifies four endemic species and five endemic sub-species. The distribution of bats in the park is poorly known, however Genoways et al., 2005 notes that both the Jamaican Brown Bat (*Eptesicus lynni*) and Leach's Long-tongued Bat (*Monophyllus redmani redmani*) have been recorded from the Blue Mountains. Whilst bats dwell in caves, crevices, sinkholes, trees and even houses, large roosting colonies are most commonly known from caves. Given the rarity of caves in the BJCMNP, large roosting colonies are likely to be absent.

**Threats** Bats in Jamaica are commonly known as rat-bats and are viewed with a level of fear, due to the association with vampires and other mysterious creatures. Whilst this fear may not result in the direct killing of bats, people will try to prevent them from roosting in houses or other buildings, or trees near to homes.

Genoways et al., 2005 lists the protection of certain caves from commercial development, and preservation of large areas of native vegetation including the Blue and John Crow Mountains as being important for the conservation of bats in Jamaica. Bat guano is highly

valuable as a natural fertiliser, and roosting bats may be disturbed by the collection of this material from caves.

### 2.2.3 Aquatic Ecosystems

The numerous streams and rivers of the BJCMNP form an important habitat for a variety of freshwater plants and animals, and are an important breeding ground and habitat for the larval stages of many animals. The endemic frog *Eleuthrodactylus orcutti* makes its home in the rivers of both mountain ranges, and is the only aquatic member of the genus in Jamaica. The benthos is dominated by aquatic insects of the orders Ephemeroptera (Mayflies) and Trichoptera (Caddis flies). One species of shrimp (*Jonga serrei*) and one of a gastropod mollusk locally known as Bussu (*Neritina punctulata*) are restricted to rivers in Portland, including within the BJCMNP.



Plate 14: Black Janga (*Atya lanipes*) in the Rio Grande Valley (Source: TNC)

Wet and dry seasons greatly influence the distribution, abundance and diversity of the benthic fauna, and several species of invertebrates reach their maximum numbers during the dry season. Due to low nutrient content combined with shading from riparian vegetation and therefore minimum exposure to carry out photosynthesis, the freshwater flora is generally poor, with 2 species of epipelagic diatoms, and algae dominated by *Cladophora* sp.

Nutrient enrichment from agri-chemical runoff causes changes in the composition and numbers of aquatic flora and fauna. When this occurs, there is an initial decrease in density due to oxygen depletion, but eventually an explosion in numbers of animals and a low diversity of species occurs. Assessment of stream monitoring data collected from 12 sites mainly just inside the BJCMNP boundary between 2005 and 2009 indicate good and improving stream habitat within the BJCMNP.

## 2.3 ALIEN INVASIVE SPECIES

Species that are not native to a location are usually called ‘alien’ or ‘exotic’ species. They may be introduced into new areas deliberately or accidentally e.g. on feet or fur of animals, dispersal of seeds by birds etc. Some alien species are unable to establish themselves in the new environment, whilst others become established and thrive. Of those that become established, some do not appear to affect local or native species negatively, whilst others ‘invade’ or out-compete native species for food and other resources. In the case of many invasive plants, they grow faster and spread more rapidly than native species, literally smothering seedlings and preventing seeds from sprouting.

Invasive species are regarded as the second most critical threat to the park’s ecosystem (Experts workshop, 1999 & Site Conservation Plan, 2000). Invasive plants include: Wild Coffee or Mock Orange (*Pittosporum undulatum*), *P. viridiflorum*, Molasses or Wynne grass (*Melinis minutiflora*), *Gleichenia bifida* (fern), Ginger Lily (*Hedychium gardnerianum*), and Red bush (*Polygonum chinense*). The Cinchona Botanical Garden has been a source for the spread of exotic plants, in addition to the use of some tree species for reforestation.

*P. undulatum* is the most threatening alien invasive plant species and must be controlled within the context of a national park. The objective of any control programme should be to minimize the negative effects of an invasive weed, at a minimum cost and maximum benefit in terms of potential use (Experts’ workshop, 1999). The distribution of this invasive species in the Blue Mountains is fast expanding and leading to the competitive exclusion of many native species. A strong negative correlation has been found between the dominance of *Pittosporum* and the density and diversity of native tree seedlings strongly suggesting that *Pittosporum* is causing or contributing to a major decline in the seedling layer native flora (Healey & Hall, 1994).

Molasses or Wynne grass is a primary colonizing grass that spreads quickly and reclaims large areas of formerly forested lands. This alien invasive is a serious fire hazard as it dries quickly after a short growing season and ignites easily.

The BJCMNP since 2004 has been implementing an Alien Invasives Control Programme, with a particular focus on *Pittosporum*.

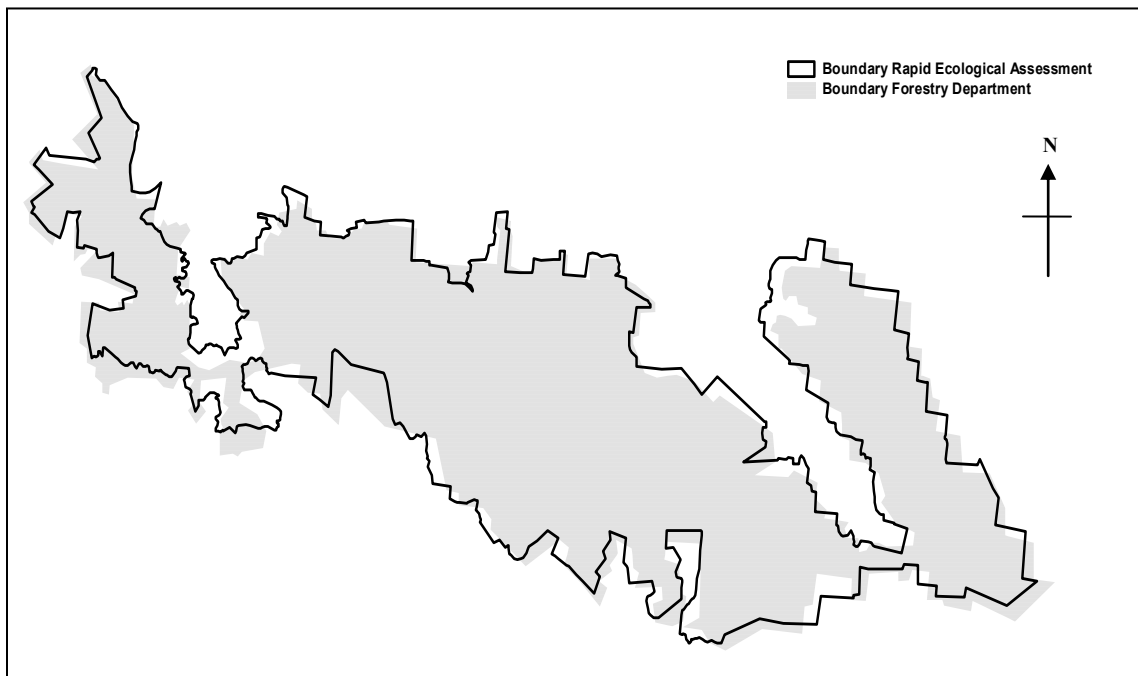
Little information is available on the occurrence of exotic animals in the Park. Feral pigs (*Sus scrofa*) have been reported from both the BM and JCM and are hunted by a small number of persons from local communities living in BJCMNP’s Buffer Zone. The introduced mongoose (*Herpestes auropunctatus*) and Marine Toad (*Bufo marinus*) are present as well, but their occurrence across BJCMNP habitats has not been documented. The white-tailed deer (*Odocoileus virginianus*) has been reported by farmers in the lower Rio Grande Valley and communities below those considered to be the BJCMNP’s Buffer Zone e.g. Swift River, Paradise, Shrewsbury, and Content. Research shows that these animals at present pose more of a threat to small scale agriculture rather than to the forests of the BJCMNP (Chai, 2003).



## 2.4 PRESENT DISTRIBUTION OF NATURAL FORESTS, MODIFIED FORESTS AND ANTHROPOGENIC HABITATS

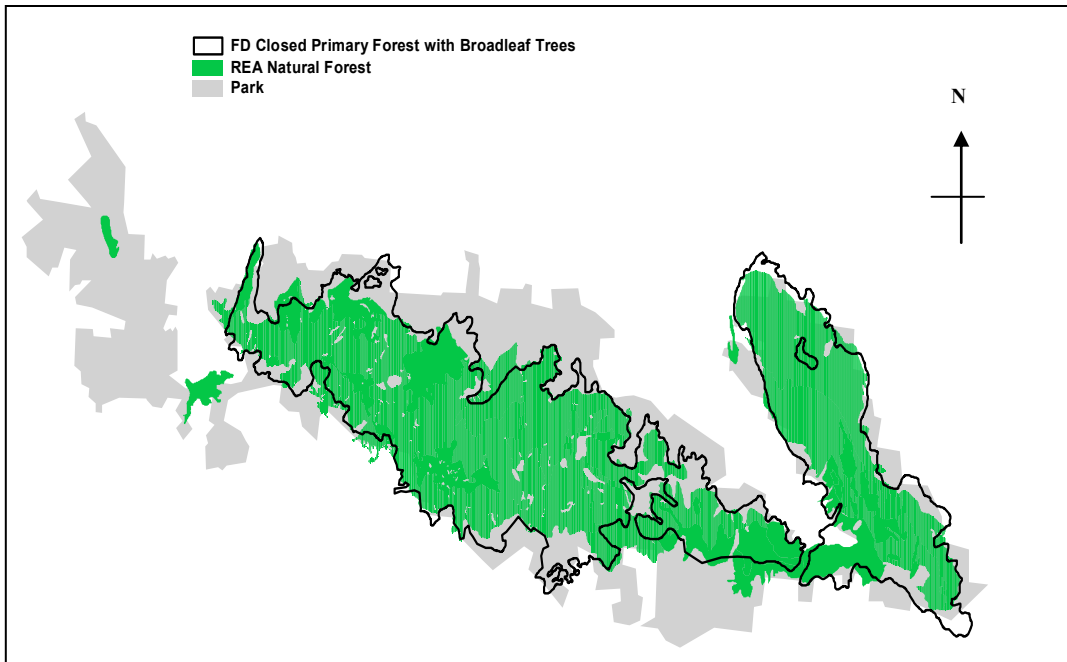
In 1992, a Rapid Ecological Assessment (REA) of the BJCMNP was conducted by TNC in collaboration with the former Conservation Data Centre-Jamaica and the Jamaica Agricultural Development Foundation Research Programme. Major habitats and land use were mapped based on satellite imagery, aerial photographs, and ground truthing. Forest cover and land use have been mapped by the Forestry Department based on Landsat imagery acquired in 1996 and 1998, aerial photography and ground reconnaissance. The two assessments delineated the National Park/Forest reserve boundary slightly differently (Fig. 2.10), the present document will use the Forestry Department's delineation.

**Figure 2.10: BJCMNP Boundary** (Source: )



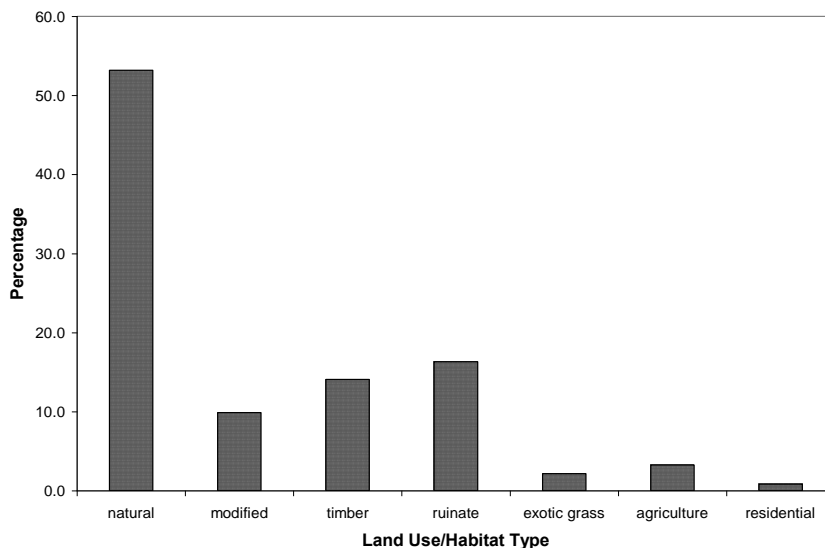
The two assessments also used somewhat different land use/habitat type classifications however, they agree fairly well in their assessment of high quality forest (Fig. 2.11 below). This category is named “Natural Forest” in the REA and “Closed Primary Forest with Broadleaf Trees” by the Forestry Department. Since the REA was carried out to support Park management, this Plan will use the REA land use categories outlined in Table 2.2.

**Figure 2.11: High Quality Forest Identified by REA (Source:)**



Several categories of heavily degraded and secondary woodlands with a strong exotic component are here summarized as “Ruinat Woodlands”. Fig 2.12 indicates the percent distribution of the land use/habitat types across the BJC MNP area. Slightly over one half (53.2%) of the park area has retained natural forest and about 10% modified forest; timber plantations account for 14%; ruinate woodlands cover 16% of the total area, while agriculture, exotic grass and residential sections cover each below 4%.

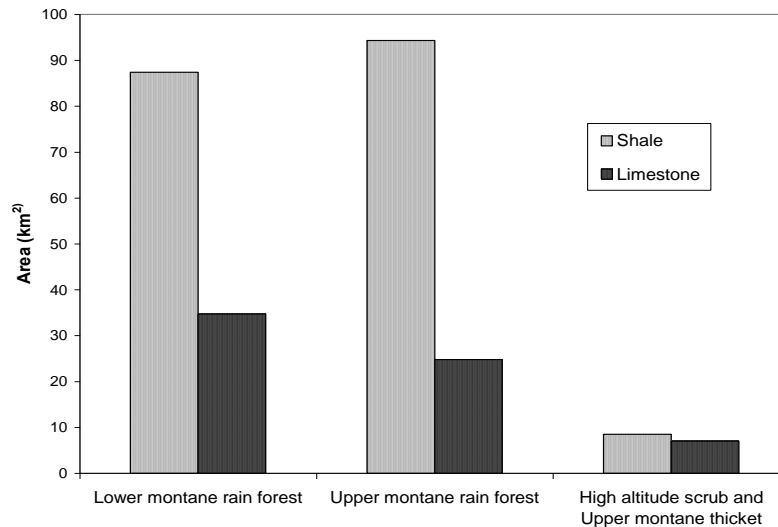
**Figure 2.12: Percentage Distribution of Land Use/Habitat Types in the BJC MNP**



Among natural forest types (Fig. 2.13), lower and upper montane forest extend over similar areas, and both cover much larger areas over shale (mainly BM) than limestone (mainly JCM). The natural vegetation close to the summit - high altitude scrub (BM) and montane thicket (JCM) - extend over a few square kilometers only, reflecting the small area of the mountain tops. Three unique and highly specialized habitat types expand over extremely limited areas:

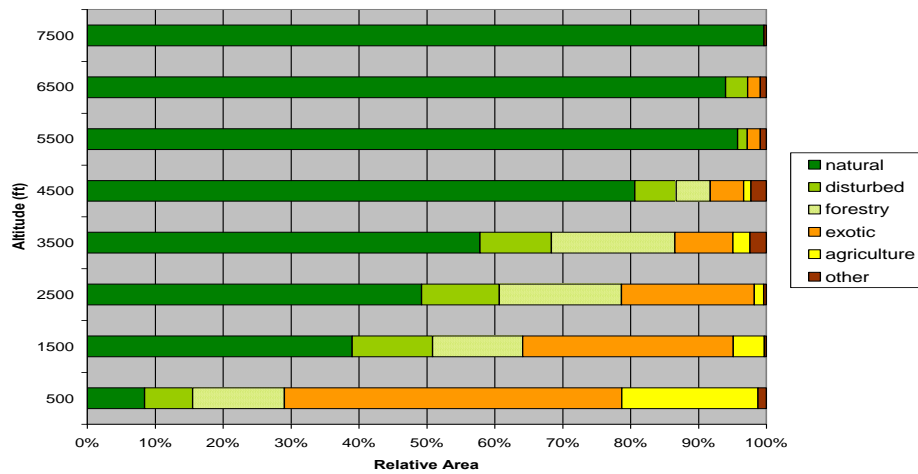
- ▶ Upper montane forest over limestone in the BM, restricted to a small area on John Crow Peak
- ▶ Montane summit savanna - natural grassland confined to a small area to the north side of High Peak
- ▶ Mor Ridge Forest - sub-type of upper montane forest occurring in scattered small patches in BM and JCM

**Figure 2.13: Area Covered by Natural Forest Over Shale and Limestone**

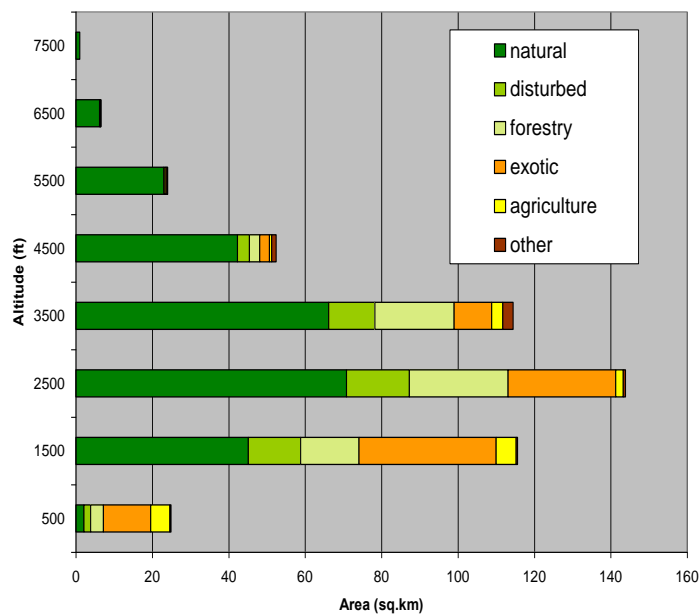


The proportion of remaining natural forest is closely linked to altitude (Fig. 2.14a and 2.14b below). In the lowest sections of the BJCMNP, less than 10% of the area has retained natural vegetation. At middle altitude, about 50% of the area has remained natural, and above 80% at higher elevations. However, since the area of the BJCMNP is most extensive at mid altitude (Figure 2.14a), the absolute area of remaining natural forest peaks at this level (Fig. 2.14b). Overall, a large percentage of the lower montane forest has disappeared, while much of the upper montane forest and most of the summit vegetation remains intact.

**Figure 2.14a: Land Use/Habitat Type by Altitude - Percentage of Area Covered**  
 (The exotic category combines ruinate woodlands and exotic grasslands.)



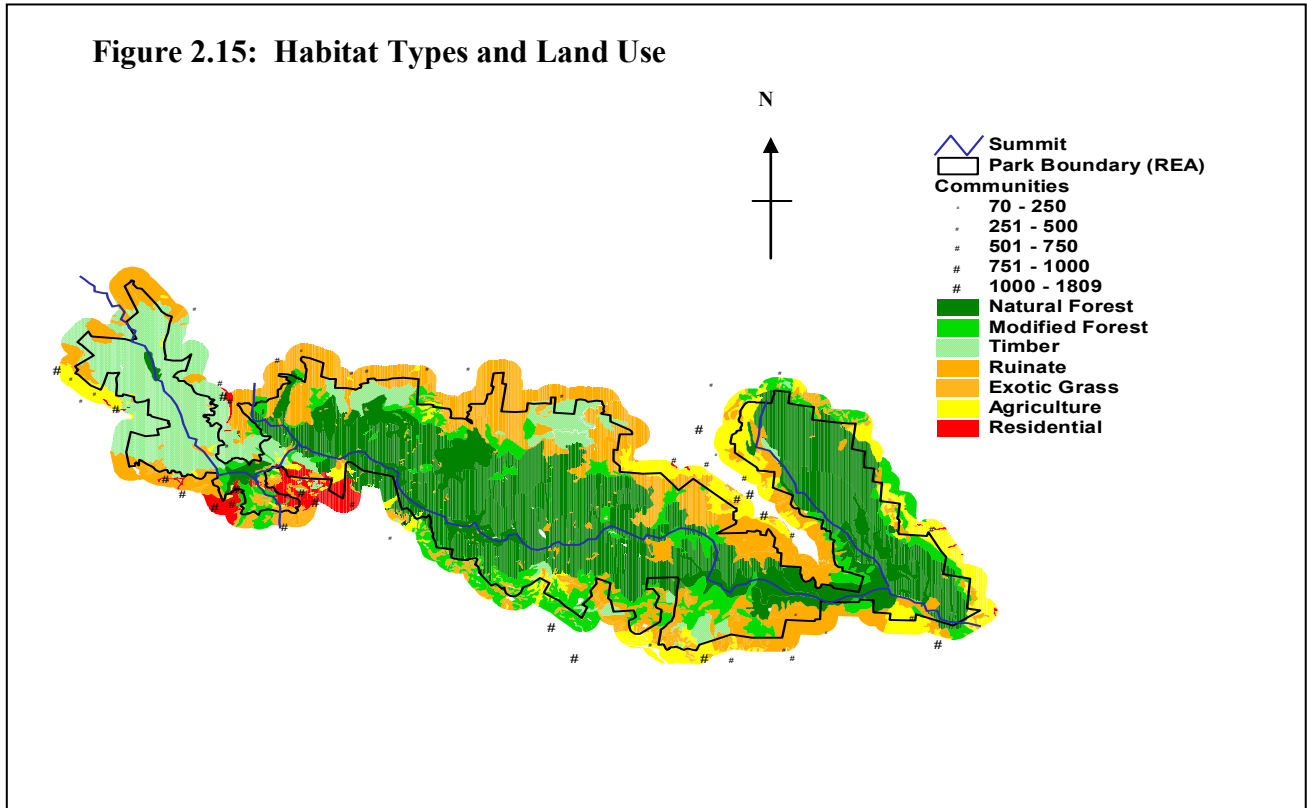
**Figure 2.14b: Land Use/Habitat Type by Altitude - Area Covered in km<sup>2</sup>**



The altitudinal pattern of the proportion of remaining natural forest reflects the main pattern of human impact: the encroachment of human activities from lower to higher altitudes. Disturbed and anthropogenic habitats strongly dominate along the periphery of the park, while the natural forests form a relative compact core of well preserved forest across the interior and upper sections of BM and JCM (Fig. 2.15). Most of the remaining natural forest of these mountains is located within the BJCMNP.

Human encroachment in the PRM has advanced across almost the entire mountain chain, and only a small section of well-preserved forest remains at Mount Telegraph. Coffee plantations and commercial forestry is the predominant land use/habitat type.

**Figure 2.15: Habitat Types and Land Use**



## Chapter 3

# Human Influence, Socio-Economic Issues and Cultural Resources of the BJCMNP

## 3.1 PAST AND PRESENT LAND USE INFLUENCE ON THE NATURAL ECOSYSTEMS OF THE BJCM

### 3.1.1 History

The virtually impenetrable forest, deep valleys and rugged terrain of these mountains have played an important role in the history of Jamaica. The Taino were the first people of Jamaica arriving in mid-500 AD. They are usually described as fishers and farmers living mainly in villages along or near the coastal plains, however archaeological research indicates there were groups who lived in the hills. The Spanish arrived in Jamaica in 1494 and established their first settlement on the island at Nuevo Seville on the north coast in what is now the parish of St. Ann. They began to enslave the Taino found in the plains, and those who did not escape to the hills and mountains were quickly decimated by disease and over-work. In 1513 therefore, the Spanish began to bring Africans into the island as slaves to replace the indigenous population as plantation labour. Rather than remain as slaves, many of these Africans took refuge with the Taino in the rugged interior of the island. These escaped slaves of Taino and African origin became known as Maroons from the Spanish ‘cimarron’ meaning fugitives or runaways, but literally ‘living on mountaintops’ as ‘cima’ means top or summit in Spanish. Some time around 1640, a group of the Maroons travelled further east and settled in the Blue and John Crow Mountains and the surrounding foothills and plains of the parish now known as Portland.

British rule began with the invasion of Penn and Venables in 1655 and eventual defeat of the Spanish. As a British colony, slavery continued and grew even worse with the plantation owners and managers finding it cheaper to work slaves to death and replace them with new slaves from Africa. This resulted in a constant stream of new Africans into the island and a constant stream of runaway slaves deserting the plantations to join the Maroon enclaves in the mountains. In 1710, the English fearful because of the low ratio of white to African (1:10) began to offer incentives to attract additional white settlers to Jamaica, and particularly to Portland. Records of these settlers indicate the land was occupied by the Maroons with large plantations and several towns including their ‘capital’ Great Negro Town (later renamed Nanny Town in honour of the role of their spiritual leader in defeating the English) in the Blue Mountains. By 1720, the incursion of these white settlers into their territory, led to war breaking out between the Maroons and the English. War raged non-stop for twelve years between 1728 and 1740 when the English finally sued for peace and signed a Peace Treaty with the Maroons. The treaty

upheld Maroon rights to lands in the BJCM and civil autonomy, but required that they assist the British by returning runaway slaves. After the treaty was signed the Maroons were able to begin a more stable and permanent existence and so for the first time two Maroon towns were recognised in Portland – New Nanny Town (now called Moore Town) and later a second called Crawford Town.

By 1770, the British had fortified the island from foreign attack with several forts, including one at Morant Bay. They also grew increasingly concerned about the possibility of rebellion from within the growing black population of both slaves and “free coloureds” with numerous uprisings being led by Chief Tacky and other African-born slaves. Arising from this concern, a military presence was established in 1795 by the English at Cornwall Barracks, only three miles from New Nanny Town.

With the Haitian Revolution in 1791, thousands of French emigres – both white and coloured fled to neighbouring islands, including Jamaica. Many of these persons became planters and merchants in the eastern parishes of the island, some establishing the first coffee plantations in the hills of St. Andrew and Portland.

By the mid-eighteenth century, production of sugar from sugar-cane was at its peak and the British were doing exceptionally well, financially. However, the discovery of sugar-beets as a cheap source for sugar in Europe along with other changes in the world economy resulted in the decline of “King Sugar” in the Caribbean. A decline in the demand for sugar from the Caribbean resulted in a decline in the demand for slaves. The abolitionist lobby in England eventually succeeded in abolishing the slave trade in 1807 and slavery in 1834. An apprenticeship period was however enforced from 1834 – 1838 supposedly to assist the freed slaves in learning how to live in freedom and work for wages, but in reality to assist the plantation owners to make major financial adjustments. Despite the abolition of the British Slave Trade, slaves and indentured labourers from Africa still arrived in Jamaica up to 1865, particularly in the eastern parishes of St. Mary and St. Thomas. Interestingly, it is reported that these parishes show the highest retention of African culture.

As most of the flat, arable land in the plains was occupied by large plantations, the freed slaves, not wishing to remain as labourers on the plantations (since the conditions were not much better than under slavery), settled in the mountainous interior of the island. In much of the parishes of St. Andrew and St. Thomas, the ex-slaves settled for the steepest and most infertile lands as most of the better mountain land was already occupied by large coffee plantations.

The eastern county of Surrey, in which the BJCMNP is located, was the home of three national heroes: Nanny of the Maroons who led the Windward Maroons to many successful battles with the English soldiers, George William Gordon, a coloured representative in the House of Assembly and Paul Bogle, a black Minister of Religion. Gordon and Bogle were hung for their involvement in the Morant Bay Rebellion of 1865.

The ensuing years saw continued struggles and the slow rise of coloured and black Jamaicans in the various governing institutions. The two World Wars between 1914 and 1945 involved numerous Jamaicans who enlisted in the British Army and learned a great deal from their travels and exposure abroad. Many of the soldiers who fought in these wars were rewarded with land in the Blue Mountains – particularly in the Rio Grande Valley, on their return to Jamaica.

The period between the start of the World Wars and the late 1940s was fraught with strikes and civil unrest as the mainly black labourers in the docks, railway, sugar and banana estates etc. protested poor working conditions and increased wages. These struggles brought leaders to the fore through the formation of the trade unions – the National Workers Union and the Bustamante Industrial Trade Union, led by Norman Washington Manley and Alexander Bustamante respectively. Out of these trade unions arose two political parties – the Peoples National Party and the Jamaica Labour Party, with the same leadership.

In 1962, Jamaica gained its independence and on August 6<sup>th</sup>, the Union Jack was lowered and the black, green and gold Jamaican flag was flown for the first time, symbolising the hope and possibilities within the cultural and natural resources of the island:

*“the sun shineth, the land is green and the people are strong and creative”*

There are no historical sites listed by the Jamaica National Heritage Trust (JNHT) within the Park’s boundaries except for Nanny Town, which is now essentially an archaeological site. Within the Buffer Zone however, there are numerous sites and areas of heritage significance, particularly with respect to both Maroon and traditional African Jamaican village culture. Examples are Moore Town (New Nanny Town), Nanny Falls and the Cunha Cunha Pass Trail. A small section of the latter actually passes through the BJCMNP and there are a number of springs and resting spots that were used by the ancestors of local communities making their journeys to and from market. JNHT is currently conducting activities towards protecting some of these sites under the JNHT Act, 1985.

### **3.1.2 Pre-Columbian Period**

Pre-Columbian times saw relatively little change in the ecosystems of the island. In fact, the name *Jamaica* is derived from the Taino word *Xaymaca*, meaning ‘land of wood and water’. The effect of the Taino population on the natural ecosystems was relatively small-scale and involved hunting, clearing small land areas for cultivation and the introduction of exotic species. Whilst research has shown that the Taino were not restricted to coastal locations, their impact in the BJCMNP was most likely limited to use of the some sites such as Nanny Town as sacred hill sites for worship. Archeological excavations at Nanny Town in the 1990s found three layers representing occupation by the English between 1734 and 1735, the Maroons dating at least as far back as 1655 and the Taino prior to that.



### **3.1.3 Large-scale Deforestation, Monoculture Plantations and Subsistence Farming**

Columbus arrived in 1494 to see the island under its original dense forest cover, except for scattered clearings in areas occupied by the Taino. With the arrival of the Spanish, followed by the English, the plantation system fuelled by slavery, dominated the landscape. This era saw huge expanses of land cleared for monoculture plantations, especially sugarcane. This resulted in the loss of most of Jamaica's lowland forest and changed the landscape, forever.

Many of the land use practices seen today have been shaped by the social structure of the 17<sup>th</sup> and early 18<sup>th</sup> centuries. From 1838 to 1881, the population of emancipated slaves grew from 311,000 to 553,000 - an almost two-fold increase in population size over a period of only 40 years. The demand for land consequently increased and some of the larger estates were split up into small allotments which were rented to tenants. This continued a situation similar to slavery, where the plantocracy owned the land and the peasantry farmed it, with the personal interest that comes with farming one's own land being absent. The resulting demand for land as well as the practice of cultivating out-of-the-way areas for fear of crop theft led to unsuitable lands on steep slopes being cleared for cultivation. Further the practice of shifting cultivation was prevalent because the land on the steep mountain slopes was infertile and crops declined after two or three years. Much of the land in low lying areas was still owned by the affluent and the small farmers had to travel quite some distance from their homes to their farmed grounds, resulting in this route in-between home and field being cleared for easier passage. This lack of ownership and constant movement is a likely cause of the indifferent attitude towards land husbandry that is evident today. Lack of land tenure continues to be an issue today, and with the high value of Blue Mountain Coffee, much of the land in the BM considered suitable for farming (actually only for agro-forestry) is owned or leased from government by large-scale farmers. Thus most small-scale farmers are farming cash crops e.g. carrots, thyme and escallion on slopes that are too steep and soils that are too shallow.

### **3.1.4 Slash and Burn Agriculture**

The BJCM has a long history of subsistence farming including slash and burn agriculture. Traditionally, slash and burn agriculture was thought to provide an easy method of subsistence farming that required minimum labour and enriched the land with ash. It is estimated that on average, over a period of 5 years, over eight acres of forest is cleared and farmed up a hillside. This practice has however, devastated the forests of the BJCM and continues to do so, with conversion to agriculture being the most critical threat to the BJCMNP. Trees are cut down and burnt, soil erosion removes the topsoil and the area loses fertility within 2-3 years. New areas are then burnt, often with the fire burning a much larger area than required, and the old areas are abandoned as there is no long-term investment made due to lack of ownership. These abandoned areas are so badly damaged that natural succession to native forest is blocked for decades and the problem is heightened by aggressively colonizing grasses and ferns, some of which are invasive.

These colonizers make the area vulnerable to repeated wildfires and erosion as they dry quickly after the growing season and are easily ignited. In the present day, this very damaging cycle has been perpetuated into higher elevations and steeper slopes resulting in the whole countryside being denuded of its original forest.

As land is degraded outside the BJCMNP, and with very limited demarcation of the boundary, the temptation to encroach into the protected area is significant. Further, as land is burnt outside the BJCMNP, wind is liable to result in areas within the boundary catching fire. Slash and burn agriculture whilst it may not be practiced anymore within the BJCMNP, is still practiced on land immediately adjacent and is therefore a serious threat to its ecosystems.

### **3.1.5 Windward Maroons**

The BJCM with their rugged terrain provided inaccessible mountain hideouts for the Maroons of eastern Jamaica, thus aiding them in their defeat of the English. The wide variety of resources within the BJCM provided the natural heritage which helped form the cultural heritage of the Maroons, providing for the majority of their needs. Several Maroon trails and sites such as Nanny Town remain as cultural features that helped to shape the landscape of the mountains. The Cunha Cunha Pass and Sambo Hill Trails are among some of the more popular Maroon trails used as cultural attractions today. Nanny Town, within the boundary of the BJCMNP has had significant archaeological studies conducted by researchers from the University of the West Indies.

Whilst the Windward Maroons no longer occupy land within the boundary of the BJCMNP, based on written accounts describing their way of life including at Nanny Town, there appeared to have been large plantations (JCDT, 2009) located in what is now the BJCMNP. Satellite imagery indicates that much of the land within the Park in that area is rinate forest, indicating forest disturbance, likely for agriculture which was abandoned many years ago. Based on the 1740 Peace Treaty, the Windward Maroons communally own and govern over 2,000ha of land within the Rio Grande Valley and a smaller area within the Buff Bay Valley. The latter is definitely not within the Park boundary and discussions with Colonel Sterling, Moore Town indicate that Maroon land there is also outside the Park boundary. Thus with respect to land use impact on the natural ecosystems within the BJCMNP past and present, there is a need for forest rehabilitation in areas that may have formerly been occupied by Maroons prior to 1740 (and/or English settlers before or after that) and it would be useful to assess and clarify the boundary between Maroon land and the BJCMNP.

### **3.1.6 Coffee**

In 1728, coffee was introduced to Jamaica from Martinique and because of its altitude and climate the slopes of the BM were found to be an ideal place for growing high quality coffee. Today, coffee is the principal large-scale crop in the BM, with an estimated 12,000 acres of land under coffee in the eastern region (St. Andrew, St.

Thomas and Portland). Coffee growing has resulted in large-scale encroachment of the national park. Further, large areas of the original Forest Reserve were cleared for Caribbean Pine and then coffee growing under leases through FIDCO and CIDCO.

Shade coffee is seldom practiced due to the perceived threat of leaf spot disease and the view that shade from the mist is sufficient. Blue Mountain coffee is the most expensive coffee on the international market. The majority is sold to Japan, with very little being available for the remainder of the market. The high price commanded by Blue Mountain coffee is resulting in the clearing of more land for this crop. Some farmers clear all the trees from the land before planting coffee, although they may plant some banana and plantain as short-term crops, whilst the coffee plants are young. This practice of removing all other trees, and growing coffee as a mono-crop increases soil erosion, and results in a habitat that is not conducive to native wildlife, particularly birds.

Coffee pulp is often disposed of carelessly, sometimes getting into rivers and causing eutrophication. Nutrient rich effluent from processing factories also results in eutrophication of rivers outside the BJCMNP boundary. The fertilizers used are usually inorganic, and result in eutrophication, as they leach readily from the soil. Chicken manure is sometimes used however, if not properly applied, it can create an odour which causes a fly nuisance. Pesticides used (e.g. thiodan) accumulate in the fatty tissue of animals and have been found in shrimp and river sediment. The Coffee Industry Board has prepared and disseminated guidelines for environmentally sustainable coffee farming.

### **3.1.7 Forestry/FIDCO**

In the 19<sup>th</sup> and 20<sup>th</sup> centuries, the government of the day became concerned about the state of Jamaica's forests and tried various forest protection programmes including reforestation, forest legislation, forest reserves and the establishment of a Forest and Soil Conservation Department in the Ministry of Agriculture in 1942. Many of the lands owned by private individuals, particularly on steep slopes were reclaimed by the government through forfeiture of taxes and reforestation activities implemented.

One of the most devastating occurrences for the closed broadleaf forests of the BJCM took place between 1979 and 1988, with the establishment of commercial forest plantations by FIDCO. Under this company, hundreds of acres of natural forest were cleared and replaced mainly with Caribbean Pine. FIDCO also made many access roads into the forests that still provide access routes for extractive and other destructive purposes. Whilst the basis of this national venture that sought to reduce reliance on imported lumber was worthy, the selection of species was unfortunate, and the approach to planting and harvesting were not environmentally sustainable, however this was not realized at the time. The demise of the company has resulted in acres of land with mature Pine in need of harvesting and more environmentally appropriate reforestation

The Forestry Department has reforested hundreds of acres of deforested and degraded land within the BJCM with Cedar, Eucalyptus, Blue Mahoe, Caribbean Pine and other species.

### **3.1.8 National Park Land Ownership**

The BJCMNP is on crown land, that is, land owned and controlled by the Government of Jamaica through the Commissioner of Lands. Forest Reserve land is a component of this, and the management of these lands is vested in the Forestry Department. However, there are a few portions leased to private individuals, mainly in the PRM. The system of leases within the BJCMNP is a complex issue involving many sub-leases and numerous parties. FIDCO leased land to the Coffee Industry Development Company (CIDCO), who in turn leased land to private individuals. In Portland, land was given to retired World Wars I and II soldiers. The Ministry of Land and Environment<sup>3</sup>, through the Forestry Department and the Commissioner of Lands is currently in the process of developing a national cadastre to resolve some of these issues of land tenure.

### **3.1.9 Infrastructure and Residential Areas**

There are no residential areas within the BJCMNP, although because of the convoluted shape of the boundary, there are some areas that may appear to be within the Park but are actually just very close to the boundary. There is only one road that intersects the Park (at Hardwar Gap) - the Kingston to Buff Bay Road (Class B).

The Kingston to Buff Bay Road is plagued with land-slides and breakaways at various points and in various stages of repair. A major breakaway at Newcastle closed that section of the road for almost a year and several breakaways in the Section/Cascade area closed that section of the road for more than two years. At the time of writing it is passable but ideally using four wheel drive vehicles as one section has been abandoned.

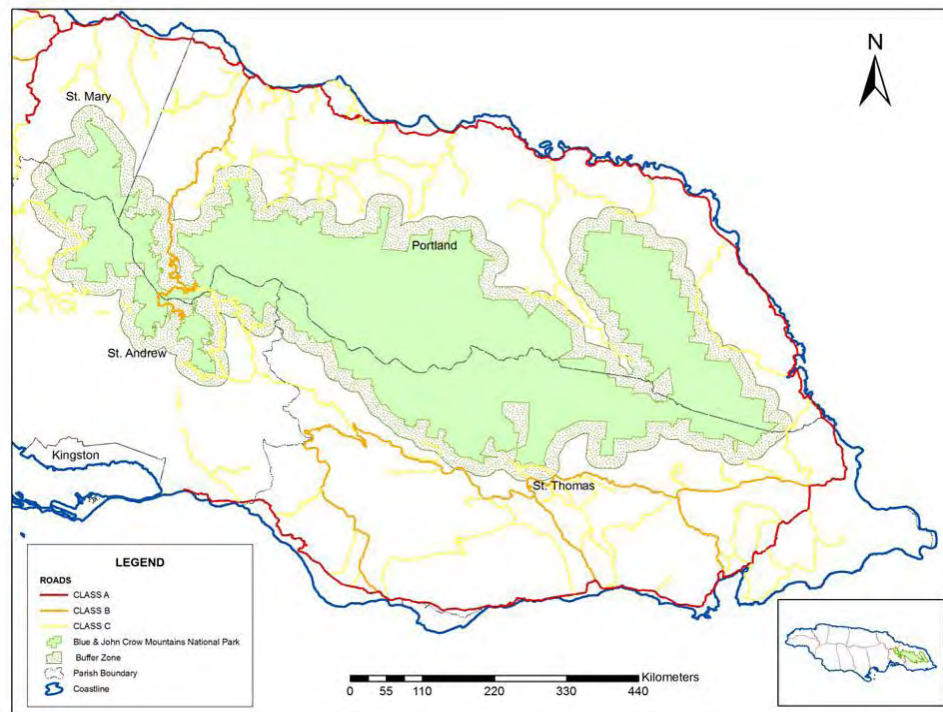
and an unpaved coffee farm road is being used instead. There is a tertiary (Class C) road that cuts through the edge of the BJCMNP in the Cinchona/Clydesdale area and this is rough but generally drivable.

Many of the roads and bridges around the BJCMNP are in a state of disrepair, including the Yallahs River fording and bridge below Mavis Bank, St. Andrew and the Alligator Church Bridge in the Rio Grande Valley, Portland. The Upper Rio Grande Valley road runs alongside the Rio Grande and is generally very rough in most areas beyond the Alligator Church Bridge. There have been fallen bridges which have cut communities off for months and a major breakaway at “Friday” which has closed the road to Ginger House, Comfort Castle and Millbank for over a year. Whilst the BJCM area has steep slopes and is prone to high rainfall and soil erosion, especially in the areas comprised of shale, and this is made worse by deforestation, one of the main reason for poor road surfaces and breakaways is due to lack of maintenance. In these environments drains must be kept clear and run-off from paved surfaces must not be allowed to undermine the sub-structure of the roads. Unfortunately, there is no system of maintenance for these roads.

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<sup>3</sup> This Ministry no longer exists and the environmental portfolio has since been transferred to the Office of the Prime Minister.

**Figure 3.1: Map showing Class A, B and C roads in and around the BJCMNP**



Most residents in the communities within the BJCMNP’s Buffer Zone have electricity and piped water; telephone service is mainly through wireless providers. Great houses such as Craighton, St. Andrew and Whitfield Hall Estate, St. Thomas, remain as relics of the colonial era. Residential areas have spread along the major roads as the forest outside the Park has been made to retreat.

### **3.2 CONTRIBUTION OF THE NATURAL ENVIRONMENT TO ECONOMIC DEVELOPMENT**

The eastern end of the island, particularly the northern slopes of the Blue Mountains, has a high rainfall level due to the prevailing north-east trade winds. This has made the parishes of Portland, St. Mary and much of St. Thomas lush and very suitable for agriculture – crops predominantly grown being sugar cane and bananas. However, with the removal of the EU preferential rate on bananas from the West Indies many banana plantations have reduced production. Coffee and cocoa are grown in the hills of these parishes and also of St. Andrew. Vegetables like carrots and peas, and herbs like escallion and thyme are commonly grown by small farmers in these hills and mountains.

The heavy rainfall and impervious rocks of volcanic origin have led to numerous rivers which are an important source of water supply, particularly for the burgeoning population of metropolitan Kingston and St. Andrew. In 1927, the Hermitage Dam was opened –

being fed by streams and tributaries of the Wag Water and other rivers, and the Mona Reservoir was built in the early 1940s, supplied by water from the Hope River and supplemented in the 1980s by water from the Yallahs River. The BJCMNP protects the watersheds of these and other water sources.

Tourism started in Jamaica in the 1860s with the start of the banana trade in 1866. Visitors would land in Kingston and while the boat travelled round the coast collecting bananas, the tourists travelled over the mountains to Port Antonio to stay until the boat arrived. The 400-room Titchfield Hotel in Port Antonio therefore, became Jamaica's first resort hotel. By the 1950s Port Antonio, with its beautiful white sand beaches in tranquil bays and coves had become a tourist mecca, with actor Errol Flynn making Navy Island his home; and rafting on the Rio Grande River becoming a must for the rich and famous visitors to Portland. Despite this, in 2009, only 1% of the 1.8 million stopover visitors to Jamaica reported Port Antonio as their intended resort area of stay. In 2004, the Port Antonio Marina was opened however in 2009 only 4 ships called with a total of 1,339 passengers. Whilst the proposed certified 'Green Destination' was not pursued, the parish is generally marketed as a nature destination.

There has been relatively little industrial or other heavy development in the east of the island, except in Kingston and St. Andrew, and most of this development has spread west into St. Catherine and Clarendon, rather than east. This general low level of development and the focus on coastal development for agriculture e.g. coconuts and bananas, and tourism, rather than development of the hinterland, due to the rugged terrain of the mountains has aided the conservation of natural forest in the east. The majority of Jamaica's natural or closed broad-leaf forest therefore, is located in the east of the island within the Blue and John Crow Mountains National Park, which had been declared a forest reserve in 1950 with the gazetting of the first Forest Act (with formal protection starting even earlier for large sections as described earlier). In addition, much of the land just outside the park boundary, particularly in the north and east is still under some kind of modified forest, with the Spanish and Swift watersheds in the north and the Plantain Garden and Morant watersheds in the east considered least threatened in the island.

### **3.2.1 Contribution of the BJCMNP to the Regional Economy**

Approximately 24 people are employed to the BJCMNP with about 15 of these being from communities in the Buffer Zone. Of these, 12 are employed on a part-time basis in the BJCMNP's recreation areas whilst the other 3 are National Park Rangers. In addition to these persons under regular employ, the BJCMNP contracts a variety of services from local communities e.g. plumbing, electrical work, tour guiding, carpentry, catering and reforestation. There are two community members with a food concession since December 2009 and about two persons who sell fruit and sweets to visitors at Holywell. Several community members sell food and produce at the annual Misty Bliss fair. Except for the increase in numbers contracted from time to time for tour guiding (particularly school groups) and reforestation, these numbers have remained similar to those stated in the 2005 – 2010 Management Plan.

There is also a substantial contribution to the private sector through tour companies and guest houses that offer use of the BJCMNP's resources. Many of the tourists passing through the area stop at shops and attractions such as the café and restaurant in Irish Town and the coffee shop at Section, Portland. There is a boutique hotel – Strawberry Hill Resort and Spa in Irish Town, St. Andrew and numerous small guest-houses between Irish Town and Section. Forres Park is a small hotel in Mavis Bank and there are several small guest-houses including Whitfield Hall, from there up to Penlyne Castle. Most of these are used by hikers to the Blue Mountain Peak. Research and community-based tourism are growing areas, beginning to offer short-term employment to local guides and community members for accommodation, meals etc. Down the Buff Bay Valley there are a few visitor accommodations and attractions including a rest-stop and the Charles Town Maroon Museum. In the Rio Grande Valley, the Bowden Pen Farmers' Association operate Ambassabeth Cabins and offer tours of the Cunha Cunha Pass Trail and other sites.

The BJCMNP also supports certain activities on a small scale that although illegal, provide many people with a livelihood. These include hunting, timber and plant materials harvesting and farming. Activities like harvesting wicker should be investigated for eventual regulation to generate income for both Buffer Zone communities and BJCMNP management.

It is difficult to estimate exactly how many people benefit financially directly and indirectly from the BJCMNP, and by how much, but a rough estimate suggests that at least 30 families from the Buffer Zone benefit directly through cash income related directly to the BJCMNP, on a regular basis.

Use of the BJCMNP for recreation including user (entry fees), cabin rentals etc. generates on average JA\$3 million per annum (depending on weather), but all of this returns to management of the Park, specifically the recreation areas, which require about JA\$3 million per annum for operating costs plus about JA\$1.5million for the time of various management and supervisory level staff currently subsidized by JCDT and projects.

In a few areas within the BJCMNP, mainly within the PRM, the Forestry Department issues licenses for timber extraction, and this provides livelihood to persons within the Park's buffer zone and from further afield, as well as support for the FD.

Whilst the BJCMNP contributes little cash directly to the regional economy, it is extremely valuable to the regional economy via indirect contributions. The site provides essential ecosystem services such as the provision of drinking water to over 40% of the island, particularly the Kingston Metropolitan Area (about 1 million people) and the tourist resort of Port Antonio. This is in addition to water for agriculture and industry. Other services include: the provision of clean air, mitigation of global warming and protective forests that prevent and reduce flooding and soil erosion. Outdoor recreation e.g. hiking, is gaining interest with the promotion of healthy lifestyles and nature conservation. Recreational space has become increasingly important and there is growing use of the area by dirt bike and other RTV enthusiasts.

Pantin and Reid (2005) estimate a direct and indirect use value for the Buff Bay/Pencar watershed of between US\$82.5 million and US\$86.5 million in 2004 (Table 3.1). Excluding carbon storage, this value is estimated to be between US\$49.5 and US\$53.5 million/year. It should be noted that the Buff Bay/Pencar watershed is one of the smaller and less populated watersheds, in comparison to the Hope, Yallahs, Rio Grande or Wagwater for example. Extrapolating from the water supply value figures alone, the indirect use value for the BJCMNP must be at least US\$175 million.

**Table 3.1: Direct and Indirect Use Values for the Buff Bay/Pencar watershed (Source Pantin and Reid, 2005)**

Type of Value	US\$ million (2004 prices)
<b>1. Direct Use Values:</b>	
a. Coffee	13.5
b. Bananas	6.5
c. Timber	3.2
d. Agro-forestry	4.0
e. Recreation/Tourism	0.03
<b>2. Indirect Use Values</b>	
a. Water Supply	17.5-20.3
b. Water Quality	not estimated
c. Soil Conservation n.e.	not estimated
d. Bio-diversity Protection n.e.	not estimated
e. Carbon Storage	33.0
	<b>82.5 – 86.5</b>

### 3.3 CULTURAL HERITAGE

The cultural heritage of the BJCM is as rich and varied as its natural heritage. This heritage may be tangible e.g. the military hill station - Newcastle, historic coffee great houses and Maroon trails. Other components of cultural heritage may be intangible like dance, drumming, cuisine, language and beliefs.

Much of Jamaica's cultural heritage from coffee farming to the Maroons, is based on the natural resources of the forested mountains, for example:

- ▶ use of herbs harvested from the forest for healing;
- ▶ use of plant materials for baskets and toys;
- ▶ hunting wild hog to roast for meat;
- ▶ catching crayfish and bussu from rivers for soup;
- ▶ music and dance celebrating nature and the beauty of our surroundings; and
- ▶ growing and processing of plants for beverages and food.

Some of these are broad Afro-Jamaican heritage which whilst perhaps not as internationally significant as the Maroon heritage, is still of significant national value, and must be promoted and preserved to avoid its loss.



The close link between natural and cultural heritage can be highlighted to indicate the importance of conserving natural resources in order to ensure the sustainability of cultural and socio-economic practices. Further, the use of art and cultural activities is a practical medium for conveying social development objectives e.g. responsibility and caring for our environment – both its natural and cultural components. It has also been shown that there may be cultural beliefs and practices, particularly those associated with sacred natural sites, which may promote biodiversity conservation (John et.al. 2010).

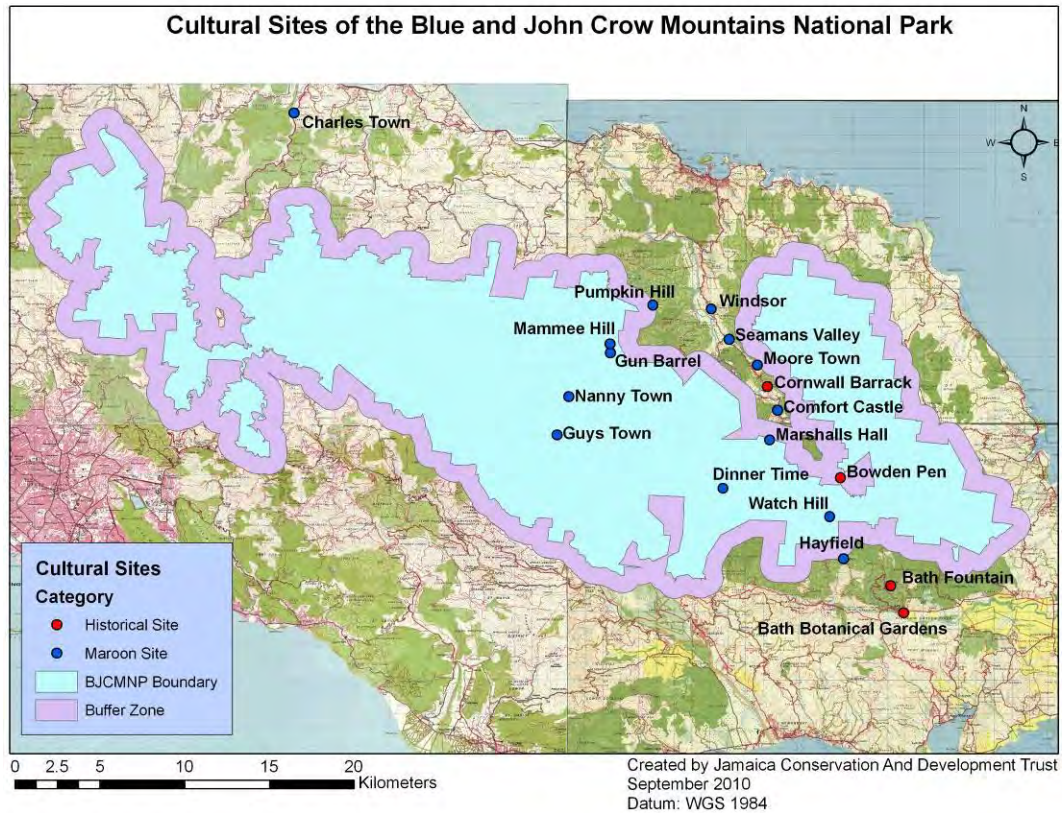
The Maroon communities in Moore Town, in the Rio Grande Valley and Charles Town in the Buff Bay Valley, as well as other communities have been involved in various ways in park management activities, for example, one of the Local Advisory Committees was located in the Rio Grande Valley. Also, the BJCMNP has established an annual cultural event – Misty Bliss, which is held at Holywell to celebrate and raise awareness about the park and the importance of its cultural and natural heritage. Community members rent booths to sell traditional food, produce and craft whilst entertainment e.g. dance and drumming is provided by local and other cultural groups. The event is enjoyed by patrons from the local communities as well as persons from Kingston and further afield.

Under the BJCMNP's Community Education Programme, training for youth and others in craft and other aspects of cultural heritage, has been conducted to help keep these traditions alive and to develop opportunities for more sustainable livelihoods. Assistance to communities for the establishment of trails and guided tours to enjoy the cultural and natural heritage of the BJCMNP and its Buffer Zone has been another activity geared at generating benefits from the resources in ways that will encourage community members to support conservation.

There is a need for increased involvement and participation of all the communities around the BJCMNP in conserving the resources of the mountains. However, this will only be possible in the long term if ways can be found for them to use both the natural and cultural resources around the park in a sustainable manner in order to make a living and improve their quality of life.

The map and table below provide information about the main cultural heritage sites of the BJCMNP – most of which are Maroon. The sites within the BJCMNP boundary are all archaeological sites. Only Charles Town, Windsor, Seamans Valley, Moore Town, Cornwall Barracks and Comfort Castle remain living Maroon communities. The JNHT is in the process of protecting some of these sites under the JNHT Act, 1985.

**Figure 3.2 – Map showing Cultural Sites of the BJCM**



**Table 3.2 – Description of the Cultural Sites of the BJCM**

Site Name	Remarks
<b>Bath Botanical Gardens</b>	Bath Botanical Gardens is the second oldest botanical garden in existence in the Western Hemisphere, established in 1779. Many of the plants introduced to Jamaica were first planted in this garden. The gardens are much smaller today than when first established in 1779.
<b>Bath Fountain</b>	The Bath of St. Thomas the Apostle is the official name of the Bath Mineral Spring (or Bath Fountain). The spring was discovered by a runaway slave in the 1690s. When he found the warm waters of a pool deep in the forest healed ulcers on his legs that had plagued him for years, he braved his master’s wrath and returned to tell him about the marvelous discovery.
<b>Bowden Pen</b>	Bowden Pen is said to have been named after William Bowden. He was one of the 500 settlers who settled in island in St. Thomas in 1656.
<b>Brownsfield</b>	Brownsfield Maroon site is located on the Snake River near Alligator Church Bridge and sits high on a hill that overlooks the road skirting modern Brownsfield. The main features are remains of houses, with a few fragments of ceramics and green glass bottles on the surface.
<b>Charles Town</b>	Charles Town is the new settlement of Crawford Town. It is located several meters from the original town and located on the Buff Bay River close to the south shore.

<b>Site Name</b>	<b>Remarks</b>
<b>Cornwall Barracks</b>	Cornwall Barracks was designed to be a model for other barracks being constructed during that period. The barracks was completed in 1806 and consisted of a long house capable of holding 100 men, with separate accommodation for officers. It consisted of a guard house with four sentry boxes, a magazine, cook-house and bake-house. The windows were glass, the furniture made of pine and mahogany and the soldiers slept in hammocks.
<b>Guy's Town</b>	Guy's Town was named after their head man Guy or Gay. In 1733 a slave Sarra revealed that at Guy's Town, a defensive position near Nanny Town there was about 200 fighting men, well armed and a greater number of women and children. The men arm themselves with 'launces' and 'cutlashes' rather than guns. They never went to meet the parties unless to defend the paths which lead to their home. Guy's Town on Carrion Crown Hill was used by warriors to retreat for rearguard action or counter-attack, and which women and children could use for refuge. It was also a major agricultural production centre including both crops and livestock.
<b>Hayfield</b>	Hayfield was an unofficial settlement of the Maroons. The attitude of the Hayfield Maroons was important in the 1865 Morant Bay Rebellion when the government called out the Portland Maroons.
<b>Marshall's Hall</b>	Marshall's Hall also noted elsewhere as Marches Hall. The site is interesting because of its structural features and for the fact that Maroon oral tradition links the site to the modern Maroon capital town, Moore Town, historically considered to be "New Nanny Town". Surface finds consist of eighteen and nineteenth century European ceramics, house foundations and steps.
<b>Moore Town</b>	The Maroons of Nanny Town was first allotted 500 acres of land. Granny Nanny saw the need for more land and made a request to the British government in 1781. There was an allotment of 1,270 acres of land which was called Moretown. Due to misunderstanding and errors, the town name was recorded in the survey document as Muretown and later Moore Town.
<b>Nanny Town</b>	Nanny Town was named after a Maroon chieftess and now, National Hero. Accessible only by hunters' trails or by air. Historical references indicate that by the mid-eighteen century, the town was not only fully fledged, but also a stronghold of the freedom-fighting Maroons in the eastern part of the island. These Maroons were known as the "Windward Maroons."
<b>Pumpkin Hill</b>	According to oral tradition Queen Nanny was considering surrendering to the British. She heard a voice in her head tell her not yet, wait one more day. When she awoke the next morning, she found three pumpkin seeds in her apron pocket. The voice told her to plant them. She planted them on the side of a mountain now known as Pumpkin Hill, and in a very short time, the seeds grew to fruition with large pumpkins that saved the Maroons from starvation.
<b>Seaman Valley</b>	In 1728 when the British were fighting the windward maroons 200 seamen went to aid the militia and was massacred in this valley.
<b>Mammee Hill</b>	Mammee Hill possible use as a refuge site for Nanny Town and is characterized by Mammee tree groves. This suggests the early usage by the Tainos.

Site Name	Remarks
<b>Comfort Castle, Dinner Time , Gun Barrel , Friendship, Windsor Watch Hill</b>	These are other Maroon sites of significance mentioned in the various literature and oral tradition.

### 3.3.1 Maroon Heritage

As indicated above, the cultural heritage of the BJCM is rich and varied. Of particular significance however, is the intangible heritage of the Maroons of which that of Moore Town was declared by UNESCO in 2005 “a Masterpiece of the Oral and Intangible Heritage of Humanity”.

The BJCMNP, Jamaica UNESCO WHS Nomination Dossier quotes Carey, 1997 statement that the word Maroon “has been adapted by academics as a generic term to apply to groups of persons resisting plantation slavery in the Caribbean and the American continent”. In fact the term is now being applied to groups all over the world who resisted enslavement by the Europeans, by fleeing to hard to access wilderness areas. The Maroons of eastern Jamaica (Windward Maroons) are however considered the classical representation and prototype, having been the first example of Grand Maroonage, the first free Maroon state in the post 1492 world, and still enduring today.

The Windward Maroon nation was the first Jamaican Maroon band and the first Maroon nation in the western hemisphere. It was created by Amerindians who fled into the hills around Nuevo Sevilla on Jamaica’s north coast and was strengthened with the integration of Amerindian and Africans in the Seville region who fled Spanish estates immediately after the arrival of the first Africans on Jamaican soil in 1513. This band eventually migrated to the north eastern section of the island establishing its capital at “the Great Negro Town”– later to become Nanny Town - high in the BJCM, controlling all of what is today the parishes of St. Mary and Portland and much of what comprises the BJCM. Later known as the eastern or Windward Maroons to distinguish them from another powerful Maroon group – the Leeward Maroons which formed in the 1690’s and still exist today in the western end of Jamaica.

#### 3.3.1.1 History

The history of the Windward Maroons begins with the Taino, in about 1509, taking to the hills to escape slavery in the first Spanish settlement at Nuevo Sevilla in what is now St. Ann. By 1513, with the demise of the Taino in captivity, the Spaniards began to bring “Africans” to replace the Taino work-force. Many of these “Africans” were actually Spanish Moors – prisoners of war from the 1492 Battle of Granada when the Spanish monarchs of Castile won back Spain from seven hundred years of Moorish rule. Several of these Moors escaped to the Taino communities in the mountains rather than face

slavery on plantations and thus formed the nascent group of Maroons. This Islamic influence on the Maroons has been researched, and there is linguistic and other evidence confirming this influence, for example, the members of the Maroon Kamiti (Council) greet each other “assalaamu alaikum” (Afroz, 1999 in JCDT, 2009). In 1534, archaeological records and the oral tradition of the Maroons tell us, the Maroons destroyed the settlement at Nuevo Sevilla. By this time, the Spanish had resorted to bringing slaves from several parts of Africa, many of whom also escaped to join the Maroons. Years later, possibly around 1640, the Windward Maroons moved further east to Portland where they established towns and large plantations, with their ‘capital’ Great Negro Town built on the location of a Taino sacred hill site. Historical accounts indicate that the Maroons conducted trade with the Spanish, but did not live together in perfect harmony as the Spanish government sent troops to the Blue Mountains to fight the “Arawak” escapees who had established settlements there.

In 1655 the English captured Jamaica from the Spanish and rapidly expanded sugar-cane plantations with the importation of thousands of slaves, mainly from the West Coast of Africa. Large numbers of these slaves also fled the plantations and joined up with the Maroons, so that by 1690, a group of Maroons in the west of the island – the Leeward Maroons had formed. By 1710, the ratio of white to African in Jamaica was 1:10 and the English fearful of a slave uprising began providing incentives to attract additional white immigrants to the island and Portland in particular. Records of some of these white settlers indicate that this land from the mountains to the sea was controlled by the Maroons and governed from Great Negro Town. They also described large Maroon plantations of cocoa, sugar-cane, plantains, melons, yams and corn, numerous towns and well laid-out roads. By 1720, the incursion of these white settlers into Maroon territory led to war breaking out. The Windward Maroons formed an alliance with the Leeward Maroons in 1725 and between 1728 and 1740 there was non-stop fighting with the English. During this period, forty laws were passed to try to control the “rebels”, but to no avail.

This was the first war fought by the English in a humid tropical forest environment against a foe who was a master of guerrilla tactics and strategies. The Maroon warriors faced superior firepower and were heavily outnumbered, but they took maximum advantage of the BJCM environment and their intimate knowledge of its landscape, flora and fauna. They would strike and withdraw with great rapidity, apparently appearing and disappearing at will, we know now, by amongst other means, using caves behind waterfalls such as Nanny and Quao Falls. The Maroons camouflaged themselves with the leafy branches of trees in order to ambush the English soldiers, and even bathed in the infusions of plants to mask their scent when the English brought in hunting dogs and Native American trackers. In addition to using the abeng (made of cow horn) to send messages, the Maroons also used a variety of bird calls for communication during battle. Further, the Maroons would fight only when and where they chose, hence withdrawing to the mountains from the plains where they knew they were at a disadvantage.

In 1732 Great Negro Town was renamed Nanny Town in honour of the Windward Maroons spiritual leader “Na Na”, “Nya Nya” of “Nanny” who played a lead role in the

victory of the Maroons over the English. Although not involved in the day-to-day governance of the Maroons, in times of distress, Nanny would assume control. The oral tradition of the Maroons explains that all the powerful Maroon men would impart their knowledge and “science” (magical powers) to Nanny, making her Queen of the Maroons and submitting themselves to be lead by her as the central spiritual beacon (Bilby, 1994 in JCDT, 2009). The oral tradition of the Maroons report that many of their war strategies were designed by Nanny and they describe numerous strange occurrences, based on Nanny’s unusual powers, which aided the warriors in defeating the English.

By 1733, the war was so severe, and costing the Legislature so much that the Governor wrote “Jamaica is in a tottering state” and in 1734, requesting additional military aid, “this may be the last opportunity we have of applying for help” (Ebanks, 1975 in JCDT, 2009). At the end of 1734, the English thought they had won a great victory when they over-ran Nanny Town, set up camp and built a stone-wall around it. They were later to realise that the Maroons had actually abandoned Nanny Town and then decided it was better not to try to regain control. Rather, they split their group and sent about three hundred men, women and children on a 100 mile march to relative safety with the Leeward Maroons in the Cockpit Country, whilst the rest remained to continue the war.

Beleaguered and embattled, the English finally sued for, and were granted peace by the Maroons, with the signing of a Peace Treaty in 1740, which granted the Maroons land, civil autonomy, peaceful co-existence and continued free run of the BJCM. As an English soldier later wrote, “Such as those who are unacquainted with that island will be surprised when they are told that all the regular troops could not have conquered the wild Negroes by force of arms. And if Mr. Trelawny (the Governor) had not wisely given them what they had contended for, liberty, they would in all probability have been, as of this day, masters of the whole country” (Thicknesse, 1788 in JCDT, 2009).

Following the signing of the Peace Treaty, there was no need for the Maroons to occupy the harsh and rugged environment deep within the BJCM, and instead they established towns in the lower hills and valleys, primarily New Nanny Town (Moore Town), Charles Town and Scots Hall.

### **3.3.1.2 Intangible Heritage**

The intangible heritage of the Windward Maroons includes a wide variety of components which can only be touched on briefly here:-

- Music including drumming and songs
- Dance
- Religious rites and ceremonies
- Governance institutions and practices such as the Kamiti (or Council)
- Language – both Maroon Creole and Kromanti
- Cuisine e.g. jerk pork, cacao stew, heart of palm
- Craft e.g. baskets, hats and toys
- Knowledge of medicinal herbs and their uses
- Other indigenous knowledge



*Plate 15: Windward Maroons depict “Ambush” at a cultural festival in Bowden Pen (courtesy Andrea Ventimiglia)*

The Maroon communities retain these traditions and particularly in the last ten years have increasingly been trying to ensure that young Maroons learn and appreciate their unique heritage. The Museum at Charles Town displays exhibits on much of this heritage, and along with the Asafu Yard, also provides for the conservation and experience of Maroon oral and intangible heritage. The UNESCO funded project which followed the Master-piece proclamation collected and recorded much of the intangible heritage of the Moore Town Maroons and resulted in a more formal process of revitalizing the heritage. An office and meeting place with a few exhibits was established and there are plans for a cultural centre.

### **3.3.1.3 Tangible Heritage**

The tangible heritage of the Maroons is very limited in terms of buildings or possessions, as these were things the Maroon warriors forsook in order to gain and maintain their freedom. However, there are several trails e.g. Cunha Cunha Pass, Sambo Hill and Nanny Falls Trail and also physical features e.g. waterfalls such as Quao Falls that form a part of the tangible heritage of the Windward Maroons. Further, the items they make based on

their knowledge e.g. baskets, toys, jerk pork are very tangible things that contribute to the experience of Maroon culture.

### **3.3.1.4 Authenticity**

The UNESCO Operational Guidelines for the Implementation of the World Heritage Convention (UNESCO, 2008) state that authenticity is a pre-requisite for inclusion on the World Heritage List under criteria (i) through (vi). This document also indicates that the ability to understand the value attributed to the heritage depends on the degree to which information sources about this value may be understood as credible or truthful. Further, the Guidelines note that depending on the type of cultural heritage and its cultural context, properties may be understood to meet the conditions of authenticity if the proposed cultural values are truthfully and credibly expressed through a variety of attributes including traditions, techniques and management systems, location and setting, language, and other forms of intangible heritage.

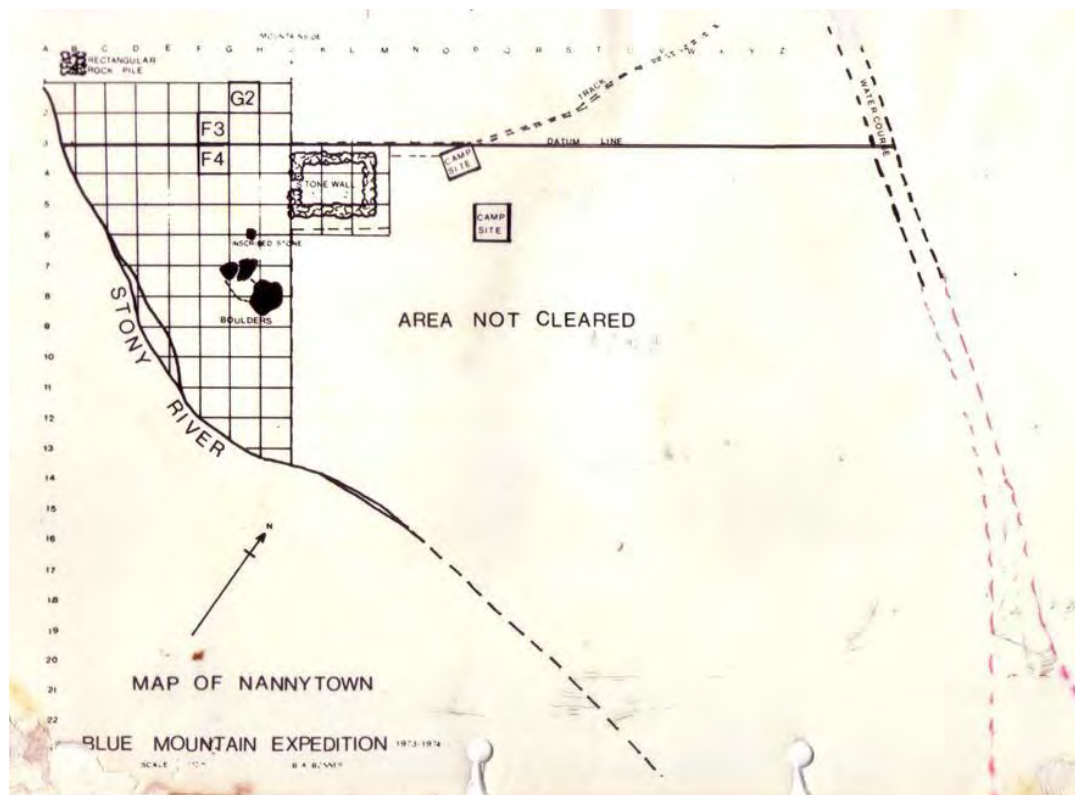
The authenticity of the BJCM is directly and tangibly related to events and living traditions, ideas and beliefs that are of outstanding universal value. The historical records of the English, archaeological evidence and the oral traditions of the Maroons vouch for the authenticity of the history of Windward Maroons. With respect to their cultural heritage both archaeological and ethnographic research and the oral tradition confirm that these cultural elements are in a state of authentic preservation. There are a number of attributes of the cultural heritage that can be viewed within the idea of authenticity. These are trails, towns, place names, natural places of historical and cultural significance including the mountains themselves, language, music, dance, festivals and cuisine.

#### **The Trails and Towns**

According to tradition many of these including Vinegar Hill and Cunha Cunha Pass trails have remained the same with respect to their form and design, use and function, and location and setting over the past three to five hundred years. There are English military maps in existence today, showing the Maroon trails in addition to trails used by the English army.

The location of the towns have been identified ((Fig. 3.2) but they are all archaeological sites, and only one has been explored so far - Nanny Town. Because of the nature of the Maroon building materials and the fact that the town has been abandoned for more than two hundred and fifty years there is nothing left except an archaeological site that is perfectly protected by its location deep in the hills. The cut-stone walls that were part of the English command post at the site built between 1734/5 when last examined in the early 1990's were in good condition.





*Plate 16: Map of Nanny Town produced during an archaeological expedition (courtesy Roderick Ebanks)*

Place names according to documentary and oral evidence have remained the same over the five centuries, as have natural places of historical and cultural significance. Probably the most important natural place of significance is the mountains themselves. Not only has there been a long continuity of use and function but also of spirit and meaning. The mountains continue to be a place of rich material resources still used by the Maroons, but are also a place where the spirit and feelings of the Maroons in relationship to their history and culture are symbolized and most deeply entrenched. This spirit and feeling has existed from Taino days as evidenced by the use of the mountains as a ritual center, with Nanny Town itself being originally a sacred hill site used by the Taino. This was confirmed in the archaeological expeditions conducted in the 1990s which found Taino artefacts including ‘zemi images’ in the third settlement horizon of the dig.

Language, religion, music and dance, healing herbs and festivals.

The Maroons of the BJCM use two languages. The first is similar to Jamaicanese and Kromanti. Both of these languages are independent of English being based on West African linguistic principles. The first contains a mixture of West African and English words. The second consists solely of Twi words within an Akan linguistic context. The Kromanti language is the language of tradition and religion and is reserved for use in sacred rituals. Although the Windward Maroons have retained much of their religion and associated musical traditions these are not well known as the Maroons protect this

knowledge jealously. However the fragmentary historical and ethnographic descriptions that do exist indicate that they were essentially of African origin and content. Religious ceremonies include the use of herbs, chanting accompanied by the Kromanti drums, and the blowing of the Abeng. It also involves the veneration of, paying homage to and communication with the ancestors of the departed. The music of the Windward Maroons is generally associated with important religious ceremonies in particular the Kromanti Play. This ceremony is used mainly to cure the sick. Though not performed regularly, it is still practiced in Maroon communities. The importance of the music can be seen also in its declaration as a Masterpiece of the Oral and Intangible Heritage of Humanity.

### Cuisine

The remoteness of their surroundings and dependence on the BJCM resulted in the development of unique and diverse methods of food preparation among Maroons. They mastered the art of using the resources around them e.g. if no metal pot was available food would be boiled in coco or wild plantain leaves, bamboo or in earthen vessels. These methods of food preparation are not in regular use today but the knowledge has been retained and Maroons can resort to these methods if necessary, or for fun. Although there has been quite a bit of exchange in cuisine between the Maroons and the general African-Jamaican population, particularly jerk pork which has become a popular “fast food” and known world-wide, the traditional Maroon dishes such as Bussu soup, Cacoon stew and Heart of Palm still differ from the standard African Jamaican food.



*Plate 17: Cacoon (Entanda gigas) beans used for cooking and craft (Source: JCDT)*

### 3.3.1.5 Integrity

UNESCO requires that all properties nominated for inscription on the World Heritage List should possess integrity. The Operational Guidelines described integrity as, “a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes” (UNESCO, 2003).

The cultural heritage of the Windward Maroons in the BJCM includes all the elements that are necessary to express its outstanding universal value, from its trails such as Cunha Cunha Pass Trail, place names such as Seaman's Valley and Lookout Point, natural places with cultural and historical value such as Nanny Falls and Quao River, and the living traditions, ideas and beliefs that are associated with it. These traditions include the sacredness of the BJCM, the idea of the ancestral spirits, the retention of the governance and jurisdictional heritage including the existence of the governing council or Kamiti, the large number of tools, foods and hunting techniques in use, and the continuing existence of traditional music and dance forms, and festivals.

In addition it is of adequate size - wholeness and intactness - to ensure the complete representation of those features which convey the property's cultural significance. Further, the presence of three distinct Maroon communities – two of which have been involved in BJCMNP planning and working with Park management for the conservation of the cultural heritage of the area, strengthens the integrity of the heritage, reducing risk of losing elements.

The property does not suffer from the adverse effects of development, and the elements that have become archaeological or that have fallen into disuse are not neglected but are left in conscious ruin such as portions of the trails, to protect the security of the park. It should be remembered that the Maroon's built environment, up to and quite possibly beyond 1740 was an ephemeral one being built of highly perishable materials. This was the product of the guerrilla/military lifestyle of the Maroons that demanded the ability to move at a moment's notice. The emphasis was therefore not on permanency but on mobility and not much energy was expended in making the shelters and other aspects of the material culture. In addition during the war years many of the towns were periodically abandoned and subsequently burnt by the British and after the war the settlements were moved to lower lying areas such as Moore Town away from the mountains interior. The original towns were left to decay and become overgrown by the forest, but archaeological research if funding and the rugged terrain permit may reveal useful information.

### **3.4 ATTITUDES TO THE BJCMNP**

Since the last Management Plan, there have been three additional investigations into the attitudes towards the Park, of community members within the Park's Buffer Zone. These were, an M.Sc. project by students from Michigan University in 2007, research for a Ph.D. thesis at the UWI between 2004 – 2007 and the 2010 management planning community meetings. Prior to the 2005 Management Plan, one study occurred between 1995 and 1997, another between 1998 and 1999 and the third consisted of community meetings held in 2004 for the 2005 Management Plan. Other interactions e.g. through the BJCMNP's Education Officers and National Park Rangers also provide some indication of community attitudes to the BJCMNP. Most of these investigations included some of the same communities and whilst not directly comparable, seem to show an increase in

awareness and appreciation of the BJCMNP and the work of its management both in terms of forest ecosystem conservation and sustainable livelihoods.

The 2010 community meetings were much more widely promoted than the 2004 meetings with between 10 to 15 persons present at meetings in 2005, whilst in 2010, the average number was about 21. Although not a quantitative comparison, the community members in 2010 seemed more familiar with the term “national park” than during the 2004 meetings. As before however, community members, if not aware that the Blue and John Crow Mountains are a “national park”, were very aware and quite knowledgeable about the importance of the forests in these mountains. Climate change was not mentioned in 2004 but was noted during the 2010 meetings as a reason why the forests are important (mitigating against it). There continued to be a significant level of concern regarding destruction of forest and wildlife, particularly outside the BJCMNP, and a desire for action, with in 2010, recommendations for a “community volunteer corps”.

Community members reported that for many persons the need to make a living, often by clearing forest for farming or by collecting plants and hunting other wildlife, takes precedence over environmental conservation. Thus, whilst some community members indicated an interest in assisting with managing the resources of the park, there is a feeling that they would need help including education, skills training and capacity building, in order to play a role. Where persons were familiar with the “Park” and its management, there was some concern that there were not enough funds to maintain the BJCMNP’s conservation activities, and that there was a need for the community to be assisted with respect to sustainable livelihoods.

Three Local Advisory Committees (LACs) were established in each of the BJCMNP’s administrative areas (around Holywell, near the Peak Trail and in the Upper Rio Grande Valley) and operated between 1993 and about 2000. The level of environmental education and capacity building required by the communities in order to sustain these groups was under-estimated and an emphasis was placed on providing monetary and other socio-economic benefits. This level of assistance from park management declined as funding for the BJCMNP decreased after the PARC Project and eventually the LACs could not be sustained. In Millbank however, the Bowden Pen Farmers’ Association was formed, partly out of the work and influence of the park and its community outreach. This group is focused on improving the livelihood of its members through sustainable use of the natural resources in the area. They work closely with park management, with one of their founding members being a former full-time member of the park staff.

The Forestry Department has worked with communities in the Buff Bay/Pencar Watershed to establish two Local Forest Management Committees, and to assist the communities through these organizations, to better manage the forest reserve/national park. The main issue for these communities is the need for financial incentives for forest conservation, and the FD has assisted these groups to establish income-generating pilot projects – a plant nursery and a community-based nature tourism venture. Much more help is needed however, both for these projects and to build local capacity for natural resource management generally.

The positive attitude and the suggestions made by community members in all investigations, indicates a need to continue to increase involvement of community members in park and resource management, and suggests that this involvement would help to increase the effectiveness of park management. There is scope for increased involvement of community members in all aspects of park management, although it will require skilled personnel to build capacity at this level. This will include National Park Rangers who work closely with community members e.g. through a Junior or Trainee National Park Ranger programme and Community Education Officers with participatory planning and community development skills. A mechanism for involving and building capacity of community members from the BJCMNP's buffer zones in natural resource management is being developed by JCDT through a CANARI regional project (Bedasse, 2005) and should be implemented (if resources allow) through the Education and Public Involvement Programme.

### **3.4.1 Management Planning Meetings - 2010**

Twelve community meetings were held with 233 persons registered. Some meetings involved persons from more than one community e.g. Hagley Gap/Minto, St. Thomas. In general, participants were very enthusiastic and made several useful suggestions. There was broad agreement in the views amongst community members. Of note were:-

- ▶ Recognition by community members of the importance of the BJCMNP, in particular for: water (supply, rivers, waterfalls), wildlife (including endemics) and soil conservation.
- ▶ Key vision components for the BJCMNP and Buffer Zone were: more forest (through more reforestation), flora and fauna, better watershed management (less fires, more green, more water) and more outreach to local communities e.g. information
- ▶ Key vision components for communities were: more employment especially for youth, better roads and water supply and cleaner communities
- ▶ Community members felt the main challenges to the vision for the BJCMNP, were lack of education and awareness about the BJCMNP, lack of knowledge to implement sustainable livelihoods, limited employment, inadequate resources impacting the quality of park management and lack of vision on the part of community members.
- ▶ Conservation – more reforestation including in the Buffer Zone
- ▶ Enforcement – more National Park Rangers, community involvement and more signage
- ▶ Education – more community outreach e.g. liaising with existing groups for meetings; a number of specific themes for attention included fires, sustainable farming practices; agro-forestry projects were also recommended.
- ▶ Governance and Administration – more long-term funding.



*Plate 18: Community Management Planning Meeting 2010 – Cedar Valley, St. Thomas (Source: JCDT)*

### **3.4.2 Management Planning Meetings - 2004**

The discussions with persons from communities around the park during the management planning consultations indicated that whilst the majority was aware of the importance of the Blue and John Crow Mountains and its forests, they were often not familiar with the term “national park”. Many persons, particularly older residents however, were aware that the mountains are a forest reserve. Benefits identified from the national park included fresh air, rainfall, water, prevention of soil erosion, medicinal plants, endemic plants and animals and tourism opportunities.

They indicated that some community members use resources in the forest, possibly entering the BCJMNP. It was clear from the discussions with community members and also National Park Rangers, that there is a lack of certainty with respect to the park boundaries, and whether or not persons are taking resources from within the boundaries, or just in the buffer zone. Uses include food, recreation, tourism, craft development, fuel, lumber, domestic and agricultural water supply. The use of resources for tourism and recreation was much less than other uses.

Community members identified several activities they felt threatened the forest ecosystems including cutting of trees to clear land for farming as well as fuel and lumber, poisoning rivers to catch crayfish or indirectly through pesticide run-off, coffee pulp and washing vehicles. Hunting of animals e.g. birds, conies and butterflies and removal of plants e.g. orchids were also noted. Reasons cited as to why people carried out activities that were destroying the forest ecosystems included: lack of education –

knowledge/understanding of the harm they were causing, need for survival/livelihoods and greed.

Significant interest was shown by all communities with respect to environmentally friendly ways in which they could generate an income from the natural resources in the Buffer Zone and possibly the BJCMNP. There was a particular interest in the provision of recreation/tourism opportunities linked to natural resources, farming, community life and culture, including music and craft.

### **3.4.3 Community Assessment – 1998/9**

A community assessment was conducted in three groups of communities around the BJCMNP, by the Community Outreach Officers between October 1998 and March 1999. These were the areas near to the Peak Trail – Hagley Gap, Minto, Epping Farm and Penlyne Castle, St. Thomas, Holywell – Woodford, Freetown, St. Andrew and the Upper Rio Grande Valley, Portland. Funding support came from The Nature Conservancy (JCDT/TNC, 1999). In general, there was significant awareness of the forest and its importance, even where persons were not aware of the fact that an area had been designated a national park. There was also an awareness of the importance of the forest and its conservation; however, with respect to livelihood practices there was an apparent disconnect, as farmers knew they were destroying the forest but continued their practices. This was blamed on lack of enforcement, lack of land tenure and lack of education.

### **3.4.4 Planning for Ecotourism in BJCM Communities – 1994 - 1997**

A study on ecotourism in the Blue and John Crow Mountains National Park conducted by the North Carolina A&T State University between 1994 and 1997, included investigation into the perception of local residents with respect to rural development through ecotourism and park management. Based on a survey of 213 community members from Cascade/Section, Portland, Mavis Bank, St. Andrew and Millbank, Portland this study found that 60% of the residents indicated that ecotourism in the BJCMNP would provide many benefits. Benefits identified included: job creation and employment opportunities, and an increase in financial well-being. Better roads and improved transportation was also cited as a likely benefit, although it was noted that the poor roads in the communities would hamper the development of ecotourism.

With respect to park management and operations, the A&T State University study found that 81% of residents had knowledge of the park's existence, mainly through the work of the National Park Rangers. Some 66% said the creation of the BJCMNP had not affected their daily activities and those who had been affected reported a positive effect, namely bringing greater exposure to their communities. About 43% of those surveyed felt that the BJCMNP managers had not been helpful, whilst 24% felt they had been very helpful, particularly in community activities.

In general, the communities felt that the BJCMNP could have been more effective in assisting them with their socio-economic concerns. They expressed an interest in ecotourism, provided that the BJCMNP's management personnel planned and worked closely with them, and that job creation and income generation benefits were derived. One such example is the initiative taken and work carried out recently (2004 – 5) by the Bowden Pen Farmers' Association to restore the famous Maroon Trail through the Cunha Cunha Pass. Included in the work was an anthropological research on the natural and social history of the trail and the area, in general. Through this activity, the group worked closely with national park rangers and the Parish Council to implement the physical restoration work. Funding for this venture was provided by the Environmental Foundation of Jamaica.

### **3.4.5 Socio-economic Influences on Community Conservation – 2007/8**

In 2007, five post-graduate students from the University of Michigan's School of Natural Resources and Environment, visited Jamaica to conduct their Master's project. This project was based on information they had obtained from the 2005 – 2010 Management Plan, and aimed to guide and inform decision-making practices for collaborative management in the BJCMNP. One component of the research was to better understand how socio-economic conditions impact local decision-making, and the students conducted surveys and interviews with community members in Millbank, Penlyne Castle and Cascade. The research indicated positive attitudes towards the BJCMNP and environmental conservation and explained that the ongoing negative practices e.g. farming on steep slopes and burning land to clear for agriculture, were seen as necessary and/or cost effective practices to ensure livelihoods were maintained. In addition, inhibited access to social services and general infrastructural neglect e.g. roads, had an impact on the conservation efforts of local residents and their willingness to participate in organizations. The study recommended local capacity-building and a localized approach towards community outreach and conservation, which addressed socio-economic as well as environmental issues (Gartner et. al., 2008).

### **3.4.6 Community Benefits from Ecotourism at Holywell – 2004 – 2007**

Between 2004 and 2007, Susan Otuokon conducted research in communities around Holywell for the preparation of her Ph.D. thesis at the University of the West Indies. The focus was on ecotourism as conducted at Holywell, and in particular, the benefits to the local communities – Woodford/Freetown and Irish Town area, St. Andrew and Cascade/Section, Portland. 67% of persons interviewed felt that their community derived benefits from Holywell with the percentage being 71% when the Cascade/Section community was not included. The benefits stated included income generation (from employment and opportunities such as Misty Bliss) recreational opportunities, education and skills training. Community members recognized the work of BJCMNP management in capacity building and empowerment of persons, particularly youth. Recommendations included the need to increase and stabilise the assistance to the local communities for capacity building and income generation linked directly to conservation (Otuokon, 2010a).



## Chapter 4

### THREATS TO THE BJCMNP

Threats to the Blue and John Crow Mountains National Park have been identified in various studies and the Site Conservation Plan (2000) as deforestation, forest degradation and wildlife destruction. There are several activities which cause these threats, the most damaging of which are listed in Table 3.1 below.

**Table 4.1: Active Sources of Threats**

Active Sources of Threats
<ul style="list-style-type: none"><li>● conversion of forest to agriculture</li><li>● the assault of invasive species</li><li>● non-timber products harvesting</li><li>● logging</li><li>● fires</li><li>● hunting</li><li>● informal settlements</li><li>● channel modification</li></ul>
<i>(Site Conservation Planning 2000, 2001 &amp; 2004).</i>

The Management Effectiveness Assessment of Jamaica's System of Protected Areas conducted in 2007 identified two other sources of threats – tourism and destructive fishing in fresh-water commonly known as river poisoning, which is a form of hunting (using chemicals poured in the river to catch crayfish). The former, was identified as a potential source and the latter as an active source of pressure. River poisoning has not been observed within the BJCMNP boundaries but is an issue in the Buffer Zone.

Another threat discussed during the 2007 workshops was mining, which was not considered for the BJCMNP but was discussed

mainly with reference to the Cockpit Country. However, it should be noted that the Mining Act takes precedence over most if not all other legislation in Jamaica, and the potential threat of mining within the BJCMNP should be investigated and a policy and legislation if necessary, be prepared.

#### 4.1 Root Causes of Threats

A review of the problem tree analysis (Figure 4.1) prepared in 2004 found that it was still relevant and in line with the views of community and other stakeholders. The most common reasons identified by communities for the destructive activities that challenged their vision for the BJCMNP and its Buffer Zone including their communities were:- insufficient education and awareness about the National Park, limited knowledge to implement sustainable livelihoods, limited employment, inadequate resources impacting the quality of BJCMNP management and a lack of vision on the part of community members. The root causes of the sources of existing and potential threats identified in the problem tree were used to determine the objectives and strategies park management would employ in addressing each threat. Root causes are elaborated below:-

**i) Insufficient Environmental Education.** Community members identified a need within their communities, for greater environmental awareness, and specifically, awareness about the National Park, and its importance to them. Community members also stated that most persons did not have the necessary skills for sustainable livelihoods. Resource users and other stakeholders do not have the level of environmental awareness, knowledge and understanding to make decisions that avoid compromising the integrity of the natural resources, especially when faced with harsh economic realities. Further, even if they do (often because of the BJCMNP Education Programme over the years) they may not have the skills and experience to implement more environmentally sustainable practices. In addition, many stakeholders are not aware of, nor have the skills or facilities to practice non-traditional environmentally sustainable livelihoods e.g. tour guiding.

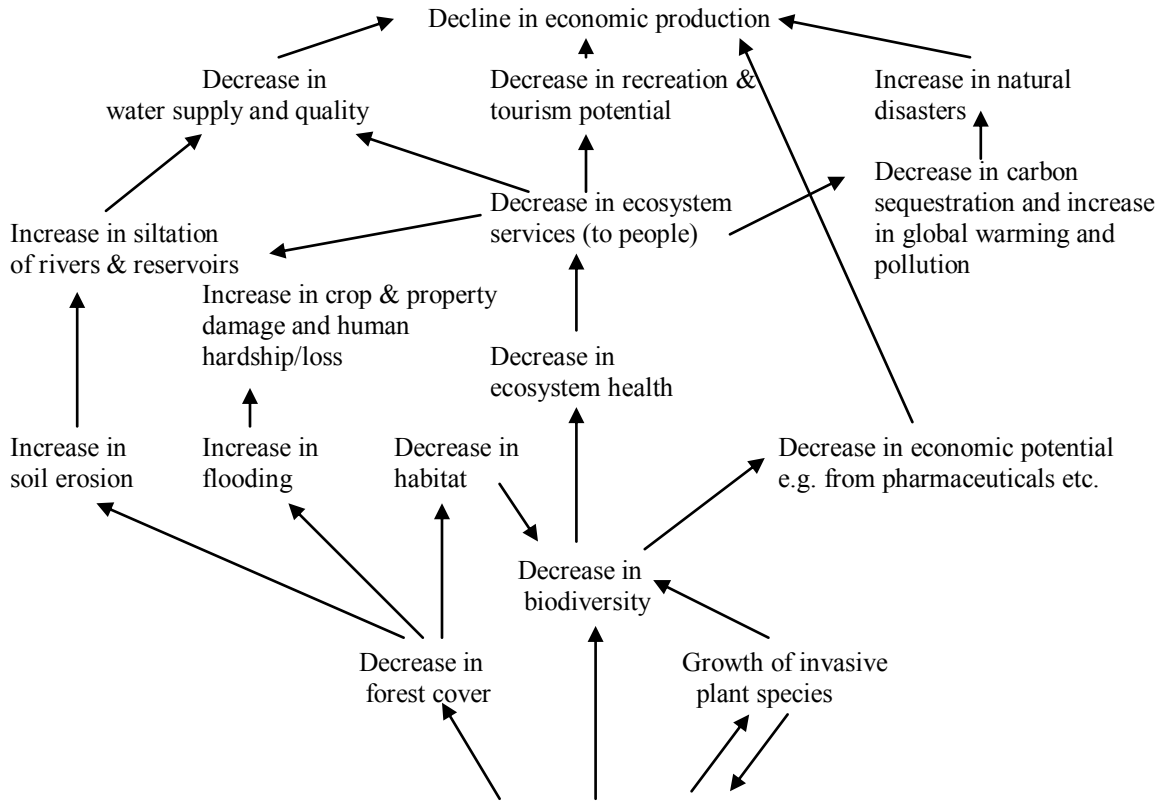
This situation has a direct bearing on education and how equipped persons are with life skills such as problem solving. However, this is not an issue that park management can address, except to undertake advocacy initiatives, provide support to teachers through the environmental education activities in schools and to a limited extent through capacity building and empowerment activities. The bottom-line therefore, is that environmental education and communications (inclusive public awareness raising campaigns, skills training and capacity building) are critical tools for effecting park management. In this regard, relevant objectives and strategies have been developed.

**ii) Limited Environmentally Sustainable Income-Generating Activities.**

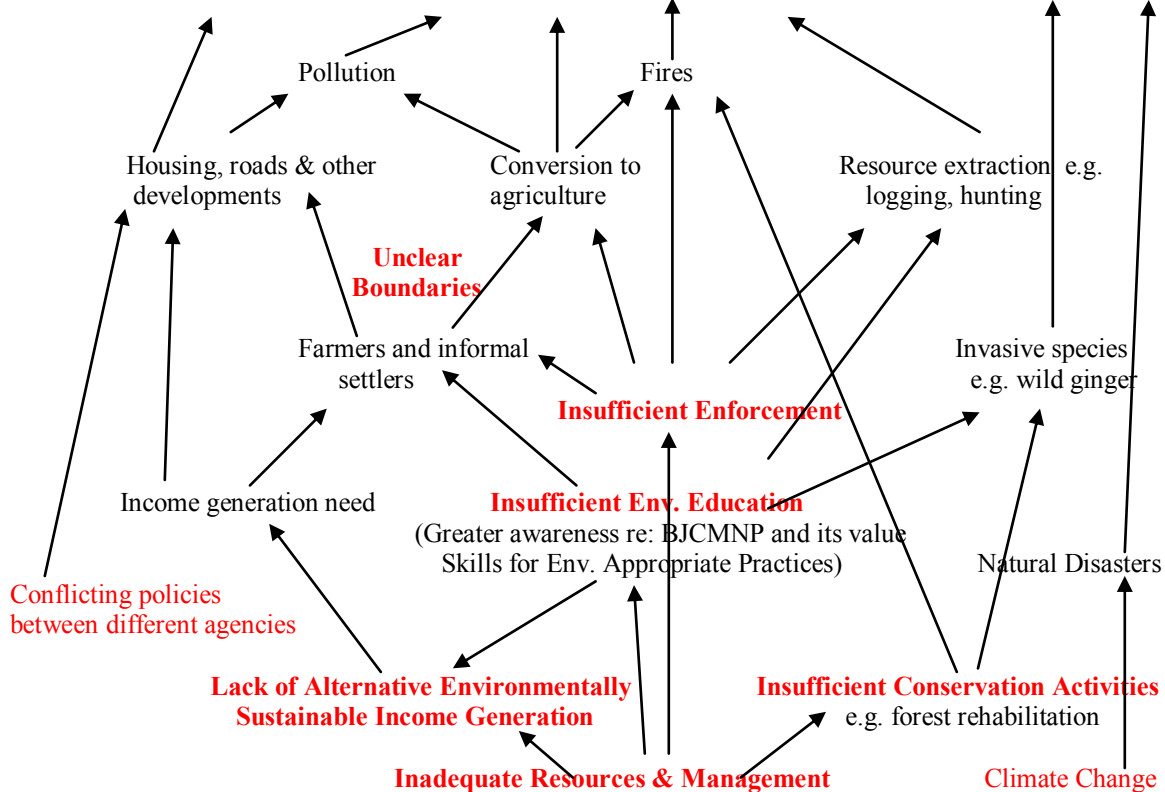
For many people living around the BJCMNP boundaries, farming and resource extraction are the only known means of survival. More and more however, the trend is that people (especially youth) are moving away from this kind of activity and are seeking employment in urban areas. There are many unemployed youth however, who are unable to find employment within or outside the community, and the resulting poverty may eventually lead them into environmentally and socially unsustainable activities. Communities identified unemployment amongst youth in particular, as a serious concern for them. The BJCMNP has numerous natural and cultural resources that, if used in a sustainable fashion, can enhance the livelihoods of communities around its boundaries. So, increasingly, the facilitation of environmentally sustainable livelihoods based on BJCM resources, is becoming an important component of protected area management.

Through environmental education which includes skills training, capacity building and empowerment, as well as by facilitating sustainable livelihood opportunities e.g. in recreation and tourism, or other sustainable use of natural resources, park management can play a role in addressing this root cause. It is important to note that park management cannot solve this problem, as this is really a role for other social and economic agencies. Park management can, however, partner with, and facilitate interventions by such groups, as well as provide some opportunities through its own efforts to generate income e.g. employment in the Park's recreational areas. Based on project successes and plans developed over the 2005 – 2010 period, the focus will be on the promotion of sustainable agriculture and tourism and management of the Buffer Zone resources in a more ecologically sustainable manner, so that the Park does not become an 'island'.

**FIGURE 4.1: PROBLEM TREE ANALYSIS FOR MAJOR THREATS TO THE BJCMNP**



**DEFORESTATION, FOREST DEGRADATION AND WILDLIFE DESTRUCTION**



**iii) Inadequate Enforcement.** This more than inadequate legislation is often identified as one of the main reasons for environmental degradation continuing, and it is a broad problem with several facets. Limited resources in all the relevant agencies reduces the number of enforcement officers available and makes it difficult to ensure the presence of enforcement officers in areas that are difficult to access (most of the BJCMNP). The difficulty in finding offenders and bringing them to justice is another problem, as for some environmental breaches it may be very challenging to prove that there actually was a breach or that a particular individual was responsible. Further, without a full understanding and appreciation of environmental issues, along with a high rate of violent crime, unemployment and poverty, judges tend to be lenient with respect to environmental crimes. This de-motivates enforcement officers who also seem to have their hands tied as there may be loopholes in legislation or an apparent unwillingness to take offenders to court. Finally, there is the issue of corruption or apparent corruption in which affluent people are often seen to get away with breaches of environmental legislation, and this perception encourages other persons to break the law.

Dealing with lack of compliance with environmental legislation requires multiple strategies outside of enforcement, although Bruner et al, 2001 found that management effectiveness most strongly correlated with a strong enforcement programme. Critical therefore will be maintaining a level of presence of uniformed, enforcement officers throughout the park and along its boundaries, (particularly in the most threatened areas), improved boundary demarcation and the bringing of offenders to justice. Aside from enforcement however, to encourage compliance, people must be aware of the relevant legislation and also of how to make a living without breaching this legislation.

**iv) Insufficient “Conservation-on-the-Ground”.** This term was described in the previous management plan as referring to the implementation of specific conservation activities e.g. invasive species control. It was considered of particular concern for the last management plan as there was no organized programme of forest rehabilitation, particularly with respect to the control of invasive species. This has been significantly addressed in the past six years, but action is still needed to enhance the survival of threatened species and to speed up the closure of forest cover gaps. If the deforested and degraded areas are left without being rehabilitated, the degradation will worsen through the over-growth of invasive species that will then threaten other areas, as well as through other harmful impacts e.g. soil erosion including landslides.

For this management plan period whilst the emphasis on forest rehabilitation should continue, the need for more knowledge of particular threatened species or ecosystems and specific conservation approaches remains a concern. Research is urgently needed to guide park management, and so the drive to promote research will need to be strengthened.

With the increased attention to the conservation of Maroon cultural heritage, insufficient “conservation-on-the-ground” could be considered the primary challenge. Park management will need to facilitate the development (or improvement) and implementation of strategies to strengthen the conservation of Maroon heritage.

**v) Conflicting Policies Between Government Agencies and Insufficient Support of Conservation Initiatives.** Some government policies (such as FIDCO in the past) and the actions of some agencies (e.g. road development or lack of road maintenance) are very damaging to the resources of the BJCMNP. The issue of leases within the BJCMNP though being addressed continues to be a challenge that should be given additional attention. Most importantly, the government should make its support for conservation initiatives (both government and non-government) and protected area management in particular, clear to the wider public. This will result in greater understanding of, and improved attitudes towards the BJCMNP. In this regard, advocacy is a required management action, which will need to be implemented by the JCDT.

**vi) Unclear Boundaries.** The issue of unclear boundaries in some areas, is a source of stress on the BJCMNP's resources. It creates uncertainty about the jurisdiction of national park regulations, and may result in damaging activities being left unchecked. The management action required includes the need for more signage and markers and the resolving boundary and land ownership issues, which the FD continues to address.

**vii) Inadequate Resources and Management.** Availability of funding for park management has declined rapidly over the years since the BJCMNP was established under the PARC project. Whilst the last five years has seen an increase in funding, particularly from the government, the major issue continues to be a lack of secure funding. The reduction in human and other resources associated with this lack of security of funding, as well as inadequate and late disbursement of funding has hampered effective implementation of BJCMNP plans. The issue of financial sustainability must be addressed if conservation activities, related to the park are to be effective. As indicated later in this Management Plan, financial sustainability including sourcing of funding cannot be left to the JCDT as Park managers, alone. The completion and implementation of the Protected Areas Master Plan for Jamaica should assist in addressing this issue.

**viii) Climate Change.** This is a global environmental problem which park management can only address locally, in terms of protecting the forest. However this in itself is of major significance as it will help to increase carbon sequestration and decrease global warming, and therefore steps should be taken to access funds available globally to support forest conservation and reforestation. Jamaica is a signatory to the United Nations Framework Convention on Climate Change and should more actively seek funding assistance for management of its Protected Area System.

In the last five years, Park management has implemented projects with a climate change focus, particularly adapting to likely impacts by reducing vulnerability. Of particular concern are, the likely loss of trees during stronger tropical storms and the worsening of soil erosion with increasingly heavy rainfall during the rainy season. These will continue to be addressed through forest rehabilitation to increase forest cover and working with community members to raise awareness, reforest the Buffer Zone and make their

agricultural practices more environmentally sustainable and less vulnerable to climate change impacts. Chapter 6 provides more information on the climate change issue.

## 4.2 Conclusions

Based on the analysis of the root causes of the activities and factors threatening the biological diversity and ecosystem integrity of the BJCMNP, it is clear that several activities must be implemented, using a holistic and strategic approach. The threats to the BJCMNP’s cultural heritage is an issue that has to be addressed working with the Maroon communities as these are much more localized concerns. However the approach of linking the need for conservation of both natural and cultural heritage should increase management impact, particularly through targeted programmes.

Six programmes have been developed based on:-

- (i) existing knowledge
- (ii) participatory planning including government agencies, local community members, scientists and other stakeholders

Some of these programmes address more than one root cause. All programmes must be implemented together in an integrated fashion in order to create synergies for greater impact. Part II of the BJCMNP Management Plan describes these six programmes, in addition to the over-arching Zonation Plan, in detail. The Conservation Programme has been broken down into two components to ensure that adequate attention is given to cultural heritage conservation.

**Table 4.2: Root Causes of Threats and the Programmes that address them**

<b>Root Causes of Threats</b>	<b>Relevant Programmes</b>
1. Insufficient Environmental Education	Education and Public Involvement
2. Limited Environmentally Sustainable Income-Generating Activities	- Education and Public Involvement (includes skills training and capacity building) - Recreation and Tourism
3. Inadequate Enforcement	Enforcement and Compliance
4. Unclear Boundaries	Enforcement and Compliance
5. Insufficient “Conservation-on-the-Ground”	Conservation
6. Inadequate Resources and Management	Governance and Administration Monitoring and Evaluation (evaluating management effectiveness) Recreation and Tourism (generating income and support)
7. Conflicting Policies between Government Agencies and Insufficient Support of Conservation Initiatives	Governance and Administration
8. Climate Change	Conservation

**BLUE AND JOHN CROW MOUNTAINS  
NATIONAL PARK**

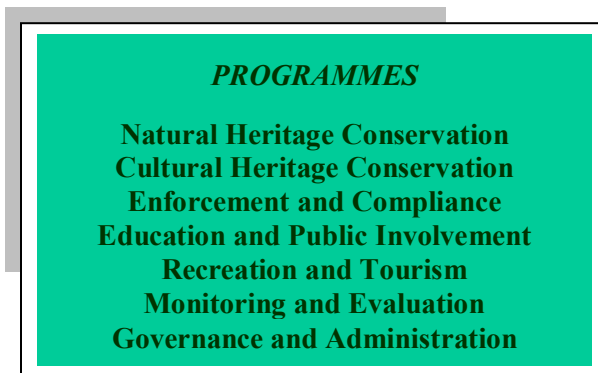
**MANAGEMENT PLAN**

**PART II**

**NATIONAL PARK ZONATION  
AND PROGRAMMES**

## INTRODUCTION

Based on the foregoing details, it is clear that in order to achieve the BJCMNP's goal, certain objectives must be attained. Against this background, management activities have been categorised into six programme areas: i) Conservation (natural and cultural heritage), ii) Enforcement and Compliance, iii) Education and Public Involvement, iv) Recreation and Tourism; v) Monitoring and Evaluation; and vi) Governance and Administration. Categorization is based on international and local guidelines, local national park management experience and discussions with stakeholders.



All programme areas are inter-related and effective national park management is not possible without them all. The first five programme areas in particular deal with cross-cutting issues and must dovetail with respect to the implementation of activities. Through the Governance and Administration Programme, Park management will coordinate and effectively plan, develop and implement strategies to fund and market the other

programmes. This programme is effectively the Business Plan for the BJCMNP and this is particularly relevant as the problem tree analysis (Fig. 4.1) indicates that inadequate management and resources are root causes of several other debilitating factors.

National parks are declared under the NRCA Act and therefore, come under the purview of the NEPA. Management of the BJCMNP has been delegated to the JCDT by the NRCA through NEPA, but it is also a Forest Reserve, hence there is a collaborative management agreement between the FD, JCDT and the NRCA/NEPA. The JNHT will shortly join the co-management partners to help address cultural heritage conservation. The policies, aims and objectives of both national park and forest reserve management have been taken into consideration in this management plan, to ensure that there is a dovetailing of desired outcomes and approaches. This Management Plan addresses all management issues relevant to protecting the closed broadleaf forest ecosystem and its biodiversity and other values, particularly the site's intangible Maroon heritage, and indicates where possible, the organisation that should be responsible for implementation of the relevant strategies. This Management Plan is based on the significant experience gained in the implementation of the BJCMNP's 2005 – 2010 Management Plan, and not only follows the format of that plan but builds on the achievements of its implementation.

The following chapters provide the prescriptive section of the Management Plan, starting with Zonation and the identification of priority areas for management intervention. Each Programme chapter describes the context, strategic approaches and activities required to achieve each objective and concludes with a table summarizing the above and indicating resources required, monitoring indicators, timeline and priorities.



## CHAPTER 5

# BJCMNP Zonation and Priority Areas for Management Interventions

The National Park Regulations of 1993, section 27, provide for the zoning of a national park. A name or other designation can be assigned for each zone and provisions made with respect to the purposes for which each zone may be used, and the relevant terms and conditions for this use. Once zones are assigned, it becomes an offence for a person to use a zone for any other purpose than provided for, or to contravene any term or condition regarding its use.

During this Management Plan period, the issue of formalizing zoning of the BJCMNP must be addressed.

### 5.1. PREVIOUS EFFORTS TOWARDS ZONATION OF THE BJCMNP

#### 5.1.1. Rapid Ecological Assessment and 1992 Management Plan

The Rapid Ecological Assessment (REA) carried out in 1992 provided elements for the zonation of the BJCMNP, distinguishing general from limited access zones. The Management Plan developed in 1992 essentially followed the REA guidelines.

**General access zones** would primarily serve agro-forestry, recreation, education and relaxation and would be subdivided as follows:

- ▶ **Buffer zone:** a one km band outside of the park along the park boundary; a future fine-tuning of the band was recommended,
- ▶ **Sustained yield management zones:** agro-forestry areas within the park including most of the Port Royal Mountains,
- ▶ **Unguided and guided visitor trails,** and
- ▶ **Free passage roads/trails.**

**Limited access zones** would be managed for conservation of natural forest and forest rehabilitation. They are sub-divided as:

- ▶ **Special conservation zones:** a small number of unique ecosystems along the summit as well as selected research sites, altogether covering less than 1% of the park area,
- ▶ **Nature restoration zones:** a number of degraded areas mainly along the park boundary, and adjacent to relatively well-preserved forests. More or less severely degraded areas fragmenting natural forest,
- ▶ The suggested sites cover about 4% of the total park area.

The vast majority of the park area however, was not assigned to a management zone.

### 5.1.2. Forest Management and Conservation Plan

The National Forest Management and Conservation Plan (2001) of the Forestry Department (FD) contains management guidelines for forest reserves. The following guidelines apply to forest reserves that lie within protected areas and national parks (declared under the NRCA Act), and thus for the entire BJCMNP.

- i) Natural forests (closed broadleaf) should be preserved for biodiversity conservation and no timber should be harvested.
- ii) Disturbed forests (disturbed broadleaf) should retain forest cover for industrial use, selective harvesting or biodiversity protection, depending on slope and soil depth:
  - Steep slopes and shallow soil: *protection*
  - Gentle slopes and deep soil: *commercial use*
- iii) Non-forest use may be permitted in areas other than natural and disturbed forests, depending on existing land leases and traditional practices.

Forest cover and land use have been mapped by the FD based on Landsat imagery acquired in 1996 and 1998, aerial photography and ground reconnaissance. Detailed local guidelines will be developed in local forestry management plans addressing individual watersheds. So far, such a local plan has only been completed for the Buff Bay/Pencar watershed, which includes a small section of the BJCMNP.

## 5.2. ZONATION UNDER THE PRESENT MANAGEMENT PLAN

The present Management Plan takes into consideration:

- i) guidelines from the 2005 – 2010 Management Plan which defined the National Park's zonation by integrating the REA's management zones with the guidelines of the National Forest Management and Conservation Plan (NFMCP),
- ii) conservation of forests throughout the National Park's altitudinal range. Mesic to wet forests on shale at lower altitudes are as unique but even more threatened in Jamaica than the upper montane rainforests,
- iii) proposals by the Forestry Department to make the western section of the Forest Reserve into a forest management area, and
- iv) lessons learned from the management experience of the past six years.

Within the BJCMNP, as biodiversity protection is the primary goal, the policy regarding forest cover for disturbed forest and non-forest use will be that:

- i) Disturbed forest should retain forest cover for biodiversity protection **regardless** of the steepness of the slope or depth of the soil; the key issue is the variety of species existing and this can be enhanced through rehabilitation with native, non-lumber species. Commercial use should **not** be permitted.
- ii) Extractive non-forest use should be discouraged even where there are existing land leases and traditional practices. In general these uses and leases where possible, should be phased out over time.

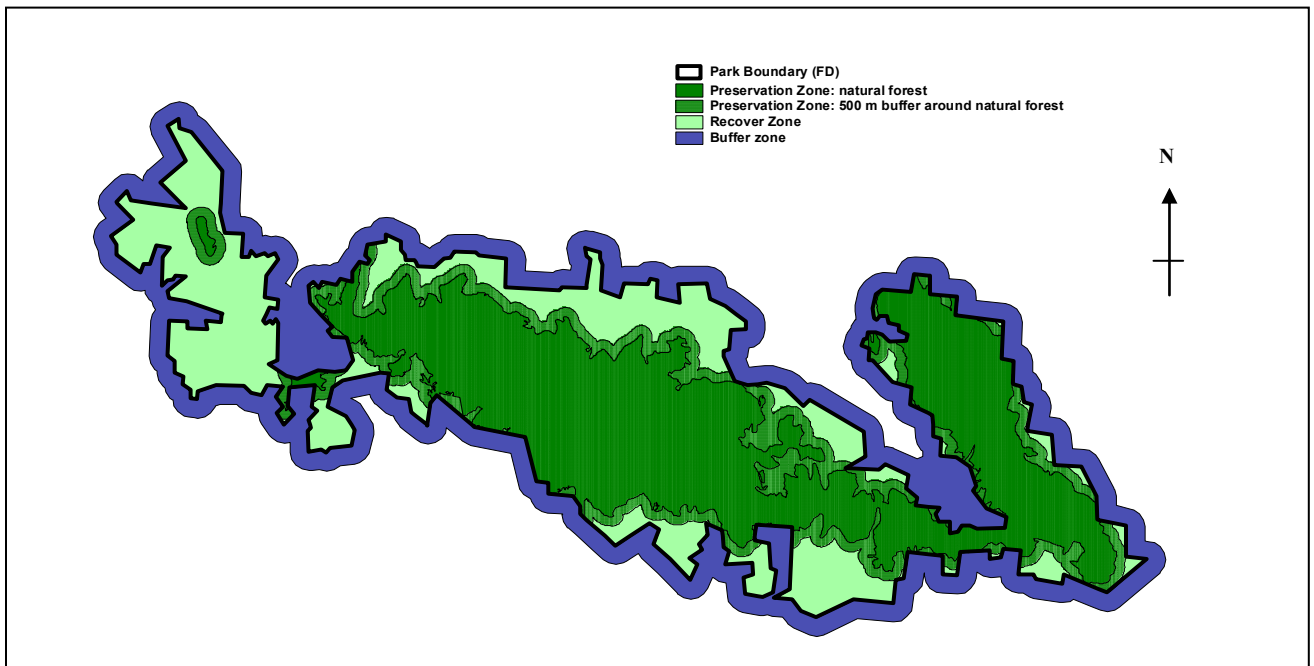
There have been minor changes in the location of the boundary (Figure 2.10) on detailed maps and on the ground, due to inaccuracies years ago in transferring data from small-scale to larger-scale maps and greater accuracy in mapping today. During this Management Plan period, every effort must be made to address these inaccuracies.

The majority of the western Port Royal Mountains is proposed as a Sustainable Use Zone, except for the Mt. Telegraph area which should remain as a Preservation Zone. In addition, disturbed forest particularly in sites close to Mt. Telegraph should be rehabilitated. Further, where the Forestry Department is able to regain control of leased lands, these should become part of the Recovery Zone depending on the location and status.

Hence, the BJCMNP Zones are (as depicted in Figure 5.1):

1. **Preservation Zone** – protects the core, natural, closed-broadleaf forest
2. **Preservation Buffer Zone** – 500m wide zone around the Preservation Zone
3. **Recovery Zone** – remainder of national park – forest rehabilitation
4. **Sustainable Use Zone** – most of the Port Royal Mountains
5. **Community Buffer Zone** – the 1km wide zone around the BJCMNP boundary

**Figure 5.1: BJCMNP Zonation**



Implementation of the zonation plan will be primarily through the Enforcement and Compliance and the Conservation Programmes. Working with communities to conserve the resources of the Community Buffer Zone will occur under all programmes, particularly the Education and Public Involvement and Recreation and Tourism Programmes.

### 5.2.1. Preservation Zone and Preservation Buffer Zone

The Preservation Zone is defined by the core of natural (closed broadleaf) forest plus a 500m buffer around this core within the boundaries of the BJCMNP (Fig. 5.1). As indicated in the NFMCP, all remaining natural (closed broadleaf) forest within the BJCMNP is set aside for strict conservation.

Since encroachment has progressed from lower to higher altitude, the natural forest is fairly well delimited in three blocks:

- i) Blue Mountains, at altitudes mainly above 1000m along the southern, and above 600 m along the northern slope,
- ii) John Crow Mountains, at altitudes mainly above 600m along the western, and above 300 m along the eastern slope, and
- iii) Port Royal Mountains, in the east, a small area stretching across Mount Horeb and Catherine's Peak and in the west, Mount Telegraph which is under severe threat from encroachment.

Some patches of degraded and converted areas exist within these blocks, but they have remained fairly small so far. Where degraded, this area will be targeted for rehabilitation, and this is highlighted in Figure 5.2.

#### **Objectives within the Preservation Zone:**

- conserve the natural forest
- prevent degradation and conversion
- rehabilitate disturbed and converted patches within the natural forest
- focus habitat monitoring along the periphery of the preservation zone in order to identify activities likely to impact the natural forest
- identify management intervention sites of high priority where non-forest use has encroached into the natural forest buffer. Some sites are listed in Box 5.1 below.

Only non-extractive use such as research and ecotourism will be allowed; these activities will be covered by strict guidelines.

Within the preservation zone, special conservation sites are defined to protect unique ecosystems covering small areas, unique historical sites and permanent research plots. Access to these sites requires special permits from the management authorities. Following the REA and previous management plans, recognized special conservation sites are:

- ▶ Hog House Hill research sites,
- ▶ Forest between Cunha Cunha Pass and Corn Puss Gap,
- ▶ Nanny Town,
- ▶ High Peak,
- ▶ John Crow Peak and research sites, and
- ▶ Blue Mountain Peak research sites.

## 5.2.2. Recovery Zone

All areas between the National Park boundary and the Preservation Buffer Zone are denoted as Recovery Zone (Fig. 5.1) except the western Port Royal Mountains which under this Management Plan has been designated as a Sustainable Use Zone. This was suggested in the previous plan and with more information on the leased status of much of this land, the suggested approach should be implemented. Where leases come to an end and FD can take back these lands, consideration should be given for their inclusion in the Recovery Zone, particularly where they are close to Mount Telegraph. The long-term goal for the Recovery Zone is to restore healthy natural forest ecosystems, where feasible. Management priorities are identified according to specific functions of the areas within the zone.

If an area within the Recovery Zone meets specific conditions that can significantly promote biodiversity conservation, it will receive high priority for restoration. Such conditions include the feasibility of:

- ▶ reducing forest fragmentation along the periphery of the natural forest,
- ▶ buffering negative impacts on natural ecosystems,
- ▶ promoting expansion of highly threatened and contracted ecosystems, particularly at lower altitude, and
- ▶ improving survival chances of threatened species.

Rehabilitation activities will usually be a component of site-focused interventions of high priority to preserve threatened resources. The control and/or eradication of alien invasive species and planting of native, non-lumber tree species will be significant rehabilitation activities. Such interventions will usually stretch across all the Zones.

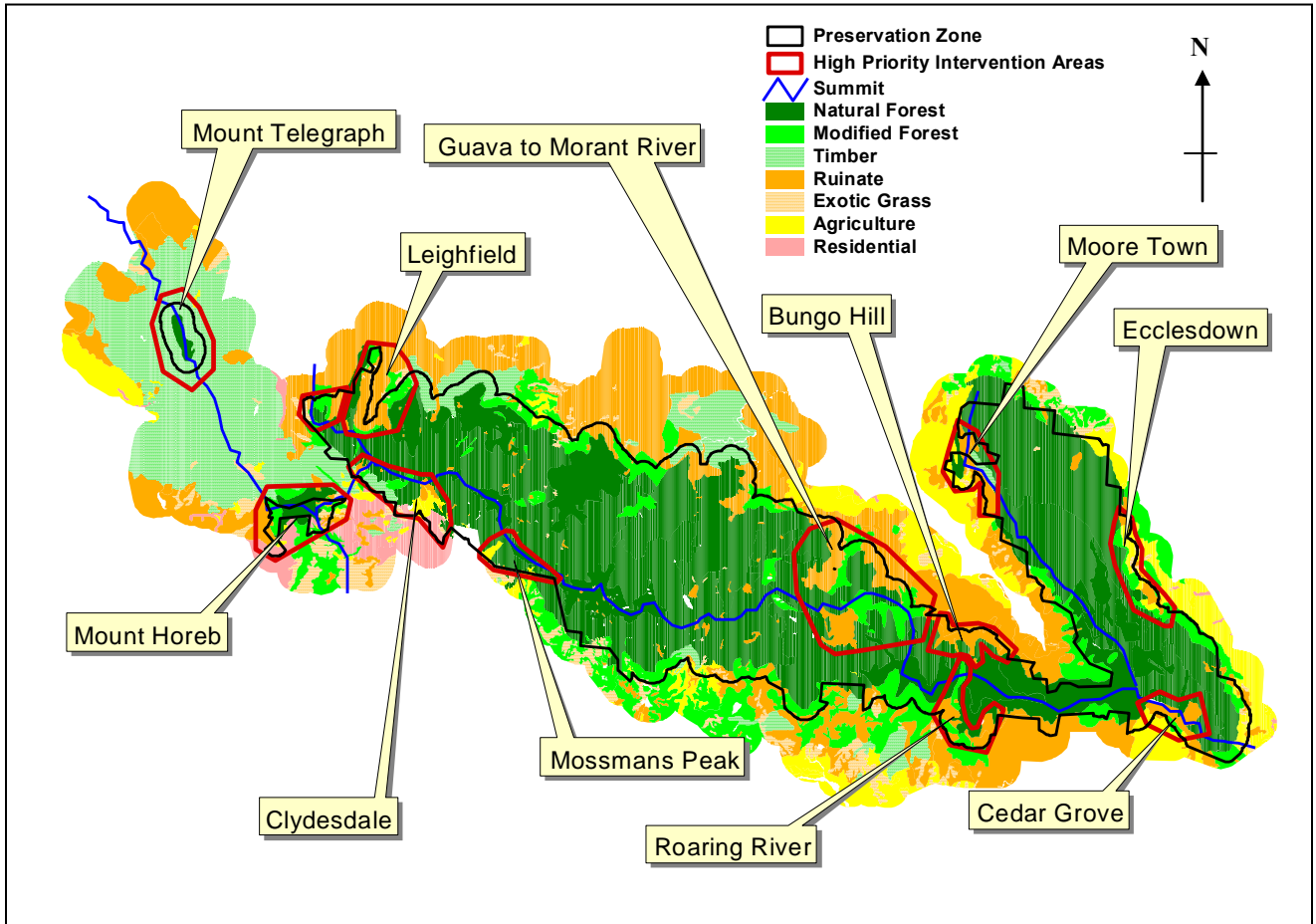
The present Management Plan includes the following restoration areas within the Recovery Zone that have already been highlighted by the REA and previous plans:

- ▶ Mt. Telegraph,
- ▶ Holywell,
- ▶ Clydesdale,
- ▶ Sportsman's Hall, Mabess River Valley,
- ▶ Queensburry Ridge, Arntully,
- ▶ Moore Town, and
- ▶ Forests south of Macungo Hill.

The low lying areas along the east arm of the Morant River and along Guava River are added. The rehabilitation and restoration of these areas and the area south of Macungo Hill, together with interior natural forests, would create an extensive low-altitude forest on shale with elevations at mainly below 600 m.

These areas are highlighted in Figure 5.2 and list in Box 5.1 below as high priority areas for management intervention – specifically, forest rehabilitation. Mt. Horeb and the Clydesdale area received attention under the previous Management Plan, but efforts must be made to expand the areas under restorative activities.

**Fig. 5.2 High Priority Intervention Areas for Rehabilitation**



### 5.2.3. Sustainable Use Zone

The previous management plan recommended that where there are areas within the Recovery Zone that are degraded forest with deep soil and relatively gentle slope, and that are not priority areas for restoration or other management intervention, sustainable land use will be promoted with pilot project and demonstration type projects implemented in order to encourage environmentally sustainable practices. The western Port Royal Mountains has several areas fitting this description and therefore under this management plan, the western PRM has been zoned for sustainable use except for Mount Telegraph which is still within the Preservation Zone.

Much of the western PRM is under lease-hold through the Commissioner of Lands (as described in other sections of this plan). Significant portions of land are being used farming, mainly for Blue Mountain Coffee. The western PRM has a large acreage of plantation forest, mainly Caribbean Pine. Much of this is mature, and ideally should be harvested. Efforts should be made in conjunction with the FD (and possibly the private sector) to harvest this timber in an environmentally sound manner, in order to generate revenue for conservation and sustainable community development. Reforestation should

be conducted with a variety of species as appropriate to the area, depending on the slope and soil depth as indicated above. Where lands can return to FD management, they should re-enter the Park's Recovery Zone, particularly if they are close to Mount Telegraph.

#### **Box 5.1: Priority Areas for Management Interventions**

**Significant encroachment into the preservation zone signal major threats to the natural habitats, and thus point out priority areas for management interventions. Such areas are identified in Fig. 5.2 and further discussed below.**

**Mount Horeb:** The preservation zone is intruded by agricultural and residential areas, and a drive road is crossing. The natural forest covers a relatively small area but is the most significant remaining forest of the PRM. The area also contains Holywell, the park's best developed visiting centre.

**Clydesdale:** Agricultural activities have spread into the natural forest and up to the vicinity of the BM summit. Ruinate woodlands have crossed the summit.

**Mossman's Peak:** Similar to the Clydesdale area, agriculture forms a wedge into the natural forest and approaches (and may have crossed by now) the summit. Only a narrow band of natural forest has remained. The trail to High Peak crosses the area.

**Roaring River to Bungo Hill:** Only an extremely narrow band of natural forest remains, and the summit vegetation is disturbed.

**Cedar Grove, Ecclesdown and Moore Town:** Agricultural activities have spread into the preservation zone along the lower slopes of the John Crow Mountains.

**Guava to Morant River:** The natural forest is breaking apart and is replaced by ruinate woodlands. This area represents one of the lowest-lying sections of the park and contains remains of natural low altitude forest.

**Leighfield:** A large area of ruinate woodland forms a deep wedge into the natural forest, threatening to fragment the western end to the BM.

**Mount Telegraph:** Only a small island of relatively good forest has remained in the northern part of the PRM.

**Monitoring and research activities are needed for these areas to develop comprehensive conservation and rehabilitation strategies.**

A sustainable land-use project should be designed for the Sustainable Use Zone, to conduct outreach to farmers regarding their presence within a Forest Reserve/ National Park, and promoting sustainable land-use with a focus on watershed management and biodiversity conservation. Endemic birds have been found to be particularly useful at controlling the Coffee-berry Borer and should therefore be encouraged within the Sustainable Use Zone, however they require native tree species and areas of even degraded forest as opposed to the existing plantations of Coffee and/or Pine. Agro-forestry inclusive growing of native and other lumber, and fruit trees as well as growing of native, bird feeding trees could be a major component of this project, in addition to the promotion of best practices for sustainable agriculture and watershed management.

#### **5.2.4. Community Buffer Zone**

The 1 km wide band outside the park along its boundary previously defined in the REA and earlier management plans as the Buffer Zone is now renamed the Community Buffer Zone. This is to clearly indicate the difference between this buffer zone and the Preservation Buffer Zone.

It has been argued that since the National Park does not have jurisdiction outside its boundary, that this Buffer Zone should be within the boundary, however this issue was discussed during the management planning process and it should be noted that:-

- (i) the Preservation Zone has two sections – one of which is a buffer for the core, natural or closed broadleaf forest
- (ii) the Recovery Zone effectively acts as a literal ‘Buffer Zone’
- (iii) within the context of the BJCMNP, where there are almost no inhabitants or private lands within the Park boundary, the Buffer Zone is the area in which the Park managers liaise with local community members, and seek to influence human activity that threatens the Park’s ecosystem and habitats.
- (iv) there is significant legislation aside from national park legislation that will be used to curb harmful environmental activities, in particular, the Wild Life Protection Act, Country Fires Act, ‘Litter’ Act (see Appendix 3).

The REA (Muchoney et al, 1993) identified 59 communities in the BJCMNP Buffer Zone with a total population of almost 40,000. In 2006, for the WHS nomination dossier preparation, STATIN was requested to provide demographic data for the community list provided by the REA. Only 50 of the 59 communities were found existing based on the 2001 Census data, and for the purposes of the census, 8 of these were combined to form 4 enumeration districts. The total population was found to be 26,177. This suggests a declining population, perhaps due to migration, as suggested by observation of deserted communities in some of the deepest rural areas, and feedback from community members.

These communities are within the 1km wide band around the BJCMNP boundary, however due to their relevance to the BJCMNP, some communities located outside this band, have been included in the work of the Park over the past five years and even prior



to this, since 1993 when the Park was first established. These are:-

- (i) Irish Town, St. Andrew – due to its proximity to Holywell,
- (ii) Penlyne Castle, Hagley Gap, Minto, Epping Farm in St. Thomas and Mavis Bank, St. Andrew – due to their proximity to the Blue Mountain Peak Trail, and
- (iii) Charles Town, Portland – because of its Maroon community.

When these communities are included, the Buffer Zone Communities number 51 with a total population of 30,210.

It is recognized that many, if not most of the threats to the BJCMNP's biodiversity originate from the buffer zone and further afield. The community members living around the BJCMNP are a permanent feature, and part of the area's natural and cultural resources. They use the resources of the BJCM, sometimes unsustainably, but they are also the ones who see first-hand illegal activities initiated by those outside the buffer zone (who are often large-scale in comparison to community offenders). Without the cooperation and goodwill of the local communities within this zone, the BJCMNP's conservation plans will fail. Thus, much of the management efforts will have to focus on these communities. Enforcement, through regular patrolling of the Community Buffer Zone and involvement of community members, will aim to reduce encroachment of the Park's boundary.

The communities around the BJCMNP are not that different from rural communities elsewhere in Jamaica, and suffer from the same serious developmental problems. It is beyond the capacity of the park management to address their needs comprehensively. However, as far as the BJCMNP is able to create material benefits for people, it will be essential that the people around its boundary are among the primary beneficiaries.

Past efforts by BJCMNP management have not succeeded in providing tangible benefits for local communities along the entire Buffer Zone, but only within a few communities, particularly around the Park's recreational areas. With diminished financial resources and personnel today, this will be even more difficult to achieve. Thus, management efforts will focus on areas and communities where BJCMNP resources are most threatened, as well as on sites where there is significant community interest and likelihood of success that can act as pilot projects to be replicated elsewhere. In addition, based on global park management experience, it will be important to ensure that benefits to local communities are closely and tangibly linked to conservation of the BJCMNP's resources.

The Education & Public Involvement and Recreation & Tourism Programmes will be the route for most of the intervention into the Buffer Zone communities. Awareness and knowledge about the BJCMNP and the importance of natural resource management and sustainable livelihoods will be raised, particularly through the interpretive approach to enforcement used by the National Park Rangers. Capacity building, training, involvement in BJCMNP management, and facilitation of sustainable community livelihoods and enterprise will be the strategic approach to targeting these communities.

## CHAPTER 6

# Conservation of Natural Heritage Programme

Conservation refers to the protection and management of biological diversity - the variety of life forms that exist, which range from genes and species to ecosystems. Conservation of the Park's rich biological diversity (detailed in Chapter 2) requires the investigation of human impacts on biodiversity and development and implementation of practical approaches to preventing the endangerment and extinction of species. As the BJCMNP contains the largest remaining tract of natural habitat left in the island (approximately one third of the remaining area of closed broadleaf forest), and represents perhaps the most biologically diverse area within Jamaica (possibly rivaled only by the Cockpit Country), conservation of the biodiversity contained within it is paramount.

This is not only relevant on a local scale, but the numerous endemic plants and animals make conservation of the area relevant in the global arena; the Blue & John Crow Mountains National Park was included in the WWF-IUCN (1997) list of globally important sites for the conservation of plant biological diversity. According to Dinerstein et al. (1995), the Jamaican moist forest ecoregion is endangered, regionally outstanding, and has the highest regional priority for conservation. The ecoregion is notable for its exceptionally high level of endemism in a wide range of taxa.

Jamaica ratified the Convention on Biological Diversity in 1995, and in fulfillment of its international obligations under the Convention, a National Biodiversity Strategy and Action Plan (NBSAP) was produced in 2003. The first goal of this strategy is to *conserve Jamaica's biodiversity*, and the strategy recognizes the establishment of protected areas as probably one of the most effective means of conserving the island's biodiversity. The objectives and strategies outlined below in this Conservation Programme operate in fulfillment of the National Strategy.

### 6.1 Managing for Ecological Integrity

Ecological integrity is defined as *the ability of an ecosystem to support and maintain a community of organisms that has species composition, diversity, and functional organization comparable to those of natural habitats* (Parrish et. al. 2003). BJCMNP management programmes such as Education & Public Involvement, Recreation & Tourism, and Enforcement & Compliance described in later chapters are important components of the property's conservation purpose in *managing for ecological integrity*. These management programmes seek to engage the *people* who have a stake in the natural resources of the BJCMNP by trying to work with them to change their often unsustainable attitudes and behaviours towards natural resources. The Conservation programme is another aspect of the BJCMNP's conservation goal that seeks to manage the *natural resources* more directly.

## 6.2 Threats and Spatial Vulnerability

The threats affecting individual aspects of BJCMNP biodiversity were discussed in Chapter 4. Overall, these threats may be summarized as: (i) conversion to agriculture, (ii) alien invasive plant species, (iii) harvesting of non-timber products, (iv) logging, and (v) fires. Spatially, there is a distinction in the susceptibility of the Park to these threats, as they affect lowlands (< 600 m), corridors, and edges to a greater extent than the higher altitude interior. Chai and Tanner, 2010 found that forest clearance in the BJCMNP was seven times as high in lowland zones (under 1,000m) than in montane zones and the density of forest fragmentation was eleven times higher. However, they found high endemism in their lowland zone plots (18% of species) and high beta-diversity, indicating the need for special protection for the lower montane areas. They also note that based on IUCN Red List data, 71% of threatened Blue Mountain trees species grow in the lowland zone and of these 92% are endemic. This highlights the importance of the property's lowland zone for conservation of plant species but these areas are also of significance for animal species including several of the BJCMNP's conservation targets. Of particular note are the Giant Swallowtail Butterfly, the Jamaican Coney and Jamaican Boa, which are virtually non-existent in their natural state over the entire island.

Being comprised of three distinct mountain ranges (the Port Royal Mountains, the Blue Mountains and John Crow Mountains), the connection corridors between these mountain ranges are of vital importance in maintaining this contiguous tract of protected area. The corridors - Silver Hill Gap and Corn Puss Gap - facilitate the movement of species between the mountain ranges which would otherwise be isolated from one another, and thereby resulting in fragmentation of the protected area. These narrow corridors have themselves, been found to harbour rich biodiversity, with spectacular areas such as Cunha Cunha Pass and Mount Horeb, in close proximity.

The edges of the BJCMNP are especially vulnerable to the threats highlighted earlier, because edges are more accessible to impinging influences. The situation is of particular concern on the southern slopes of the BM range, where the Grand Ridge is very close to the boundary, and clearing outside is advancing to the very peak of the Blue Mountains.

### **Mining**

Whilst not an immediate threat, mining is a potential threat that has not been considered with respect to the BJCMNP, although it is a serious threat for the other area in Jamaica that may be considered of outstanding universal value for both natural and cultural heritage – the Cockpit Country. Technically, mining is only illegal under the National Parks Regulations if it is done without “the written permission of the Authority” and can be done if “in accordance with the provisions of a licence granted under any other enactment”. The Forest Act does not specifically mention the issue of mining though it indicates that taking “soil, sand or gravel” from a Forest Reserve is an offence. When the strong lobbying power of the mining industry and the legal jurisdiction of the Mining Act are taken into consideration, it cannot be assumed that permission for mining will not be granted. Further, there are apparently, permits for investigative mining, within the BJCMNP, granted before its declaration.

It is therefore essential for studies to be conducted with respect to these permits and their precise locations, the likely environmental and social impacts and also for economic valuation of the BJCMNP and relevant areas within it. Further, cost/benefit studies need to be conducted as the critical issues will not focus so much on, ‘what is the value of the resources or the services they provide ?’, but rather on, ‘how might mining reduce or negate these values ?’ and ‘what would be the financial impact on society and the economy ?’ In addition to the studies, there will need to be public awareness raising and lobbying for change in the legislation as appropriate based on the studies.

Bearing in mind the threats to the property’s biodiversity and ecological integrity and within the context of an over-arching conservation purpose for the BJCMNP, the Natural Heritage Conservation Programme reflects the BJCMNP’s over-all goal. The Conservation Programme Goal will be met through objectives implemented over a five year period as indicated in the table below.

**Table 6.1 – Natural Heritage Conservation Programme Goal and Objectives**

<b>Programme Goal</b>	
<i>To maintain and enhance the remaining area of closed broadleaf forest and component species of plants and animals which exist in the Blue and John Crow Mountains.</i>	
<b>Objective 1</b>	To rehabilitate and maintain at least 120 hectares of degraded forest on shale and limestone in the priority intervention areas
<b>Objective 2</b>	To successfully propagate and supply 22,000 native seedlings for use in forest rehabilitation, including at least 4 additional native species one of which is threatened.
<b>Objective 3</b>	To promote research that will inform park management, but will not threaten the resources.
<b>Objective 4</b>	To implement specific conservation programmes for conservation targets, as relevant information becomes available.

In order to achieve the Programme Goal, natural forest must be maintained and enhanced through rehabilitation programmes that address degraded areas including those invaded by alien species and appropriate tree species must be propagated to use. Further, maintaining forest cover will ensure healthy habitat for the many plant and animal species that make the forest ecosystems their home. Finally, maintenance and expansion of forest cover will help mitigate against climate change and reduce vulnerability to its impacts. Research is needed to identify other specific conservation tools which can then be implemented to enhance the Conservation Programme.

### **6.3 Reforestation and Forest Rehabilitation**

Between 2005 and 2009, Park management through JCDT focused on reforestation using a variety of native species and forest rehabilitation through the control of the alien invasives Wild Ginger (*Hedychium* sp.) and Wild Coffee (*Pittosporum undulatum*). This was very successful, with over half the Management Plan objective of 80ha being met by JCDT with 15.8 hectares controlled of invasive species and 26.5 hectares reforested with

native, non-lumber species (Otuokon, 2010c). Just under half of the objective was met by the Lions Club of Mona with the Forest Conservation Fund and Forestry Department.

Aside from the use of mainly native, non-lumber tree seedlings, the approach to reforestation followed Forestry Department guidelines. The seedlings were planted in lines in pegged holes, with a minimal area cleared of weeds and maintained by circle-weeding, to ensure strong growth of the seedling without over-growth by fast-growing shrubs. The density of planting was about 400 – 500 seedlings per hectare depending on the terrain and the existence of other forest trees.

The previous Management Plan described forest rehabilitation as an approach in which conditions are created that will allow natural regeneration of the forest e.g. control of invasive species. This too was an experimental approach for Jamaica and JCDT conducted pioneering research on the eradication of *Pittosporum* along the Blue Mountain Peak Trail, with funding initially from the Rufford Foundation. Over the five year period, the successful experience was transferred to Holywell and plots in Cinchona. The slow death of adult trees (after injection with Glyphosate) and the pulling of saplings results in new growth of *Pittosporum* seedlings, but also of native trees from the soil seed bank. Maintenance is therefore essential, in terms of regular removal of seedlings and saplings to encourage the growth of the two or three native seedlings planted as well as those emerging through natural regeneration. Experimentation with the eradication of *Hedychium* sp. used mechanical removal and chemical treatment, at Mount Horeb for the former and Holywell for both approaches. At Mount Horeb where there is more shade from old-growth forest, regeneration with native species was faster than at Holywell where many of the plots were more exposed to sunlight and a variety of other invasive species such as grasses tended to grow back before native tree seedlings. It was also found that by the second or most third mechanical removal (and with increased skill of workers in removing all the rhizomes) that the *Hedychium* did not grow back. The approaches described in the previous Management Plan were therefore successfully piloted at Mount Horeb and along the Peak Trail, and lessons learned used to improve the methods for implementation on a wider scale.

Based on this success, the focus for 2011 through 2016 will be on maintenance of the areas rehabilitated between 2005 and 2010 and rehabilitation of new sites using the same methods. Greater collaboration with the Forestry Department and its other reforestation partners, in terms of more use of these techniques is also anticipated.

With Jamaica's rate of deforestation estimated at 0.1%, the area targeted for reforestation should probably be increased from the 80 ha target in the previous Plan to 244 ha. However, assuming (based on Chai et al., 2009) that deforestation is occurring at a much reduced rate within the BJCMNP, a target of half that (122ha) may be reasonable. The target of 80ha was 2.7% of the priority intervention sites identified, so 122ha would be 4%.

**Objective 1: To rehabilitate and maintain at least 120 hectares of degraded forest on shale and limestone in the priority intervention areas.**

**Strategic Actions**

1. Spatial, Temporal and Site specific approaches.

The spatial focus of rehabilitation within the BJCMNP boundary, will be the lowland zones, under 1,000 metres, as these have been identified as having the highest level of threat and significant biodiversity value (Chai and Tanner, 2010). Further, these areas will be within the priority intervention zones previously identified through satellite imagery as being degraded (See Chapter 5). Ground-truthing will identify the exact locations which will have to be accessible.

Rehabilitated areas provide suitable habitats that foster increased populations of native BJCM flora and fauna. Site-specific approaches e.g. species selection, will be developed depending on the conditions at each location. Hence in some areas traditional reforestation approaches, but using native, non-lumber species, will be used, whilst in others, natural generation will be facilitated, primarily through eradication of invasive species. Invasive control will focus on the top three species – *Pittosporum*, *Hedygium* and *Polygonum chinense* (Redbush), with work continuing on *Gleichenia*, and starting on *Polygonum*.

There will be a temporal split in the approaches, with reforestation tending to occur in the rainy seasons (except for any north-facing slope sites where rainfall tends to be fairly steady year round) and invasive species control, especially for *Pittosporum* occurring in the drier seasons, as this was found to be more successful.

2. Collaboration with Government Agencies. A critical assumption is that this objective will be met through collaboration between JCDT, as the NRCA appointed National Park manager and the Forestry Department which still retains responsibility for the management of the Forest Reserve. JCDT will aim to rehabilitate at least 60 hectares over the five year period, and it is anticipated that at least the same will be rehabilitated by the Forestry Department in conjunction with other partners. Collaboration will include determining locations in a coordinated fashion and assisting each other with seedlings and other resources as possible.

3. Collaboration with Buffer Zone farmers. Work will continue with community members and farmers, particularly on southern facing slopes and lower montane areas, to plant a variety of trees on their land and consider agro-forestry. Liaison with farmers to eradicate *Pittosporum* on farms near the BJCMNP should be considered. These strategies will prevent the property from becoming an “island” and will enhance biodiversity which will be good for conservation and sustainable tourism in the Buffer Zone.

4. Maintenance is essential, therefore funding will continue to be sought not only for initial planting/invasive species control, but also for maintenance e.g. circle-weeding

for at least two subsequent years. About 30ha from the previous Management Plan will require maintenance within the first year of this new Management Plan.

5. Data collection and research. Effort will be made to enhance data collection and research into the approaches used and their success, in order to provide a guide for future work. BJCMNP management should keep up-to-date with best practices from around the world and particularly on tropical islands.

#### 6.4 Propagation of Native Non-lumber Tree Species

The vast majority of the over 18,000 tree seedlings (mainly native non-lumber) used for forest rehabilitation in the BJCMNP between 2005 and 2009 were produced in the BJCMNP nurseries at Holywell and Hagley Gap. The previous Management Plan proposed use of native non-lumber species to increase floristic diversity in reforestation plots, thus promoting faster rehabilitation and reducing the chances of cutting of the trees for lumber. This approach was taken despite the limited knowledge regarding these species and the fact that prior to this, well-known and presumably faster-growing introduced or native lumber species were generally used for reforestation.

Despite inadequate funding for detailed research, a pilot project approach was used and the following species were successfully propagated in the Park's nurseries mainly through the pulling of wildings: *Sapium jamaicense* (Milkwood), *Alchornea latifolia* (Dovewood), *Clethra occidentalis* (Soapwood), *Podocarpus urbanii* (Mountain Yacca). By 2009, pilot projects had been initiated with the harvesting of seeds from the wild, as a more conservation appropriate method (although the majority of wildings have been found to die back in large numbers when left under the parent tree). There is still a need for further research and an increase in the variety of species, particularly of endemic and threatened ones.



Plate 19: Dovewood and Milkwood seedlings delivered for Reforestation (Source: JCDT)

**Objective 2: To successfully propagate and supply 22,000 native seedlings for use in forest rehabilitation, including at least 4 additional native species one of which is threatened.**

Limited availability of seedlings and limited resources generally has been a challenge for the Conservation Programme.

**Strategic Actions**

1. Improve nursery management. Production must be improved significantly, in terms of consistent quantity and quality of seedlings and the variety of seedlings particularly native, endemic and threatened including *Juniperus lucayana* (Juniper Cedar).
2. Sustainability. The nurseries must become self-sustaining and therefore seedlings will have to be sold to projects (possibly at a discounted rate) and at a commercial rate for lumber, ornamentals, herbs and other horticultural species. Marketing and sales will be critical for the latter and must become of greater focus, as the survival of the Conservation Programme depends on this.
3. Propagation started mainly with the use of wildings, but has been moving towards propagation from seeds, however this will continue to require experimentation and careful recording of findings in order to improve the approaches. Park management should research best practices for propagation of plants for conservation to help guide its own approaches. In order to obtain seeds, a system will have to be developed and implemented, to identify the location of “seed trees” and to monitor them for production, so that seeds can be harvested. National Park Rangers will need to be alert to the trees for which seeds are being sought so that these can be identified and mapped during patrols. No more than 30 – 50% of seeds from any one plant should be taken. Efforts should also be made to harvest the seeds of epiphytes such as bromeliads and orchids, since this is a conservation target. Park staff will have to be alert to the presence of fruits on these plants, so that the fruit can be bagged when near to ripening, in order to catch the seeds as the pod bursts.

**6.5 Research**

Tropical forest ecology has been researched in the BJCMNP for many years, by noted ecologists such as Bellingham, Kelly, Iremonger, McDonald and Tanner. Tanner’s research plots are the second oldest in the neotropics (the oldest are in Puerto Rico). Much of this work has elucidated our understanding of ecological concepts and guided the strategies of the National Park’s management plans.

Whilst there has been significant research conducted within the National Park, not all of it has been published, and park management do not necessarily have access to it. As per the previous Management Plan’s fourth objective, research was promoted through the dissemination of the Plan’s Research Prospectus, presentation of papers at conferences and presentations to student groups particularly at the University of the West Indies. Further, NEPA integrated JCDT, as Park manager, into the permits application process



when researchers requested permission to conduct research in or near the BJCMNP boundaries. This allowed for recommendations relevant to BJCMNP management to be incorporated into permits and perhaps more importantly, introduced researchers to management staff resulting in opportunities for the Conservation Science Officer and National Park Rangers to accompany researchers in the field. Partnerships were developed and/or strengthened, with four academic institutions, which have already begun to benefit BJCMNP management.

Despite the above-mentioned success, numerous gaps in knowledge still remain. For many species, the current population distribution or status is in need of updating and as mentioned above, the investigation of conservation needs for some threatened species is lacking. Apart from this, basic species inventory information, research dealing with the ecological relationships between these species is also required. Almost nothing quantitative is known about the use of the biodiversity by man (harvesting regime) and the effects of this hunting and collecting of species. These information gaps continue to be a hindrance to the implementation of appropriate management strategies, as management oriented research is necessary to provide the scientific basis for developing solutions. The promotion of research will therefore continue over the next five years.

At the same time, it will be important to ensure that negative impacts on the BJCMNP's biodiversity and ecosystem integrity are kept to a minimum through careful control of the types of research given permission, numbers of specimens collected and supervision. Research requires the exploration and opening up of possibly vulnerable locations, and there have been instances where research has led to intense harvesting of the study species by the local field guide, and forest research into disturbance regimes has often called for the creation of gaps in otherwise relatively undisturbed forests. Caution must therefore be taken to mitigate against damage to the BJCMNP's resources.

### **Para-taxonomists**

A para-taxonomist is an individual who has received informal training in taxonomy, particularly with respect to collecting specimens in the field. Such persons are usually local community members or protected area field staff, who by virtue of their living or working situation are able to assist taxonomists and other natural scientists in their research, and protected area managers in their work. The ability to identify species is useful for all aspects of BJCMNP management including tour guiding and interpretation.

Training para-taxonomists is essential to this conservation programme, as this has relevance for all four conservation objectives. Staff will need to be familiar with the species they are trying to conserve, and the identification of threatened, endemic, invasive, and native species for replanting is a necessary skill for those involved. Over the past five years implementing the previous Management Plan, there has been an emphasis on increasing species identification ability amongst National Park Rangers in particular. This has been done mainly by having National Park Rangers accompany researchers in the field and organizing field training with a variety of experts. Through the Education and Public Involvement Programme, several youth have received basic

training as well. There is a need to increase the number of community members with this training and to improve the level of species identification skills amongst BJCMNP staff.

**Objective 3: To promote research that will inform park management, but will not threaten the resources.**

**Strategic Actions**

1. Research Prospectus. Appendix 6 contains a Research Prospectus for the Park that should be added to as gaps in knowledge are identified. Whilst the prospectus was disseminated fairly widely in 2005 and 2006, it was not promoted as much as necessary. Promotion to research institutions must increase, to encourage them to conduct research that will help to fill some of these knowledge gaps. Increasing the level of information within the Prospectus should help. This initiative will facilitate information on the BJCMNP being readily available to prospective researchers. Existing websites e.g. Jamaica Clearing House Mechanism, the NRCA and Forestry Department websites should be considered for hosting or linking with the prospectus.
2. Participate in conferences. Park management should endeavour to participate in conferences and workshops to present information and papers on the BJCMNP. Papers and reports on the conservation and other programmes should be available on the BJCMNP's website and also should be sent to relevant networks for dissemination. Dovetailing with Objective 4, the Conservation Science Officer should arrange a half-day seminar annually with academic and other experts to present information (particularly pilot projects) and promote research in the BJCMNP.
3. Field Stations. The previous Management Plan suggested the establishment and maintenance of field stations in the three Ranger Stations in the Park - Holywell, Portland Gap and Millbank, to facilitate and encourage research efforts as well as to earn revenue. Unfortunately, with limited resources, there was an inability to even conduct the level of repairs required at the Ranger Stations. This meant that the repairs and expansion to include work spaces, lighting and equipment such as microscopes was not possible. Despite this, researchers and study tours were accommodated, particularly at Holywell. Field stations should still be considered and implemented where and when possible.
4. Research Permit System. For easy reference to research applications, a Research Log (Appendix 7) will continue to be kept for research activities occurring in and around the BJCMNP. Park management will continue to try and establish relations with visiting researchers and accompany them on field expeditions. This proved fairly successful under the previous Management Plan and is facilitated through NEPA's Research Permitting System under which scientists must obtain permission from NEPA to conduct research and collect specimens in Jamaica. Through this System, NEPA informs Park managers of proposed research, and allows them to comment on whether or not the research should be permitted, or to indicate any concerns regarding the research or collection. The System ensures that researchers are aware that their research is within a protected area, and allows park management to liaise with the

researcher to establish a relationship. JCDT should have discussions with NEPA regarding the research permits application process to ensure clear understanding of the procedures and any relevant legislation, in order to promote these to researchers, as part of the Park's Research Prospectus.

In addition to the above, in order to improve this System, Park management should:-

- ensure clear understanding of the Permitting System, so that this information can be included along with the Research Prospectus and that the System can be explained to researchers who may contact the BJCMNP directly.
- have discussions with NEPA and other relevant agencies to develop mechanisms to encourage the repatriation of research knowledge.
- consider development of a protocol for monitoring research in the BJCMNP.
- continue to ensure monitoring of researchers in the field to check that sample collection in the field corresponds to what has been permitted.
- alert cooperating CBOs and concerned community members when researchers will be in their area, so they can look out for researchers and query their permits.

## **6.6 Conservation Targets**

Clearing and invasive species are two of the greatest threats to forest protected areas globally (Bruner et al., 2001) and were high on the list of active threats identified for the BJCMNP (TNC/JCDT, 2000; JCDT, 2005). These two threats reduce the population of native species, decrease habitat for wildlife and deplete biodiversity. Analysis of the BJCMNP's bird monitoring data indicates that native and endemic species are dependent on healthy, closed broadleaf forest (Vogel, 2004; Beale, 2010). This was the basis for the assumption in the previous Management Plan, that conservation of 'forest on shale' and 'forest on limestone' would have a positive impact on most of the other targets, particularly epiphytes, freshwater ecosystems and forest birds. The validity of this assumption has been confirmed by the findings of the BJCMNP's Five Year Assessment and analysis of the data from the Monitoring and Evaluation Programme (Otuokon, 2010c; Beale, 2010). Further, limited resources and knowledge regarding specific conservation needs reduce Park management's ability to implement direct species conservation activities.

The eight conservation or biodiversity targets identified in the previous Management Plan will remain (Table 6.2) however in light of the above, forest conservation through enforcement action to prevent and stop encroachment, maintenance of rehabilitated areas and rehabilitation of additional areas, will once again be the focus of the BJCMNP Conservation Programme. There will be a focus on lower montane forest on shale as this has been identified as the most threatened target and of high significance for biodiversity and endemism (Chai and Tanner, 2010). The other targets will however, continue to be monitored and research into specific conservation requirements will be more actively promoted, so that direct action where possible can be implemented.

**Table 6.2 – BJCMNP Conservation Targets**

<b><i>Conservation Target</i></b>	<b>Target Justification</b>
<b><i>montane forest on shale</i></b>	Blue Mountain forest ecosystem with over 40% plant endemism, many with a threatened status. Contracting forest habitat for dependent wildlife.
<b><i>montane forest on limestone</i></b>	John Crow Mountain forest ecosystem and Blue Mountain limestone outcrops with high plant endemism, many with a threatened status. Contracting forest habitat for dependent wildlife.
<b><i>epiphytic communities</i></b>	Major grouping of plants, including many endemic and highly threatened orchids and bromeliads, the latter of which are important habitats for many of our endemic species of <i>Eleutherodactylus</i> frogs.
<b><i>headwater ecosystems</i></b>	Vital headwater ecosystems that supply water to eastern Jamaica, and cover 10 watershed management units.
<b><i>montane forest birds</i></b>	Major grouping of native and migrant species. Natives with a high level of endemism and similar conservation requirements.
<b><i>Jamaican Coney</i></b>	Last remaining native, non-volant mammalian species high in the food chain. It is vulnerable and endemic.
<b><i>Yellow Snake</i></b>	Large, vulnerable, reptilian, endemic species often killed on sight by local people.
<b><i>Giant Swallowtail Butterfly</i></b>	Endangered, endemic, flagship species affected by illegal trade.

**Objective 4: To implement specific conservation programmes for conservation targets, as relevant information becomes available.**

The status of the BJCMNP’s biodiversity was discussed in Chapter 2, noting that hundreds of species both plants and animals are regarded as threatened according to the IUCN’s Red List (2003). In fact, there are threatened species within every taxonomic class represented, and the underlying common thread is that habitat degradation and destruction is one of the main contributing factors to their threatened status.

The protection of these threatened species of plants and animals is essential to the conservation of the BJCMNP’s resources, as all species work together and contribute to the functioning of an ecosystem. Especially where endemic species are concerned, their conservation is vital, as it is these species that bestow uniqueness and acclaim to the ecosystems they are part of. While general programmes involving reforestation, education and enforcement of legislation will confer some measure of conservation to threatened biodiversity, the conservation needs of these threatened species must be more fully understood and implemented.

## **Strategic Actions**

1. Montane Forest. As indicated above, protection through enforcement and education as well as rehabilitation and expansion of area through reforestation will continue. This will be with an emphasis on lower montane forest on shale.
2. Epiphytic Communities. Efforts to propagate native orchids and bromeliads can be implemented with relative ease at Holywell through keen observation to identify fruiting bodies for capture of seeds, as recommended for Objective 2. If the seeds can be successfully propagated and plants grown for use in forest rehabilitation, this would result in the implementation of a conservation programme for epiphytes – one of the conservation targets.
3. Head-water ecosystems. The focus on conservation of another target – headwater ecosystems through forest rehabilitation along riparian zones has been eliminated as a specific management objective for this management period. However, in all areas targeted for forest rehabilitation under Objective 1, checks must be done to see if there are any riparian areas requiring rehabilitation. Further, during freshwater monitoring, where streams are identified with need for rehabilitation these should be addressed.
4. Conservation of all Targets. This will continue to be met through the conservation of the montane forest ecosystems as described earlier.
5. Implement research guidance regarding species conservation approaches. It is anticipated that with a greater level of research promotion, there may be information becoming available within the next five years that can enhance the conservation of targeted species. As Park management has an adaptive management approach, it should be possible as such information becomes available, to adjust programmes as appropriate. Where new programmes will be required, these will be dependent on the ability of Park management to access funding.

## **6.7 Scientific and Technical Advisory Committee (STAC)**

Park management recognizes that conservation, research and monitoring activities are very technical issues and often require expert opinion and advice. As the BJCMNP covers a broad range of ecosystems and ecological communities, it would be virtually impossible to hire experts in each of the fields required. A Scientific and Technical Advisory Committee (STAC) would provide guidance for management, based on the best available scientific knowledge and promote and assist with research and monitoring.

The previous Management Plan, suggested that operating such a Committee was unlikely to be feasible and recommended other approaches and annual meetings. There were no annual meetings of experts, only the consultation for the UNESCO World Heritage Site nomination dossier and the 2011 – 2016 management planning meetings, which involved few academics.

The approach for 2011 to 2016 will therefore continue to be for the Conservation Science Officer to participate in national committees to share the work of the BJCMNP, obtain guidance and support, and promote coordination and collaboration between agencies and organizations. The STAC will consist of an informal group of experts who are called on from time to time, as their expertise is required. Efforts should still be made to hold at least one meeting (in the form of a half-day seminar) per year to share the work of the BJCMNP, seek guidance and promote research in the BJCMNP.

## **6.8 Climate Change**

Soil erosion and associated land degradation are Caribbean-wide phenomena, however climate change is likely to increase their negative impacts, through increased seasonal rainfall following long spells of drought (McGregor, 1995). The Blue and John Crow Mountains region is particularly vulnerable because of the steep slopes, heavy rainfall and rapidly draining soils (Davis-Morrison, 1998). Thus soil erosion which may result in the breaking up of trails and roads is a likely impact of climate change in the area. In fact, the Peak Trail and other trails within the BJCMNP are already being impacted by increased soil erosion from increased rainfall during more frequent tropical storms and hurricanes. Outside the BJCMNP, communities are being negatively impacted by serious damage to roads which has affected their accessibility.

Climate change may also result in an upward migration of vegetation and wildlife (to find the appropriate temperature for their growth and reproduction) however this can only be monitored, and there is unlikely to be any mitigatory type action available. The Monitoring and Evaluation Programme describes suggested monitoring activities.

Park management has observed significantly more hurricane damage to forest trees in heavily disturbed sites e.g. recreational areas and along trails, in comparison to undisturbed forest. This supports the need to discourage the opening of new or existing trails, and additional recreational areas within the BJCMNP's boundaries.

Protecting ecosystems through protected area management, has been proven successful in buffering human settlements and resources from natural disasters such as hurricanes, landslides and flooding (Loh, 1996; IUCN/WCPA, 2008). Further, forests and other ecosystems are important for carbon storage, reducing the amount of carbon dioxide that can contribute to global warming (Mackey et. al., 2008). Hence, the BJCMNP managers will use the Conservation Programme as a key strategy to address climate change, including encouraging the conducting of research that may better guide management action. Further, as described in various papers presented by Park staff at conferences, all the BJCMNP programmes contribute to adaptation to climate change.

## Programme Summary: Conservation

**Goal: To maintain and enhance the remaining area of closed broadleaf forest and component species of plants and animals that exist in the Blue and John Crow Mountains.**

Objectives	Programmes/Strategies	Activities	Monitoring	Resources	Timeframe & Priorities
1. To rehabilitate, and maintain at least 120 hectares of degraded forest on shale and limestone, in the priority intervention areas.	<p>1. Work with FD to achieve objective of 120ha (JCDT aims for 60ha)</p> <p>2. Target areas within the BJCMNP in lowland zones (under 1,000m) and areas identified as priority intervention areas due to large gaps in forest cover</p> <p>3. As appropriate in each location:-                      (a) reforest with native, non-lumber species, or                      (b) eradicate and control invasive species and allow natural regeneration                      (c) collect &amp; record data</p> <p>4. Maintain rehabilitated areas (for 2 – 3 years)</p> <p>5. Promote tree-planting and agro-forestry on private land in the Community Buffer Zone</p>	<p>1a. Liaise with FD to identify and map areas for rehabilitation</p> <p>1b. Agencies sign agreements committing to area targets</p> <p>1c. Monitor target achievement</p> <p>2. Identify areas for reforestation or invasive species eradication and prepare site specific plans</p> <p>3a. Implement site specific plans</p> <p>3b. Measure and record data and produce reports e.g. on growth rate</p> <p>3c. Conduct study on best practices for invasive species control</p> <p>4. Maintain rehabilitated areas through patrols to prevent encroachment, circle-weeding and re-planting of seedlings where necessary</p> <p>5. Liaise with community members for provision of labour and promotion of reforestation and <i>Pittosporum</i> control on private land</p>	<p>Measurement and mapping of locations; Agreements and reports</p> <p>Monitoring:-                      (i) establishment success and growth rates                      (ii) success of eradication and control of invasives</p> <p>Diversity measurements in sample plots</p> <p>Reports and research papers</p>	<p>CSO Ranger Corps Labour</p> <p>Estimated cost for 120ha is JA\$18 million to cover labour, seedlings, transportation, supervision &amp; maintenance</p> <p>Estimated cost to maintain 30ha from previous 5 years is JA\$3 million</p> <p>Community outreach JA\$500,000</p>	<p>1– 4. Ongoing High Priority</p> <p>5. Project for 2014 unless funds before</p>
2. To successfully propagate and supply 22,000 native seedlings for forest	<p>1. Improve production at both Holywell and Hagley Gap nurseries – quantity, quality and variety, for</p>	<p>1a. Improve management and supervision of nurseries.</p> <p>1b. Identify seed(ling) sources for target trees and collect seed(lings)</p>	<p>Monitoring growth of seedlings – nursery</p>	<p>CSO Ranger Corps Nursery staff volunteers</p>	<p>1. Ongoing from 2011. High Priority</p>

**Programme Summary: Conservation**

**Goal: To maintain and enhance the remaining area of closed broadleaf forest and component species of plants and animals that exist in the Blue and John Crow Mountains.**

Objectives	Programmes/Strategies	Activities	Monitoring	Resources	Timeframe & Priorities
rehabilitation, including at least 4 additional native plant species one of which is threatened	rehabilitation and sale 2. Improve marketing and sale of commercial plants to ensure sustainability of nurseries 3. Increase propagation from seeds e.g. epiphytes	1c. Propagate seedlings. 2. Prepare business plan and implement marketing and sales programme to ensure financial sustainability of nurseries 3. Locate seed plants & source seeds in season to propagate	records; mapping of location of seed trees and recording time for seed collection	Nursery equipment and materials; Plan: JA\$500,000 Maintenance and repairs JA\$500,000/yr	2.2011  Nursery repairs as needed 3.Start 2012
3. Promotion of research that will inform Park management, but will not threaten the resources	1. Maintenance and promotion of Research Prospectus to universities and researchers. 2. Screening of all research proposals planned for the Park. 3. Maintenance of a database for research activities carried out in and around the Park. 4. Involvement in research activities that take place within the Park. 5. Establishment and maintenance of research stations at ranger stations. 6. Regular dialogue with relevant agencies and experts.	1a. Provide information to researchers. 1b. Increase details in Prospectus. 1c. Promote Prospectus on the internet including links e.g. to JA CHM, NEPA and FD 2. Liaise with NEPA to clearly understand permit application process in order to promote this to researchers and advise relevant community groups of researchers 3. Respond in a timely and appropriate fashion to research permit applications from NEPA and maintain data-base of research. 4a. Accompany researchers in the field on at least one occasion. 4b. Seek assistance from researchers for Park management e.g. training field staff and community members 5. Conduct repairs and improve	Research activity database  Correspondence with NEPA  Correspondence with researchers  Repair records	CSO All technical staff  Mainly time of personnel and transportation to meetings and for field visits  5.JA\$2 million to upgrade Ranger Stations for use as field stations	1 – 4. Promotion of research is ongoing and High Priority.  5.2012 – 14 if funds sourced. Medium Priority – may be phased process.



**Programme Summary: Conservation**

**Goal: To maintain and enhance the remaining area of closed broadleaf forest and component species of plants and animals that exist in the Blue and John Crow Mountains.**

Objectives	Programmes/Strategies	Activities	Monitoring	Resources	Timeframe & Priorities
		ranger stations, making them suitable for use as research stations. 6a. Participate on relevant committees and in conferences as possible. 6b. Meetings with relevant experts as necessary and a seminar once a year to share results and seek advice.	Meeting & Conference information	6. Funds for half day meeting with STAC, holding of seminar etc. JA\$500,000	6.Ongoing and High Priority – less funds can be used e.g. ½ day seminars.
4. To implement specific conservation programmes for conservation targets as information becomes available	1. Continue Implementation of conservation measures for targets:- (i) forest rehabilitation (ii) habitat conservation for epiphytes and animals (iii) propagation of epiphytes  2. Encourage researchers to assess the conservation needs of threatened biodiversity, focusing on the conservation targets.  3. Implementation of newly identified conservation measures where possible, as information becomes available	1a. Implement conservation measures as per other Conservation Programme objectives i.e. forest rehabilitation and Enforcement Programme resulting in habitat conservation 1b. Propagate epiphytes and threatened species for forest rehabilitation  2. Promote these assessments in the research prospectus.  3a. Seek funds and implement study re: threat of mining 3b. Integrate newly identified conservation measures into existing programmes where possible and seek funds for conservation measures where needed.	Conservation Science Officer Reports	CSO Ranger Corps  Programme funding for Objectives 1 and 2  3a. JA\$2 million 3b. Project funding JA\$2 million	1.Ongoing and High Priority  2.As for Objective 3  3a. Medium Priority 2012/13 3b. Low Priority dependent on information and funds

## CHAPTER 7

### Conservation of Cultural Heritage Programme

Heritage, according to the UNESCO World Heritage Centre website is, “our legacy from the past, what we live with today, and what we pass on to future generations” (<http://whc.unesco.org/en/about> downloaded 14/06/10). Whilst the BJCMNP was initially protected for its natural heritage – forest ecosystems and the services those systems provide, the area is well known for its rich cultural heritage. Most recently, this has been recognized through the nomination of the property as a UNESCO World Heritage Site, not only for its biological diversity, but also for its direct and tangible association with the events that established first Maroon societies post-1492 (and of the Western Hemisphere) and the living traditions of the Maroons today. This step is a reflection of the approach taken to management of the site as a national park, regarding its outreach to, and involvement of, local communities, of which the Maroons are a part. Further, recognizing the linkages between natural and cultural heritage and heritage conservation, activities such as the annual Misty Bliss festival and youth skills training sought to address these. The nomination of the BJCMNP for its Maroon heritage commits Park management to addressing the conservation of this heritage in a much more organized and targeted manner than previously. This chapter aims to guide that process and indicates links with the other management programmes, through which the aims of cultural heritage conservation will be achieved.

Culture is, “...the whole complex of distinctive spiritual, material, intellectual and emotional features that characterize a society or social group. It includes not only the arts and letters, but also modes of life, the fundamental rights of the human being, value systems, traditions and beliefs” (UNESCO,1982). In the past, cultural heritage conservation has tended to focus on tangible heritage such as monuments, buildings and artefacts however a variety of conventions and declarations have recognized the importance and vulnerability of oral and intangible heritage. The 2003 Convention defines intangible cultural heritage as the practices, representations, expressions, knowledge and skills, as well as the instruments, objects, artefacts and cultural spaces associated therewith, that communities, groups and, in some cases, individuals recognize as part of their cultural heritage (Article 2.1). The many forms of intangible heritage include language, literature, music and dance, games, culinary traditions, rituals, knowledge and practices concerning the universe and know-how linked to handicrafts.

Much of the heritage of the Windward Maroons is intangible due to the destruction by the English of much that was tangible, and the mobile lifestyle the Maroons adopted to aid in their struggle for freedom. Conservation in the context of cultural heritage refers not only to the preservation of that heritage but to its protection and management through living traditions. Conservation of the BJCMNP’s Windward Maroon heritage (described in Chapter 3) therefore requires working closely with the Maroon people in the Buffer Zone, and other relevant stakeholders, particularly the JNHT and ACIJ to revitalize and sustain this heritage.

Intangible heritage is vulnerable to the forces of globalisation, social transformation e.g. through urbanization, and intolerance. Loss of indigenous language is often a precursor to the loss of intangible heritage, as it is a critical component in the communication of oral traditions. Often, local and indigenous communities, particularly young adults view their cultural heritage as backward and an obstacle to their success in the modern world. These matters require attention both within such communities and in their external environment. This is of relevance in Jamaica, where at one point, Maroons were reviled for their perceived ‘sell-out’ of their black brothers remaining in slavery, through their agreement to return runaway slaves to the English as a part of the Peace Treaty. Further, there are apparent issues of conflict between some Maroon beliefs and practices and Christian teachings which creates tensions in the minds of some Maroons, affecting their willingness to participate in Maroon traditions. Another situation has been a refusal on the part of Maroon elders to transmit oral traditions or some aspects, to persons considered unworthy, including other Maroons, even if this meant dying without passing on this indigenous knowledge (Bilby, 2005). Youth involvement will therefore be critical.

Mountains are one of the ecosystems most commonly associated with “sacredness” globally. Specific mountains or peaks may identified by certain cultures or traditions as sacred and associated with a variety of beliefs and practices such as pilgrimages. Others may be the location of sacred sites and objects e.g. temples, which were either built there because of the sacredness of the site, or which resulted in sacredness being associated with the area. Some mountains inspire awe and wonder, and a sense of one’s being a part of something greater than oneself. The BJCM combines both the latter and the former, as for many Jamaicans, these mountains symbolize strength and determination to succeed, epitomized in hiking to the Blue Mountain Peak, the highest point in the island. For the Maroons however, the BJCM form a physical “boundary for Maroon culture and nationhood” (Lumsden, 2008 in BJCMNP UNESCO WHS Nomination Dossier) and are considered sacred as the place where their warrior ancestors now rest. “Sacred natural sites are areas where nature, the divine and remembrances come together in special combinations that are particularly meaningful to a community, society, or people. They can be the abode of deities, nature spirits and ancestors ... Common to most sacred natural sites is that they are areas removed from everyday access and resource use” (Smeets, 2006). John et. al. (2010) explore the existence of sacred natural sites amongst the Windward Maroons and identify a number of sites within the BJCM (including the whole BJCM landscape because it is a “place of burial”) however they note there appears to be little active management of these sites by the Maroons.

Jamaica acceded to the Convention on the Protection of World Cultural and Natural Heritage in 1983. This commits Jamaica to ensuring protection of its cultural and natural heritage, identify and nominate sites considered to be of outstanding universal value for the World Heritage List and manage such sites to ensure their protection for the benefit of all mankind. The Tentative Listing of the BJCMNP in 2006 and submission of its Nomination Dossier in 2009 along with the objectives and strategies outlined below in this conservation programme operate in fulfillment of this international commitment. This on-going Programme will focus on the promotion of Maroon heritage, but related Afro-Jamaican cultural heritage will also be promoted as appropriate.

## 7.1 Conservation of the BJCMNP's cultural heritage

The BJCMNP is recognized by the Windward Maroons as a sacred natural site because it is the burial place of their ancestors and because of its association with the events that secured their freedom and led to the establishment of the first Maroon state. The Park protects much of what tangible remains exist e.g. at Nanny Town, however the intangible heritage of the Maroons lies within the people and is a living and evolving culture. Hence the role of Park management must be one of facilitation of cultural heritage conservation, as it is the Maroons themselves who are the custodians of this heritage. Further, African Jamaican heritage e.g. particular dance forms and food preparation, is of significance to communities around the BJCM and will also be promoted alongside Maroon heritage.

Human and financial resources are limited, therefore in addition to working with the Maroon communities, park management will work with relevant organisations such as the JNHT, ACIJ and the UWI Archaeological Department. Most of the objectives can be met through the Education, Enforcement and Recreation and Tourism Programmes (and have been budgeted accordingly). A part-time officer would be useful so someone with suitable qualifications should be hired under the Community Education Officer position, to bear responsibility for the cultural heritage conservation objectives.

This Programme will be monitored using the following indicators:-

- Condition of the Nanny Town site especially the status of the cut-stone wall
- Cunha Cunha Pass Trail open for hiking.
- The establishment of a Maroon heritage route in and around the Park in five years.
- The continued preparation of foods that use ingredients that are unique to the BJCM
- The continued making of Maroon craft items to include inventory of specific items
- The convening of the Maroon Kamiti.
- Programmes in place to transmit music and dance traditions to the next generations
- Staging of Maroon festivals in Maroon Settlements of Moore and Charles Town



*Plate 20: Community youth explore Charles Town Maroon Museum (Source: JCDT)*

The Cultural Heritage Conservation Programme Goal will be met through objectives implemented over a five year period as indicated in the table below.

**Table 7.1 – Cultural Heritage Conservation Programme Goal and Objectives**

<b>Programme Goal</b>	
<b>To maintain and enhance the appreciation for, and practice of the Maroon heritage associated with the Blue and John Crow Mountains.</b>	
<b>Objective 1</b>	To facilitate the conservation of the tangible cultural heritage of the Windward Maroons
<b>Objective 2</b>	To facilitate the preservation of the intangible cultural heritage of the Windward Maroons
<b>Objective 3</b>	To promote awareness and appreciation of the intangible cultural heritage of the Windward Maroons, and its connection to the natural heritage of the BJCM
<b>Objective 4</b>	To promote research that will inform park management, but will not threaten conservation of the BJCMNP’s cultural heritage
<b>Objective 5</b>	To establish and protect the Intellectual Property Rights of the Maroon people

## 7.2 Tangible Cultural Heritage

Given the nature of the building materials used by the Maroons and the change in location of the Maroon’s major towns to outside the boundaries of the BJCMNP consequent on the signing of the peace treaty of 1739, little of the built heritage remains. The one exception is to be found in the cut-stone wall at Nanny Town left by the English in 1734/5. The upper level was first excavated in 1973, and objects dating to the period of the 1720 – 1740 Maroon war with the English were found including many fragments of green wine bottles, smoking pipes, musket parts and balls, African Jamaican earthenware shards and cutlasses. The archaeological digs at Nanny Town in the 1990s produced Taino artefacts in the third level but the second level, called the Maroon Phase did not reveal much that was distinctively Maroon. Other elements such as the trails, historic and cultural locations and place names are protected by the Maroons, by convention of use, and as part of the protection currently offered by the existence of the BJCMNP. The towns are primarily archaeological and are protected by reason of their anonymity.

### **Objective 1: To facilitate the conservation of the tangible cultural heritage of the Windward Maroons**

This objective addresses the Maroon’s tangible heritage in terms of historic and cultural sites, trails, and place names. It does not address the tangible outputs of the intangible heritage e.g. musical instruments and craft items.

As indicated earlier, a key strategic approach will be partnership - working with the Maroon communities and relevant organizations such as the ACIJ and JNHT.

## **Trails**

Trails are of particular interest because many of them e.g. Cunha Cunha Pass Trail, although originally cut by the Maroons were later used by all Jamaicans as access routes e.g. market trails. Trails can therefore be used not only to conserve and interpret Maroon heritage but wider African Jamaican heritage as well. For heritage conservation, trails must be kept clearly defined and accessible and their features or points of interest highlighted e.g. through signs and other forms of interpretation. Trail users are not all interested in the cultural heritage – some are just out for exercise, whilst others are more interested in the natural heritage. Therefore, experienced tour guides who can link nature with culture and bring stories to life will be important in order to conserve the heritage experience of the trails. For example, on hearing birdcalls and birdsong, the tour guide should be able to identify some of the birds and explain how the Maroons mimicked these calls to send messages the English could not understand, nor even realize were being sent.

Many community groups are interested in re-opening and developing trails, primarily because they believe the trail will help them generate income. Whilst trails have the potential to provide for income generation, making a profit is not that easy as there are numerous costs associated with trail development and management. The following issues have been experienced first-hand by Park management and the Bowden Pen Farmers' Association who operate the Cunha Cunha Pass Trail. Firstly, trails need to be maintained – kept clear of vegetation that would overgrow them, drains maintained to reduce erosion by the heavy rainfall in the BJCM, repairs to steps, railings, bridges, benches, rest-stops etc. made as needed, and refuse and other signs of human use removed regularly. Secondly, trails need to be marketed in order to attract visitors. Thirdly, visitors need to pay if income is to be generated for maintenance, and many Jamaicans do not think they should pay to use trails, and will outright refuse, sometimes becoming aggressive. Fourthly, visitors need to be monitored to prevent them from damaging the trail and its resources e.g. removing plants and defacing signs, and also to reduce the risk of accidents and/or injury. Finally, trails need to be monitored even when there is no organized tour, because persons will seek to use the trail without permission or payment and others will use the trail to clear land for farming or just burn a section for fun. For these reasons, and also because trails can become routes for invasive species, illegal activities and destruction of native vegetation, the opening of trails within the BJCMNP is discouraged. These can also be issues of concern within the Buffer Zone.

It will therefore be important for Park management to determine which, if any trails within or passing through the BJCMNP will be re-opened, guide planning and management and monitor such trails, or relevant sections. Trail planning and management for the BJCMNP and its Community Buffer Zone should address the route, conservation of both cultural and natural heritage, facilities e.g. rest stops, base camps, safety and educational experience. Park management currently has significant trail development and management experience however this should be enhanced through training locally and abroad. This knowledge should be shared with local community members through practical training and assistance with trail planning and management. Outside the BJCMNP, the Recreation and Tourism Programme, particularly the new Blue Mountains

Sustainable Tourism Programme will provide assistance to community groups, and particularly Maroon communities, with the planning and management of trails.

### **Archaeological sites**

Whilst other sites are known to exist, Nanny Town is the only one where there has been archaeological research. Nanny Town is within the boundary of the BJCMNP and the area around it has been identified as being in need of forest rehabilitation. For this management plan period, the focus will be on Nanny Town, with the organization of at least one monitoring visit and refining of JNHT standards, rules and procedures for further archaeological work at Nanny Town and any other sites. The Nanny Town visit should address issues of both cultural and natural heritage conservation.

#### Specific strategic actions

- Prepare guidelines for trail development and use, particularly as it relates to natural and cultural heritage conservation and carrying capacity
- Assist communities with trail planning and management inclusive interpretation
- Monitor trails for visitor and other impacts and address these as necessary
- Consider and if resources allow, make plans for a Maroon Heritage Route
- Conduct Nanny Town monitoring and planning visit
- Use JNHT standards to prepare guidelines for archaeological digs etc.

## **7.3 Oral and Intangible Cultural Heritage**

The oral and intangible heritage that is directly and tangibly associated with the BJCM is very much alive and being preserved by the Maroon communities, despite several challenges. Because of their location closer to the BJCMNP boundary and Preservation Zone, the communities at Moore Town and Charles Town, Portland have been involved with Park planning and programmes, whilst the Scots Hall group has not.

The Charles Town Maroon Council established an Asafu Yard for ceremonies and events (such as their annual Quao's Day Festival in June) along with a Maroon Museum. At a neighbouring river-side site, they had established Quao's Village – a relaxing river-side attraction with restaurant, but a similar facility has now been constructed in a similar site immediately adjacent to the Asafu Yard and Museum. A variety of items are on display in the Museum, which depict the use of the intangible heritage e.g. baskets and fruit wines, and these are also available for sale. Tours are conducted mainly along the Orange Vale Plantation Trail (which takes hikers to the ruins of a cocoa plantation now completely enclosed by forest) and the newly renovated Sambo Hill Trail, which was used by Maroon war leaders to access a strategic look-out for the preparation of tactical plans. The Charles Town Maroons have a dance and drumming group which meets for drumming weekly at the Asafu Yard and performs at several national and local events e.g. the National Park's annual cultural event – Misty Bliss.

The Moore Town Maroons take visitors on trails including the Nanny Falls Trail, however some sections of that Trail are hazardous due to landslides and slippery rocks. Every October, the Maroon Council organises the Nanny Day Festival to celebrate and

promote their cultural heritage. The Council has constructed a small building with bathroom facilities, as an office and for meetings and training activities. The latter has been strengthened by a project funded by UNESCO and managed by the Institute of Jamaica, though with a local project manager. The project funding was awarded in relation to UNESCO's recognition of the Oral and Intangible History of the Moore Town Maroons as being of Outstanding Universal Value. The Council has identified a site for the construction of a Cultural Centre for multiple uses, and has architect's concepts drawn for these.

The Bowden Pen Farmers' Association (BPFA) are a group of farmers mainly from the Millbank community in the Upper Rio Grande Valley. Their association formed partly out of the influence of the Park's community outreach work, concern at the destruction of forest from Hurricane Gilbert and recognition that they could improve their livelihoods through a combination of sustainable agriculture and tourism. This group works closely with Park management, and has developed a Memorandum of Understanding to guide this. They re-opened the Cunha Cunha Pass Trail with assistance from the Park's Rangers and manage the Trail and Ambassabeth Cabins. The BPFA host an annual Emancipation Day Festival on August 1<sup>st</sup>. Whilst not considered by all, as a Maroon community, the BPFA embrace their Maroon heritage and the Maroon Councils of Moore Town and Charles Town have recognised the communities of the Upper Rio Grande Valley as Maroon.

All three community-based organisations were involved in the JCDDT/BJCMNP Inter-American Development Bank funded project to develop a Blue Mountains Sustainable Tourism Plan. This included certification of some members under Jamaica's basic level tourism training – TEAM JAMAICA, in addition to training in other relevant areas. JCDDT is currently working with the groups to access the funding to implement their plans. Some of the factors affecting the conservation of the intangible cultural and natural heritage are the increasing interest, particularly of the youth, in popular culture and the so-called 'get-rich-quick' mentality. In addition, there are limited human resources and skills to obtain funding and manage projects that would assist in better promotion and conservation of traditions.





*Plate 21: Brother Isaac blowing the Abeng to signal the start of the official ceremony at the Bowden Pen August 1 celebrations (courtesy Andrea Ventimiglia)*

**Objective 2: To facilitate the preservation of the intangible cultural heritage of the Windward Maroons.**

This objective will be implemented in close conjunction with the Maroon communities of the Buff Bay and Upper Rio Grande Valley, in addition to relevant agencies and organisations. The first step will be the development of strategies and action plans to promote the continued use and transmission of the oral and intangible heritage such as cooking, handicraft, language, music and dance as well as good governance. Meetings and/or workshops will be held to ensure a participatory process in the development of these plans, since it is the voluntary participation of the wider Maroon community that will result in successful implementation of the plans. These plans will include monitoring procedures e.g. annual survey or checklist that can be conducted with each Maroon Council to identify areas that have been addressed and through what means. Where necessary funding will have to be sought, however effort should be made to identify and implement strategies that will encourage voluntary use and transmission of the heritage. A focus on ensuring the conservation of authenticity of the heritage will be essential.

Assuming that the specific strategies and detailed plans will be developed by Year 2, detailed activities will not be described here, however it is anticipated that some of the activities described as already taking place will continue. Further, the Blue Mountains Sustainable Tourism Programme to be implemented by the JCDT as part of the Park's Recreation and Tourism Programme, will be instrumental in helping to conserve the

intangible cultural heritage of the Maroons by promoting awareness and appreciation through festivals and tourism. Specific ideas of strategies for conserving intangible cultural heritage that can be considered during the planning meetings are:-

Table 7.2 – Possible Strategic Activities for Conservation of Intangible Heritage

Desired Outcomes	Possible Strategies and Actions
Continued preparation of foods using ingredients and techniques that are unique to Maroons e.g. bussoo soup, jerk wild hog, cacaoon stew, heart of palm	(i) Stalls with these foods for sale at the festivals and competitions for the best “Maroon Cook” (ii) Development and implementation of plans for sustainable production and harvesting e.g. bag-limits, agro-forestry (iii) Sale of these foods at Maroon attractions
Continued making of Maroon craft	(i) Stalls with these craft for sale at the festivals and competitions for the best “Maroon Artisan” (ii) Development and implementation of plans for sustainable production and harvesting e.g. agro-forestry (iii) Sales outlets
Continued making and use of Maroon herbal remedies	(i) Stalls with herbs and treatments at the various festivals and attractions (ii) Development and implementation of plans for sustainable production and harvesting of herbs (iii) Further development of product lines and Maroon ‘spas’
Continued implementation of Maroon music, song, dance, drumming etc.	(i) Maroon music, song, dance, drumming at Maroon and other festivals and events
Continued and improved good governance of Maroon communities	(i) Training and Capacity Building
Continued transmission of all the oral and intangible cultural heritage of the Windward Maroons including indigenous knowledge	(i) Training in all aspects of cultural heritage including those not identified above e.g. language

## 7.4 Promoting Awareness and Appreciation of Cultural Heritage

To aid in its conservation, the value of Maroon heritage must be appreciated by the Maroon communities, the wider Jamaican population and visitors. The heritage must be celebrated and people must be educated to better understand it. The linkages between the cultural heritage of the Windward Maroons and the natural heritage of the BJCM can be a useful story to tell as it can make people think about issues they face in their own lives. Interpretation of the cultural and natural heritage of the BJCM together, provides a unique opportunity to link the need for conservation of both and to educate both Maroons

and the wider community. Questions that can aid the development of interpretive programmes include:-

- what will I eat and how will I prepare it ? what plants and animals did the Maroons have access to ?
- how can I hide ? how might a knowledge of trees and caves help me ?
- how can I send a secret message ? how might a knowledge of bird calls help me ?
- what can I give my child to play with that uses only natural materials ?

### **Objective 3: To promote awareness and appreciation of the intangible cultural heritage of the Windward Maroons, and its connection to the natural heritage of the BJCM**

As with all other objectives, this one must be planned and implemented working with the Maroon communities and relevant organizations. Three main strategies are recommended:-

#### 1. Organization and hosting of festivals

These can simply be an improvement on the existing ones inclusive greater collaboration and cooperation including in the fundraising:-

- February – Misty Bliss – held at Holywell and organized by Park management
- June – Quao’s Day – held at Charles Town and organized by the CTMC
- August – Emancipation Day – held at Ambassabeth and organized by the BPFA
- October – Nanny Day – held at Moore Town and organized by the MTMC

#### 2. Educational packages and Interpretation

Educational packages should be designed for primary and secondary level students and these should be disseminated to schools at Maroon museums, cultural centres and exhibits. A manual on herbs, *Useful Plants of the Maroons: A Teachers Guide* was produced by Maroon herbalist Ivelyn Harris in 2004, working with the Centre for International Ethnomedicinal Education and Research Inc. Similar manuals that support the Jamaican school curriculum and link natural and cultural heritage to Jamaican history and living traditions should be produced to include activities and work-sheets, teacher’s guidelines and possibly DVDs. These manuals can be disseminated through the school system but tours should be offered, particularly at Maroon cultural centres but also at the Park’s recreation areas.

Interpretation is less formal than education and must be fun, as the participants are usually visitors to an attraction, whose main motivation may not be learning something. It must tell a story and be relevant to their lives. Interpretation should be implemented in various ways at heritage attractions within the BJCM, but should provide the same message – the importance of conserving our heritage. Interpretation will likely include brochures, signs, exhibits and tour guiding. Ideally all interpretive materials should be designed together to ensure good flow and support for each other rather than having conflicting designs, messages and information.

Park management should continue to work with the Maroon communities to develop, disseminate and deliver educational packages for school groups and interpretive packages for visitors.

### 3. Blue Mountains Sustainable Tourism Programme

This Programme has already been designed working with the Maroon and other BJCM communities. Funds are being sought for implementation which is anticipated to start by early 2011. This programme will organize tourism cluster groups to liaise with a secretariat within the JCDT for the marketing and sales of BJCM packages and tours, as well as for product development and conservation of the heritage on which the tourism depends. The Programme will facilitate the festivals as events marketing as well as tours including the exploration of the Maroon Heritage Route. It will be implemented under the BJCMNP's Recreation and Tourism Programme.

## 7.5 Research

Research is required to gain a better understanding of the heritage in order to better manage and conserve it. The promotion of research will therefore be an on-going focus for Park management over the next five years. This area in particular will require the Park to lean heavily on its cultural heritage partners with the capacity for research, and to promote visiting researchers who work closely with local researchers.

### **Involvement of the Maroons**

In the past, much of indigenous, non-western culture was studied by Western scientists and often focused on artefacts preserved in museums, displaced from its cultural context. Nowadays there is greater emphasis on involving the indigenous people themselves, and giving greater attention to indigenous knowledge (Czermak et al. 2003). The secrecy of the Maroons in terms of guarding their heritage has meant that anyone wanting to research Maroon heritage must first gain the trust of, and obtain the blessing and assistance from the Maroon Council to proceed. This has meant that the study of Maroon heritage has to date very closely involved the Maroon community. Intangible heritage including indigenous knowledge can only be fully understood within its cultural context, and therefore the Maroons must continue to be fully engaged in all aspects of research. Involving not only the elders but also younger persons is important in ensuring the continued transmission of oral traditions.

### **Objective 4: To promote research that will inform park management, but will not threaten conservation of the BJCMNP's cultural heritage.**

Appendix 6 contains a Research Prospectus for the Park that should be added to as gaps in knowledge are identified. Efforts must be made to improve the prospectus with respect to cultural heritage research need, and to disseminate this prospectus to research institutions to encourage them to conduct research that will help to fill some of the knowledge gaps. Existing websites such as the Jamaica National Heritage Trust and Institute of Jamaica – African Caribbean Institute websites should be considered for hosting or linking with the prospectus or relevant sections. Stronger linkages must be

developed with the Archaeology Department at the University of the West Indies and other relevant research institutions. This will be aided with JNHT on the BJCMNP Co-Management Committee.

Park management should endeavour to participate in conferences and workshops to present information and papers on the National Park. Papers and reports on the conservation and other Park programmes should be available on the Park's website and also should be sent to relevant networks for dissemination.

As recommended for Conservation of Natural Heritage, field stations can be particularly useful for researchers, and the Millbank Ranger Station would be of particular relevance.

For easy reference to research applications, a Research Log (Appendix 7) will continue to be kept for research activities occurring in and around the park. Park management will continue to try and establish relations with visiting researchers and accompany them on field expeditions.

### **Technical Advice**

Park management recognizes that conservation, research and monitoring activities are very technical issues and often require expert opinion and advice. As the focus of BJCMNP has been mainly on natural heritage conservation, it will be even more important to obtain advice from relevant agencies as indicated earlier. The JNHT which will be sitting on the BJCMNP Co-Management Committee will play a vital support role in the form of technical advice, particularly on cultural heritage conservation, research and monitoring.

In addition to the regular assistance, guidance and implementation activities through the JNHT, technical advice will be sought through the ACIJ and the UWI Archaeological Department. Bearing in mind challenges to regular committee meetings (as the pool of experts is limited and they tend to be very busy, the approach for 2011 to 2016 for technical advice will be to work closely with the JNHT and to call on the other organizations as needed.

Park management should participate in national committees regarding cultural heritage, to share the work of the BJCMNP, obtain guidance and support, and promote coordination and collaboration between agencies and organizations. A list of experts who can be called on from time to time, as their expertise is required should be established. Efforts should still be made to hold at least one meeting per year to share the work of the property, seek guidance and promote research in the BJCM.

### **Objective 5: To establish and protect the Intellectual Property Rights of the Maroon people.**

The cultural heritage of the Maroons includes intellectual property that must be protected to mitigate against the exploitation of indigenous knowledge, and to ensure that benefits from the use of intellectual property e.g. food preparation techniques, are retained within the Maroon communities. Funding will be required for the technical and legal aid that will be required.

## **7.6 Challenges and Opportunities in Managing Sacred Natural Sites**

A number of challenges and opportunities related to the conservation and management of sacred natural sites have been identified (Schaaf and Lee (eds), 2006) and are highlighted below and detailed in Appendix 8:

### **Challenges**

- Multiple Stakeholders – multiple perspectives may cause conflicts
- Visitor Pressures and Access – may cause conflicts, especially if community is not ready to receive visitors, or the numbers that present
- Culturally Sensitive Activities -
- Development Pressure – may threaten the site
- Economic Considerations – may impact values
- Seasonal Differences – may impact visitor numbers and hence, facilities and resources
- Conflicting Jurisdictions and Integrated Approaches to Management
- Different Ways of ‘Knowing’ – scientific and indigenous knowledge

### **Opportunities**

- Model Sites for Community-Based Conservation – Sacred Natural Sites may become such models
- Traditional Knowledge – will be very useful for conservation
- Cultural Identity and Diversity – reduces vulnerability
- Eco-Tourism – may provide opportunities for income generation which supports conservation (if properly planned and managed).
- Intercultural Dialogue – nationally and internationally
- The Value of the Sacred

**Programme Summary: Cultural Heritage Conservation**

**Goal: To maintain and enhance the appreciation for and practice of the Maroon heritage associated with the Blue and John Crow Mountains.**

Objectives	Programmes/Strategies	Activities	Monitoring	Resources	Timeframe and Priorities
<p><b>1.</b> To facilitate the conservation of the tangible cultural heritage of the Windward Maroons</p>	<p>1. Work with Maroon and other communities and relevant organizations particularly the JNHT to:-                      (a) develop plans for trail development and use, and guide implementation of these plans, particularly as it relates to natural heritage conservation                      (b) add natural heritage conservation guidelines to JNHT standards to guide further archaeological work at Nanny Town and any other sites in the BJCMNP                      (c)organise monitoring visits and possible further archaeological studies at Nanny Town</p>	<p>1ai. Assist communities with the management of heritage trails                      1aii. Assist communities with planning for proposed new trails in the Buffer Zone                      1aiii. Develop conservation guidelines including monitoring checklist for trails in the BJCMNP and its Buffer Zone                      1aiv. Guide planning for any proposed trails passing through the Park, and carefully monitor use of such trails                      1av. Consider and guide planning for a proposed Maroon Heritage Route                      1b. Facilitate development of rules and procedures for archaeological studies within the BJCMNP based on JNHT standards                      1ci. Facilitate monitoring and archaeological studies of Nanny Town</p>	<p>Reports on community activities</p> <p>Guidelines document</p> <p>Maroon Heritage Route Plan</p> <p>Guidelines for Archaeological Studies within the BJCMNP</p> <p>Every five years, monitoring visit to Nanny Town – Report</p> <p>Annual monitoring Maroon trail - reports</p>	<p>Park Manager                      Conservation Science Officer                      NP Rangers                      Recreation Officer                      Cultural Heritage Officer only                      budgeted part-time from Yr 2</p> <p>Technical Assistance Guidelines (1aiii, 1aiv, 1b) (\$600,000)                      Heritage Route \$1 million)</p> <p>Visits to archaeological sites and annual patrol of trails (\$50,000 in Yr 1 &amp; \$15,000/yr)</p>	<p>Medium Priority                      Ongoing                      Ongoing</p> <p>Yr 1</p> <p>Ongoing</p> <p>Yr 3 – 5</p> <p>Yr 1 – 5</p> <p>Ongoing</p>
	<p>2.Through BJCMNP Enforcement &amp; Compliance Programme to monitor integrity of tangible heritage</p>	<p>2. National Park Rangers monitor trails and any tangible heritage for signs of degradation, defacement or destruction and report for action</p>			

**Programme Summary: Cultural Heritage Conservation**

**Goal: To maintain and enhance the appreciation for and practice of the Maroon heritage associated with the Blue and John Crow Mountains.**

Objectives	Programmes/Strategies	Activities	Monitoring	Resources	Timeframe and Priorities
2. To facilitate the preservation of the intangible cultural heritage of the Windward Maroons	1. Work with Maroon communities and relevant organizations to develop and implement strategies to promote continued:- (a) preparation of foods using Maroon ingredients and techniques (b) making of Maroon craft (c) making and use of Maroon herbal remedies (d) implementation and use of Maroon music, song, dance, drumming, language (e) good governance of Maroon communities (f) transmission of the oral and intangible cultural heritage of the Windward Maroons	1i. Facilitate meetings and workshops to develop strategies including training of youth 1ii. Facilitate implementation of strategies e.g. through fund-raising and the Blue Mountains Sustainable Tourism Programme 1iii. Monitor implementation of plans	Workshop Reports and Strategy Documents  Reports  Annual Survey of Maroon communities	Park Manager or Cultural Heritage Officer or Recreation & Tourism Officer as available  Technical Assistance  Funds - For workshops etc. (about \$60,000/yr) - Projects – to be developed	High Priority Yr 1 – 2  Ongoing  Yr 2 on
3. To promote awareness and appreciation of the intangible cultural heritage of the Windward Maroons, and its connection to	1. Work with Maroon communities and relevant organizations to: (i) organize festivals (ii) develop and implement educational packages (iii) promote community-	1. Seek funds to assist Maroon communities to improve existing festivals 2. Seek funds to develop, disseminate and deliver educational packages for school groups and interpretive packages for visitors	Festival reports Educational materials & monitoring form for school groups	Recreation & Education Officers Festivals \$500,000/yr \$1.5million for Education Proj.	High Priority Ongoing  Yr 1 – 3



**Programme Summary: Cultural Heritage Conservation**

**Goal: To maintain and enhance the appreciation for and practice of the Maroon heritage associated with the Blue and John Crow Mountains.**

Objectives	Programmes/Strategies	Activities	Monitoring	Resources	Timeframe and Priorities
the natural heritage of the BJCM	based cultural heritage tourism	3. Work through the BM Sustainable Tourism Programme to promote community-based Maroon tourism	Visitors' Book Programme Reports		Yr 1 on
4.Promotion of research that will inform park management, but will not threaten the conservation of the Park's cultural heritage	<ol style="list-style-type: none"> <li>1. Maintenance and promotion of a research prospectus to universities and researchers.</li> <li>2. Screening of proposals for research in the park.</li> <li>3. Maintenance of a database for research in and around the park.</li> <li>4. Involvement in research activities that take place within the park.</li> <li>5. Establishment and maintenance of research stations.</li> <li>6. Regular dialogue with relevant experts.</li> </ol>	<ol style="list-style-type: none"> <li>1a. Provision of requested information to researchers.</li> <li>1b. Promotion of research prospectus on the internet including links</li> <li>2. Comment on proposals if possible</li> <li>3. Maintain a data-base of research.</li> <li>4a. Accompany researchers in the field on at least one occasion.</li> <li>4b. Seek assistance from researchers for Park management e.g. training field staff and community members</li> <li>5. Conduct repairs and improve ranger station at Millbank to promote use as a research station.</li> <li>6a. Participate on relevant national and other committees.</li> <li>6b. Meetings with relevant experts, as necessary and a meeting once a year to share results and seek advice.</li> </ol>	Research activity database	<p>ED, CSO</p> <p>Mainly time of personnel and transportation to meetings and for field visits</p> <p>JA\$500,000 to upgrade Millbank Ranger Station for use as a research station</p> <p>Funds: Meetings; assist research \$40,000/yr</p>	<p>Medium Priority</p> <p>Ongoing</p> <p>Yr 1 and on</p> <p>Ongoing</p> <p>Yr 1 and on</p> <p>Yr 1 and on</p> <p>Yr 1 – 2</p> <p>Ongoing</p> <p>Ongoing</p>
5.Establish and protect Intellectual Property Rights of the Maroon people	Technical and legal research and document preparation and submission to relevant agencies	<ol style="list-style-type: none"> <li>1a. Seek project funds</li> <li>1b. Implement project</li> </ol>	Project report IP document	Funding for technical and legal expertise \$1million	By Year 5 Medium Priority

## Chapter 8

### Enforcement and Compliance Programme

*Enforcement* refers to the act of compelling the observance of laws, while *compliance* is acting in accordance with those laws. Numerous pieces of legislation exist to address many of the country's environmental/natural resource use problems, but they often fail to do so because they are not enforced. In fact, enforcement of environmental legislation is often said to be the biggest problem that plagues management of Jamaica's natural environment.

Bruner et.al., 2001 in a paper reporting on a study of 93 tropical forest protected areas found that of several factors considered including budget, local community involvement, number of people living in the park and number of staff working on development and education, management effectiveness was most closely correlated with three enforcement issues:-

- the density of the guards – with the 15 most effectively managed parks having a density of 3 per 100km<sup>2</sup>
- the level of deterrents to illegal activity (particularly for clearing of forest) where deterrents were measured as the product of two factors:-
  - the probability of apprehending violators (whether 'red-handed' or 'after-the-fact')
  - the probability of the violator receiving a significant sanction if apprehended
- the degree of boundary demarcation

#### 8.1 Enforcement and Compliance issues in the BJCMNP

Interestingly, the problems identified in the previous Management Plan as being associated with enforcement and compliance in the BJCMNP bear relevance to the Bruner et. al. findings. Whilst implementation of the BJCMNP Management Plan over the last five years did significantly address these issues, much more remains to be done, and efforts must be sustained for long-term impact. The following were the main issues identified and addressed:

1. The small scale of the enforcement effort (few enforcement officers, limited patrols, limited reporting of breaches), considering the vast 486 km<sup>2</sup> protected area consisting of largely rugged terrain. Park management was able to increase the Ranger Corps from 4 in 2005 to 7 in 2009, and the number of patrols from 43 in 2005 to 175 in 2008 with a decrease in 2009 to 100 due to insecure and inadequate funding. This moved the density of guards to about half the density in the most effective parks studied by Bruner et. al, 2001.
2. The unclear delineation of park boundaries in certain areas and poor understanding of land leases to private individuals has been a longstanding

problem. Despite improvement in the accuracy of the boundary and some transfer of information between the Commissioner of Lands and Forestry Department, enforcement officers are still unsure of their jurisdiction in many areas. Further, even if the boundary is clear on a map, the monuments and signs are few and far between and not very effective at marking a boundary in the field.

3. Despite sensitization exercises carried out by Legal Officers from NEPA and the FD, the problem of lack of awareness of environmental legislation and sensitivity to environmental offences (which are often viewed as unimportant) on the part of enforcement officers and the judiciary, perhaps in light of the high rate of violent crimes, continues to be a challenge.
4. Allowing ‘small time’ offenders and offences to slide such that no punishment is meted out and therefore the level of deterrence is reduced.

The difficulty in catching people ‘red-handed’ and in gathering evidence after a crime has been committed is another factor that reduces the level of deterrence by decreasing the probability of being apprehended or found guilty of an offence.



*Plate 22: National Park Rangers confiscate illegal lumber (Source: JCDT)*

5. Influential people being offenders or the ones behind the offence. The tendency in such instances is for enforcement officers to be wary of pursuing these offenders, and as they are often not the ones directly committing the offences, it is difficult to prove their involvement.

6. Lack of alternative legal income-generating opportunities, and so offenders are earning a livelihood by illegal and environmentally destructive means.
7. Lack of awareness and education about the illegal practice and their environmental consequences on the part of offenders.

The Bruner et. al., 2001 findings are supported by evidence from the BJCMNP, for example, an increase in illegal activity was observed in 2009 following a decline in the number of patrols from 175 in the previous year to 100 in 2009. The issues challenging compliance with, and enforcement of, relevant legislation remain and therefore must be addressed with alacrity, particularly as attention to this programme has been identified as a key tool for enhancing the Park’s management effectiveness. The Enforcement & Compliance Programme Goal will be met through objectives implemented over a five year period as indicated in the table below.

**Table 8.1 – Enforcement and Compliance Programme Goal and Objectives**

<b>Programme Goal: To stop encroachment of the BJCMNP boundary and destruction of the forest and wildlife within</b>	
<b>Objective 1</b>	To increase the level of presence of enforcement officers and their effectiveness in detecting and mitigating breaches of relevant legislation
<b>Objective 2</b>	To contribute to the resolution of breaches inclusive prosecution of offenders
<b>Objective 3</b>	To resolve boundary discrepancies and re-establish and mark all boundaries.
<b>Objective 4</b>	To raise community awareness regarding: the BJCMNP boundary and legislation, particular issues that threaten the BJCMNP, and increase community involvement in addressing these issues.

## **8.2 Enforcement Officers**

Customs officers, forest officers, fisheries inspectors, members of the Jamaica Constabulary Force (JCF) or Jamaica Defence Force (JDF) and persons appointed as Park Manager or designated as National Park Rangers, are all identified as authorized officers under the National Park Regulations of 1993. Further, under section 33, members or officers of the JCF, JDF and the Island Special Constabulary Force (ISCF) are deemed national park rangers. Despite the number of types of officers who are authorized to enforce the National Park Regulations, an insufficient number of enforcement officers was identified as an issue to be addressed in the previous management plan. Hence, increasing the level of presence of enforcement officers became Objective 1. The objective was achieved by increasing the number of National Park Rangers, but experience and evidence from Bruner et al., 2001 indicate need for a further increase in the number of enforcement officers. Budgetary constraints may prevent employment of sufficient national park rangers to achieve the ideal figure, however as the regulations

allow other officers enforcement authority, it should be possible to work together to ensure adequate coverage of the BJCMNP.

The National Park Regulations of 1993, section 32, state the functions of a National Park Ranger as, “to patrol the area of each national park, to protect the resources of that national park and without prejudice to the generality of the foregoing, to-

- (a) patrol and monitor the various zones of the national park;
- (b) enforce these Regulations;
- (c) maintain patrol vehicles, marking facilities and trails;
- (d) provide first-aid, emergency or rescue assistance to national park users in the event of accident or injury; and
- (e) assist in the conduct of environmental monitoring programmes”.

The section goes on to state that, “in the exercise of his functions within the national park, a national park ranger may-

- (a) require any person to refrain from any unlawful act or any act which in his opinion appears likely to result in the damage or destruction of any property, real or personal, which is owned by, in the possession of, or under the management of the national park or any user of the national park;
- (b) require any person whom he finds committing or whom he reasonably suspects of having committed any such act to state his full name and true place of residence or leave the national park immediately;
- (c) require the holder of a permit or licence to produce his permit or licence, as the case may be, for inspection;
- (d) seize any weapon, trap or device of any kind with which an offence appears to have been committed;
- (e) search any person whom he may reasonably have cause to suspect of contravening any provision of these Regulations”.

Between 2005 and 2010, Park management attempted to organize joint patrols with enforcement officers from other institutions however this was abandoned as a target due to the lack of success. A more specific and detailed approach to reporting offences to the relevant government agencies was implemented at the end of 2008, and this resulted in some more joint patrols. Further, in the near future, there may be increases in enforcement officer corps within some of the agencies, and this may aid the situation.

Another way to increase the density of enforcement officers is to involve community members in a variety of ways e.g. providing intelligence, warning offenders and potential offenders and assisting with some national park ranger duties. Community members during management planning indicated keen interest in assisting with enforcement, following training. In light of limited resources, this will have to be seriously considered.

### **8.3 Detection and Mitigation of Breaches**

The strategies implemented over the last five years, as per the 2005 – 2010 Management Plan resulted in improved detection of environmental breaches and increased effectiveness of enforcement efforts, in terms of location and description of the breaches.

Efficiency and effectiveness in detecting and even deterring breaches of legislation must continue to improve.

In the previous Management Plan discussion amongst the relevant organizations suggested a greater role for government agencies in the *enforcement* component of this programme, particularly arrests and prosecution. National park rangers were seen as having a clear role, with respect to increasing *compliance* through maintenance of a uniformed and authoritative presence of at least 12 days per month in the field and the use of “interpretive enforcement” through outreach to community members for education about Park legislation. National park rangers were also seen as playing a major role in *enforcement* by conducting monitoring, surveillance and intelligence gathering exercises through regular, systematized patrolling of the park boundaries and by liaising with community members. Discussion during planning for this Management Plan indicated similar views, however it was recognized that the national park rangers needed to have powers of arrest in order to be more effective and not totally dependent on other agencies for enforcement.

### **Objective 1: To increase the level of presence of enforcement officers and their effectiveness in detecting and mitigating breaches of relevant legislation**

#### **Strategic Actions**

1. **Increase number of enforcement officers in the field.** Research and experience have indicated this as the most critical component of the Enforcement and Compliance Programme – maintaining a presence of uniformed enforcement officers in the field, to deter against the committing of breaches. Park management must make every effort to maintain the National Park Ranger Corps at its current level of 6 National Park Rangers and a Chief of Corps, and to increase the numbers. In light of the limited resources within any one of the co-management agencies (JCDT, FD, NEPA, JNHT) and relevant agencies (Island Special Constabulary Force [ISCF], Jamaica Constabulary Force [JCF], Jamaica Defence Force [JDF], Jamaica Fire Brigade and the Squatter Management Dept. – Ministry of Water and Housing) cooperation and collaboration is essential.

Despite some level of joint patrolling at the beginning and end of the previous five years, the average level has not been sufficient to make up for the small numbers within the BJCMNP Ranger Corps. Fifteen (15) has now been identified as the ideal number for the Corps, bearing in mind financial constraints. However, the reality is that these constraints are likely to challenge the delegated national park manager to increase the number of national park rangers to that figure. The Management Plan budget allows for only 12 including Chief of Corps. To ensure effective Park management, it will therefore be essential either for the Government of Jamaica to provide more funds to Park management for additional national park rangers, or to second enforcement officers from other agencies. This may still not result in enough personnel and so it will also be necessary to provide for the participation of

enforcement officers (inclusive of meal and other relevant stipends) in joint patrols with National Park Rangers on a regular basis (at least once per week or more, if the additional officers are not supplied).

2. **Quarterly inter-agency enforcement meetings.** Quarterly action planning meetings between NEPA, FD, ISCF and JCDT and other agencies with authorized officers, should take place to effect better coordination and collaboration between all these parties. These meetings should include sharing of rosters and reports.
3. **Address authority of National Park Rangers.** An issue that requires addressing urgently, is the authorization of JCDT employed National Park Rangers under the NRCA Act and delegation agreement. The National Park Regulations, 1993 sections 30 and 31 describe designation, notification and identification of National Park Rangers. Further, National Park Rangers should be gazetted as Special District Constables as per the Delegation Agreement of 2002 and also as Game Wardens. Despite some effort in the previous five years, these issues have not been addressed and have had a negative impact on the morale of the Ranger Corps. There is a need for clarity with respect to the vesting of powers of arrest in National Park Rangers, so they do not have to be totally reliant on other agencies and can be more effective enforcers in the field.
4. **Community Assistance.** Another strategy for increasing the number of personnel involved in the work of the Enforcement and Compliance Programme, is to establish a community programme however this is considered under Objective 4.
5. **Patrols.** Efforts to increase the level of efficiency and effectiveness in terms of detecting or even mitigating and preventing the conduct of breaches, regular patrols and other exercises should result in field presence of at least 12 days per month. Further, patrols should be conducted in a systematic manner so as to target both known threat hotspots and ensure full coverage by circling the Park at least 3 times per year. Other approaches to increase efficiency and effectiveness of patrols will be to vary the times of implementation from early morning through to night, so that persons will have no idea what time a patrol might be in the area. Despite the fact that National Park Rangers are usually on visitor management duty on weekends, this period should not be left out of the patrol roster, whether through involvement of other enforcement officers, or use of volunteers and other personnel to cover visitor management duties.

Increasing enforcement and compliance effort is recommended during Christmas and the beginning of the new school year (August - September), as there are increased instances of offences in the Park due to increased economic demand at these times. The Monitoring and Evaluation Programme proposes arranging for a helicopter fly-over the Park at least once a year, and the Chief of Corps should participate in this exercise as it will literally provide a “bird’s eye view” of the Park. It will aid in identifying areas for enforcement attention, which would otherwise go undetected due to the rugged nature of the Park and limited road access into the interior.

6. **Cultural Heritage Legislation.** During this management plan period, certain sites are expected to be declared national monuments. With the assistance of the JNHT, orientation and training should be provided regarding relevant legislation, so that National Park Rangers can bear these in mind whilst on patrol.
7. **Training** in this and other areas will be essential but is discussed in Section 8.8.

## 8.4 Resolution of Breaches

As the BJCMNP is both a national park, declared in 1993 under the NRCA Act of 1991, and a forest reserve, declared under the Forest Act of 1937, both sets of legislation provide the legislative framework in which the national park must operate. In addition to these, other legislation is relevant:

- The Natural Resources (National Park) Regulations (1993), (User Fees) Regulations (2003) and (Amendments) Regulations (2003)
- The Forest Act (1996) and Forest Regulations (2001)
- The Wild Life Protection Act (1945), and its relevant amendment Orders and Regulations
- The Watersheds Protection Act (1963)
- The Country Fires Act (1942)
- The Endangered Species (Protection, Conservation and Regulation of Trade) Act (2000)
- The National Solid Waste Management Act (2001)
- The Natural Resources (Permit and Licenses) Regulations (1996)
- The Water Resources Act (1995)
- The Watersheds Protection Act (1963)

Breaches may involve one or more of the above-mentioned pieces of legislation, however the National Park Regulations (1993) and Forest Regulations, (2001) are the most significant. Appendix 3 provides a review of these and other relevant legislation and policies and Appendices 15 – 17 provide copies of the BJCMNP Order and Regulations.

Breaches of legislation are detected through patrols and the Threats Monitoring System (Chapter 11). Urgent calls will be placed to relevant agencies if back-up is required or to arrange a joint patrol. Monthly reports and specific case reports should be sent to NEPA and FD. All collaborating agencies must work towards the resolution of breaches as one of the reasons cited for on-going breaches of environmental legislation is a lack of follow-up with enforcement action. Park management will lobby (through sending of reports to relevant agencies and individuals and through use of the media) for suspected offenders to be prosecuted and brought to justice. Efforts should be taken to increase the legal capacity of the various organizations involved. Further, all agencies will need to share information, particularly regarding the arrest and sentencing (if this occurs) of offenders, in order to keep morale high amongst enforcement officers.



## **Objective 2: To contribute to the resolution of breaches inclusive prosecution of offenders**

### **Strategic Actions**

1. **Arrest and charge offenders.** As noted earlier, Bruner et al, 2001 found that not only is it important to have a relatively high density of enforcement officers, but also to ensure a high level of deterrent to illegal activity. The latter will be ensured where there is a high probability that offenders will be apprehended *and* receive significant sanction. This will necessitate a more aggressive approach to enforcement than previously and will therefore require the involvement of enforcement and legal officers from government agencies. Based on the feedback from stakeholder consultations, community members are supportive of this approach and willing to assist in various ways. The majority of community members are concerned about the degradation and destruction of the natural resources around them because they have seen the negative impacts that are being caused e.g. erosion, fires, flooding and reduction of water flows, amongst others. They are also concerned because they do not see any action being taken against the offenders and feel that there is a need for more prosecution and charging of offenders. This will require judges who are sensitized to environmental issues and laws, and possibly an improved system of community service (since there seems to be a view that many environmental offenders are “just poor people trying to feed their children”) which could include involvement in reforestation.
2. **Publicise Cases.** It will not be sufficient to arrest, prosecute and even charge offenders. There is a need to publicise these cases so that people are aware that it is very possible that they may be caught and charged, if they commit an environmental offence. As the saying goes, “justice must not only be served, it must be *seen* to be served”. Reports on prosecution should be sent to all the relevant organizations, as even if releases are sent to the media, they may not be printed/aired or seen/heard. The public and enforcement officers should know that action is being taken.
3. **Address major issues – generally and on a case-by-case basis.** Under this objective, we also hope to abate the threats that exert a large, direct and devastating impact on the natural resources we are trying to protect, and which conflict with the vision for the park. It is assumed that the offenders who commit these offences are a minority group, with only a small percentage of people directly harming the Park’s natural resources eg. coney hunters, illegal loggers and farmers on crown land. Another group of offenders are sometimes “big” farmers, developers and commercial interests. A few such persons or groups implementing large-scale projects or using heavy-duty equipment can have devastating effects, and very quickly. Both types of activity require investigative and collaborative efforts involving all the relevant agencies and community members.

For some issues, there is a need to address them on a case by case basis, as these offences are usually very area specific e.g. river poisoning and illegal logging. Careful investigation and documentation along with the production and dissemination

of clear, informative reports will be essential. Other issues will require an approach that includes lobbying as they are wide-scale and encouraged by factors inherent in land tenure systems in Jamaica. Specifically, there is a problem with encroachment – squatters (small and large-scale) view ‘government’ land as a ‘free-for-all’ and this is made worse by the apparent ‘turning a blind eye’ – thus people assume they can clear forest to use the land within the National Park/Forest Reserve. There is a need for urgent action in this area including moving settlers and settlements, therefore, it can only be dealt with through a multi-agency approach.

It must be noted that under the current arrangements (as indicated in section 8.3) the delegated Park management organization has not been given sufficient authority to act effectively in this area, except to provide information and assist with investigations. As recommended above, this will need to be addressed in order to better meet the objective of resolving breaches of legislation.

## **8.5 Boundary clarification and marking**

As indicated earlier, Bruner et al, 2001 found that clear boundary demarcation was highly correlated with park management effectiveness. One of the challenges to managing the BJCMNP is inadequate clarity regarding its boundary. A part of the problem is that the boundary is not marked in the field except for a set of concrete monuments, many of which are over-grown, and a few signs. Because of the wide spacing between these markers, there is a lack of precision regarding the location of the boundary “on-the-ground”. It would be a very expensive and nearly impossible process to clearly mark the complete boundary of the park, as many sections are rugged and difficult to access, however this is an issue that needs to be addressed, perhaps by the planting of a tree species with distinctive leaf colour or shape, as apparently was done by the Forest Department with the “Dragon Plant” (*Cordyline* sp.) in the past. Investigation would be needed to identify the most suitable plant. Involvement of local community members in planting and maintenance of these trees would help ensure the boundary location was well known. In some protected areas, a fire line is cut to demarcate the boundary but with the terrain and rainfall in the BJCMNP this would be very difficult to establish and maintain. In addition to simply increasing the number of signs and/or markers, community outreach to raise awareness and inform them about the location and marking of the boundary is necessary.

Another problem is that the National Park/Forest Reserve boundary is based on the piecing together of numerous parcels of land, and the surveying and mapping done originally has now been found to be somewhat inaccurate in certain areas. This issue is being addressed by the Forest Department, and they have already made a number of fine adjustments, however this is a tedious, time-consuming and lengthy process.

There is also an issue of inadequate clarity regarding leases of land within the BJCMNP, mainly in the PRM, through the Commissioner of Lands. Park management does not know where these lands are and has to return from the field and consult with the Forest Department, which sometimes does not seem to have information either. Most of these

leases were conveyed before the establishment of the National Park in 1993 and the new Forest Act of 1996. There was often no liaison with the Forestry Department, since at the time much of the land had been leased to the now defunct Forest Industry Development Company and through that agency to the Coffee Industry Board. The view at the time was that the land should be used for agro-forestry but unfortunately resulted in the loss of significant tracts of native forest. Further, the leases do not require any conservation practices, and they can be transferred without notifying the Commissioner of Lands. Fortunately, most of these lands are in the western Port Royal Mountains. It would be very useful to have clarity regarding these lands, and to implement a project to promote sustainable land use management, inclusive increasing biodiversity, in that area. Such a project would inform lessees that they are located within a National Park/Forest Reserve in an area zoned for sustainable use, and encourage them through information and demonstration projects, to manage the land in a manner which is more environmentally sustainable and promotes watershed and biodiversity conservation.

### **Objective 3: Resolve boundary discrepancies and re-establish and mark all boundaries.**

#### **Strategic Actions**

1. **Re-establish BJCMNP boundaries.** A critical and strategic activity therefore, is the re-establishing of the park's boundaries and establishing land ownership - mapping and marking access points and erecting signs and other markers. This should include investigation into possible use of a plant species to aid in demarcating the boundary and implementation if found feasible. The boundary signs should include a few words regarding regulations e.g. no cutting of trees, no fires and no hunting. In addition a community awareness campaign would need to be implemented in conjunction with this demarcation programme. This will be a lengthy and costly process requiring the development of a project in order to identify and secure funding. At the same time, whilst it is recognized that land ownership within some areas of the National Park is dubious, there are substantial areas where ownership by government is certain and these areas should be clearly demarcated, hence such a project could be implemented on a phased basis.
2. **Increased Cooperation with the National Lands Agency.** The need for greater involvement of the Commissioner of Lands and the National Lands Agency and greater cooperation, particularly through the Forest Department was highlighted in a number of stakeholder meetings.
3. **Sustainable land use project for the western Port Royal Mountains.**

## **8.6 Community Outreach**

Community outreach in order to increase community 'buy-in' and support was recommended strongly by various agency stakeholder representatives. Community

members were highly vocal in their demand to see and interact more with the Rangers (not just riding through) and further indicated their willingness to assist the Rangers.

Community outreach activities will be designed with due consideration to the most common offences in the BJCMNP and its Community Buffer Zone, cultural mores and the most cost-effective approaches. The issues of fires and protected species were identified as being of particular concern. Community outreach will be coordinated with the Education and Public Involvement Programme, however Rangers on duty in the field, should be required to make at least two stops to liaise with community members, whether at a public location e.g. school, library, police station or where a group are gathered e.g. on a farm. This is an important part of maintaining the level of presence – community members are sure that there were National Park Rangers in the area, promoting compliance with environmental legislation through discussion with community members and engendering support for the Park e.g. through provision of intelligence.

**Objective 4: To raise community awareness regarding the BJCMNP boundary and legislation, in particular issues that threaten the BJCMNP, and to increase community involvement in addressing these issues.**

**Strategic Actions**

1. **Increase liaison with community members.** Increased liaison by National Park Rangers and other Park Officers, with community members whilst travelling to and from the Park through the Community Buffer Zone. A target of at least two stops (one in either direction) should be aimed at, in order to make such liaison a habit. The stop can be at a school, library, police station, or other location where community members are gathered, and can involve the distribution of brochures or other educational materials.
2. **Improving intelligence gathering through improved relations with communities**  
In addition to increasing liaison with community members, business cards for the National Park Rangers should be produced for distribution, so that community members have a number to call in order to report an incident. A toll free number to call was also suggested as sometimes persons, especially away from the town square might not have sufficient credit to make such a call.
3. **Establishment of some form of “Community Forest Watch”** - a volunteer Ranger Corps whereby citizens would alert National Park Rangers to cutting of trees, fire and other illegal activities in or near the National Park boundary, and possibly implement some Ranger duties. Depending on the level of work they would take on however, they would need to have some form of payment or stipend. The Bowden Pen Farmers indicated willingness to enter into an arrangement to assist in manning the Millbank Ranger Station, but recommended training for themselves and other communities involved in this type of activity.

4. **Public awareness campaigns should address common offences** e.g. boundary, clearing of forest and fires, but they need to be designed based on an understanding of local culture e.g. regarding the use of fire, explanation of the importance of conserving the forest and the damage that the practice in question results in, and finally in addition to highlighting the “don’ts” there must be a list of “do’s”.

### 8.6.1 Common Offences that threaten the BJCMNP

The community outreach component should address common issues, concerns and offences that threaten the Park’s ecological integrity. The following activities are offences within the boundaries of the BJCMNP and some of them are common practices outside the National Park and therefore present a threat to the property:

- **Removal/cutting of trees.** It is an offence to *wilfully cut or destroy any plant* without the written permission of the park manager (Section 13(1e), National Park Regulations, 1993) and to *wilfully/negligently damage tree to fell, cut or drag timber* (Section 13 (1), Forest Act, 1996).
- **Farming and squatting.** It is an offence to *occupy/use land to cultivate* without the written permission of the park manager (Section 13(1), National Park Regulations, 1993).
- **Using fire.** It is an offence to *light, maintain or use fire except for domestic reasons in an area designated for this* (Section 12, National Park Regulations, 1993).
- **Bird shooting and hunting/collecting animals such as the Jamaican coney, yellow snake and giant swallowtail butterfly.** It is an offence to *catch, collect, hunt, shoot or kill birds or wildlife* without the written permission of the Conservator (Section 38, Forest Regulations, 2001). It is an offence to *take, destroy/wilfully injure, disturb protected animal, nest/eggs of protected bird* without the written permission of the park manager (Section 13(1d), National Park Regulations, 1993).
- **Fishing and River poisoning.** It is an offence to *fish in a national park without the written permission of the park manager* and to *use any poisonous substance, electrical charges or any other similar device for the catching or killing of fish,* (Section 19(1) and 19(5) National Park Regulations, 1993).
- **Offences associated with recreational activities such as graffiti, littering, removal of plants.** It is an offence to *deface buildings or signs...deposit litter...cut/destroy plant* (Sections 7(4), 4 & 13(1), National Park Regulations, 1993).

The above offences which threaten the National Park’s ecosystems must be addressed in the community outreach activities related to enforcement and more generally.

## 8.6.2 Fire Management

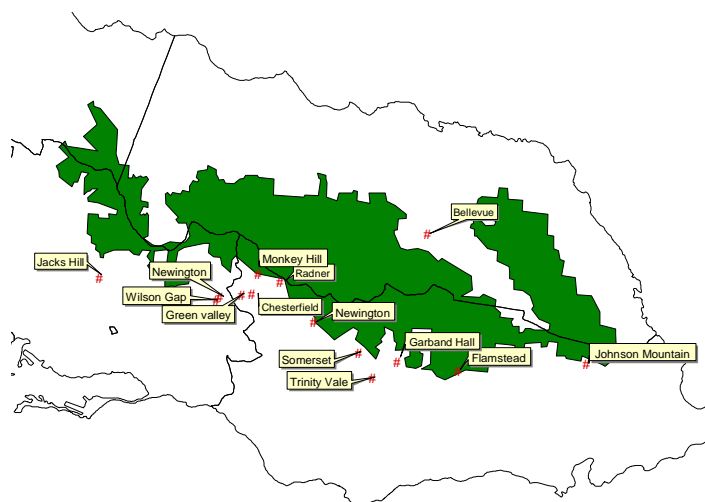
Unlike some national parks in other jurisdictions, fire has not been indicated in the natural regeneration cycle of forests in the BJCMNP. In fact, the majority of fires that burn in the National Park have been ignited by farmers as a means of clearing land, outside the boundary, for agriculture (slash and burn). Especially during the dry season, fires ignited to clear relatively small plots get out of control and become wild fires, causing tree death, land-slides, air pollution and destroying large expanses of modified forest. Fires are even sometimes lit in dry areas as a means of entertainment.

The threat of fire has been identified as a *medium* threat to the BJCMNP. The vast majority of fires in the BJCM are set and burn outside the boundary, but do present a threat to the National Park's ecosystems for many reasons. Following the passage of a wild fire, the burnt ground provides a nutrient rich seedbed for plants, a situation that invasive species take full advantage of, having the ability to colonize such disturbed environments by out-competing native species. Figure 8.1 below shows fire prone areas within the BJCM.

Considering the challenges of the terrain, the following are recommended:-

1. Sensitisation of communities through the media, signs, community meetings etc.
2. Training of community members in fire prevention and fire management
3. Institute an early warning system inclusive community volunteers for detection, reporting and action, including tools and equipment necessary for fire prevention and management and erection of "fire points" to access equipment when required.
4. Liaison with the Fire Brigade.
5. Enforcing legislation re: permit acquisition for fires, and facilitating the process.
6. Joint partnership with the JDF to out the fires from helicopter where sites were inaccessible by road or foot.
7. Record all detected instances of wildfires to track trends.

**Figure 8.1. Fire Prone Areas of the BJCM**



### **8.6.3 River Poisoning**

The previous Management Plan gave the example of ‘river poisoning’ is an breach for which it was difficult to catch someone “red-handed”, however the reports indicate this practice is occurring outside the BJCMNP boundary but in the Community Buffer Zone.

Between 2007 and 2009, this activity had a focused two-year project in the Upper Rio Grande Valley. However, even with increased community support and detection by the authorities, none of the offenders except one, has been convicted due to a lack of evidence, as both the shellfish and the water need to be tested immediately after the poisoning event. These issues were raised again by community members during management planning workshops, and the question raised as to why witness testimony could not be accepted as evidence.

The Moore Town Maroon Council discussed the issue of river poisoning in some detail, expressing concern that other chemicals were now being used, and that there were serious challenges to the effectiveness of community enforcement that had been promoted in the Anti-River Poisoning Project. Specifically, these related to the issue of evidence:

- chemical testing is difficult – you have to collect a sample in a clean container (will you have one at the particular time you witness a river poisoning incident which is likely to be some distance from your home ?) then you have to freeze the sample and get it into Kingston as quickly as possible which is costly, and finally who will pay for the laboratory test which is even more costly than transportation)
- neither photographs nor eye-witnesses are accepted as evidence, only chemical evidence – this they felt was not realistic.

Finally, they noted that the Maroons used to use a herb called “Bitter Jarsie” which looks like ‘yam-head’ and they suggested that perhaps this could be introduced to the hunters as it doesn’t kill the crayfish/fish but just stuns them for a short time.

This issue will need to be addressed through arrest and successful prosecution of offenders. There also needs to be investigation into ways to better address the challenges in providing evidence.

Despite the fact that most of the fresh water within the National Park is fast-flowing headwater streams, and generally inaccessible, the broader issue of river and stream pollution must not be forgotten. National Park Ranger patrols must be alert to water pollution both within and outside the BJCMNP boundaries.

## **8.7 Emergency preparedness and management**

Section 32(1d) of the National Parks Regulations (1993) indicates that the National Park Rangers play an important role in emergency preparedness and management, particularly as it relates to users of the national park. As managers of one of the most important components of Jamaica’s natural and cultural heritage resources, the BJCMNP management must be prepared for disasters e.g. hurricanes and other forms of emergency (e.g. fires, lost visitors) in order to manage such situations to reduce any negative impact.

This is particularly important for the National Park's recreation areas e.g. Holywell and the Blue Mountain Peak Trail.

There is a need for the analysis of the hazard vulnerability of the BJCMNP, and identification and mapping of areas of potential hazards. This information could guide the targeting of areas for specific management action e.g. reforestation, reduced access, increased monitoring. This issue has been included in the research prospectus.

### **Strategic Actions**

1. **Audit Status.** Conduct an audit of the BJCMNP disaster/emergency preparedness status e.g. ranger station first aid and other equipment and take steps to implement any recommendations.
2. **Update Plan.** Revise and update the BJCMNP disaster/emergency preparedness and management plan.
3. **Collect Information.** Conduct or obtain hazard vulnerability and risk assessments from within the BJCMNP including maps of potential hazards.
4. **Incident Reporting.** Ensure proper reporting of any accident or other safety-related incident including lost visitors (station log book and reports to NEPA and/or JDF (search and rescue or medi-vac) as appropriate).
5. **Training.** Conduct refresher training with respect to search and rescue.

## **8.8 Training**

Training is essential to provide and hone the skills required of a National Park Ranger. When the BJCMNP was first established, the initial Corps of Rangers received training through the JCF. This system was not maintained as new National Park Rangers were not recruited for a long period. Since the number of National Park Rangers has been increased over the past five years, the focus has been on in-house and on-the-job training. The last recruitment involved two Trainee National Park Rangers and a 3-week course was designed for them which included both class-room and field activities as well as tests. The Trainee National Park Ranger who remained on staff (as with most of the other National Park Rangers) was also able to take advantage of training organized for community youth under the Park's Education and Public Involvement Programme. This included basic tourism hospitality, tour guide and First Aid/CPR certification.

### **Strategic Actions**

1. **Develop a Training Manual.** During this Management Plan period, efforts should be made to develop a training manual which has a specified time frame to cover a number of modules. All the relevant agencies e.g. NEPA, FD, JCF, ISCF, JDF and the Fire Brigade should be involved in the development and implementation of the



manual. This would help to ensure that National Park Rangers all had a similar level of training which was not limited to ‘on-the-job’ training. Where possible or relevant, community members e.g. from the “Community Forest Watch” could participate in the training.

Specific areas that should be covered in the training manual include:-

- Relevant legislation
  - Patrol skills – observation, recording information, map reading
  - Use of GPS units and cameras
  - Basic Ecology and Conservation (particularly as it relates to the BJCMNP)
  - Communication Skills
  - Report Writing
  - First Aid/CPR
  - Survival Skills
  - Search and Rescue
  - Fire Prevention and Management
  - Basic GIS skills
  - Conflict Resolution
2. **Conduct Training.** Training based on the Manual should be conducted. This should be done where possible in conjunction with other authorized enforcement officers. Refresher courses should also be conducted from time to time, or as required as it relates to certification e.g. for First Aid and CPR.



*Plate 23: National Park Ranger at a Forest Reserve boundary monument (Source: JCDT)*

**Programme Summary: Enforcement and Compliance**

**Goal: To stop encroachment of the BJCMNP boundary and destruction of the forest and wildlife within.**

<b>Objective</b>	<b>Programmes/Strategies</b>	<b>Activities</b>	<b>Monitoring</b>	<b>Resources</b>	<b>Timeframe and Priorities</b>
1. To increase the level of presence of enforcement officers and their effectiveness in detecting and mitigating breaches of relevant legislation	<p>1. Increase enforcement officer density by employing additional Rangers &amp;/or secondment of enforcement officers from other agencies, and joint patrols (and involvement of community members – see Objective 4)</p> <p>2. Continue regular patrols but vary time of patrols to increase probability of detecting breaches</p> <p>3. Investigate possibility of at least an annual helicopter reconnaissance tour linked to forest area monitoring</p> <p>4. National Park Rangers can address legislation pertaining to cultural heritage</p> <p>5. Ensure trained National Park Ranger Corps</p>	<p>1a. Restore the Park’s Ranger Corps to the required complement of 15 Rangers through a combination of employment of additional NP Rangers, secondment from other agencies, increased joint patrols and a Community “Forest Watch” Programme</p> <p>1b. Address the issue of lack of clarity of NP Ranger status re: NRCA and ISCF</p> <p>2a. Organise and implement patrols at least 14 days/month</p> <p>2b. Organise and implement joint patrols at least once per week and collaborative enforcement agency meetings quarterly.</p> <p>2c. Prepare and implement a roster that varies patrol times so that they do not always occur in the late morning.</p> <p>2d. Implement seasonal patrols based on increases in illegal activities at certain times of the year</p> <p>3. Investigate and implement helicopter reconnaissance tour at least annually</p> <p>4. Liaise with the JNHT re: making sites in the Park and its Buffer Zone national monuments and develop and implement a plan to address the enforcing of legislation</p> <p>5. Design and conduct training and develop manual, in collaboration with relevant agencies</p>	<p>Monthly reports with photos and information on # patrols, # joint patrols, # offences seen and action taken e.g. breach stopped, and location (GPS)</p>	<p>Funding for NP Rangers – salaries and meal stipends, transportation, uniform, gear &amp; communications</p> <p>Plan budget provides for only 12 Rangers inclusive C/Corps and Trainee Rangers, but adequate funds may not be sourced</p>	<p>1a. By end of Year 5</p> <p>1b. By Year 2</p> <p>2. By end of Year 1 and ongoing</p> <p>3. By end of Year 1 and ongoing.</p> <p>1 – 3 (High Priority)</p> <p>4. By end of Year 2 (Medium Priority)</p> <p>5. Training ongoing from Year 1 (High Priority); Manual by Year 5 (Medium Priority)</p>

<b>Programme Summary: Enforcement and Compliance</b>					
<b>Goal: To stop encroachment of the BJCMNP boundary and destruction of the forest and wildlife within.</b>					
<b>Objective</b>	<b>Programmes/Strategies</b>	<b>Activities</b>	<b>Monitoring</b>	<b>Resources</b>	<b>Timeframe and Priorities</b>
2. To contribute to the resolution of breaches inclusive prosecution of offenders	<p>1. Strengthen National Park Ranger Corps, as above.</p> <p>2. Collaborate with other agencies for enforcement action, particularly arresting and charging offenders. Investigate possibility of community service.</p> <p>3. Publicise cases to warn potential offenders &amp; raise enforcement officer morale</p> <p>4. Identify issues and cases requiring special attention and work assiduously to resolve these.</p>	<p>1. Implementation of Ranger Threats-Monitoring System to gather and record information</p> <p>2a. In addition to monthly reports, send detailed reports on specific concerns</p> <p>2b. Collaborate with other agencies for investigation, arrest and prosecution</p> <p>2c. Quarterly inter-agency meetings</p> <p>3. Other agencies provide information on arrests, prosecution and charges inclusive media releases for publicity</p> <p>4. Investigate, lobby, educate and otherwise address common offences e.g. fire, river poisoning and major systemic issues e.g. squatting.</p>	Ranger Threats-Monitoring System, Reports on # observed offences, # arrests, # prosecutions and # charged	<p>Time of:</p> <ul style="list-style-type: none"> <li>- National Park Rangers,</li> <li>- Chief of Corps,</li> <li>- CSO, EEO</li> </ul> <p>Time of other Enforcement Officers including Legal Officers</p> <p>GPS units and digital cameras</p> <p>GIS</p>	<p>1. On-going</p> <p>2. Ongoing</p> <p>3. By year 1</p> <p>4. By year 1</p> <p>1 – 4 (High Priority)</p>
3. Resolve boundary discrepancies and re-establish and mark all boundaries.	<p>The Forest Department will play the lead role with respect to this programme, as the National Park is gazetted on Forest Reserve boundaries. FD will continue to work with the Commissioner of Lands to resolve these discrepancies. JCDT will work with FD to mark/sign access points and other sections of the boundary and conduct community awareness activities.</p>	<p>1. Re-establish park boundaries on maps and clarify land ownership working with CoL and NLA (<i>FD lead</i>).</p> <p>2. Mark boundary on land, especially access points with signs</p> <p>3. Investigate possible use of plant species to mark the boundary and implement if feasible</p> <p>4. Implement community awareness programme re: boundary and Park offences</p> <p>5. Develop plan for a sustainable land-use management in the Port Royal Mountains and seek funds to implement project</p>	<p>Reports and Maps</p> <p>Reports with photographs and maps</p> <p>Reports</p> <p>Community survey</p>	<p>FD, CoL &amp; NLA, other agencies and stake-holders</p> <p>Chief of Corps NP Rangers</p> <p>Funds for Signs etc. (see Education Prog)</p> <p>ED time</p>	<p>1. Resolution of lack of clarity by end of 5 years</p> <p>2– 4. By Year 3</p> <p>1 – 4 (Medium Priority)</p> <p>5. By Year 4 (Low Priority)</p>

**Programme Summary: Enforcement and Compliance**

**Goal: To stop encroachment of the BJCMNP boundary and destruction of the forest and wildlife within.**

<b>Objective</b>	<b>Programmes/Strategies</b>	<b>Activities</b>	<b>Monitoring</b>	<b>Resources</b>	<b>Timeframe and Priorities</b>
4. To raise community awareness regarding: the BJCMNP boundary and legislation, particular issues that threaten the BJCMNP and increase community involvement in addressing these issues	<p>Liase with local community members and groups through education and outreach, in order to increase intelligence obtained from the communities.</p> <p>Develop specific plans for particularly threatening issues</p> <p>Revisit the National Park’s fire management plans and develop an updated plan that is more cost-effective, and implement</p>	<p>1. Stop in communities whilst on patrol (2 stops per patrol) to talk with community members, distribute flyers, visit schools, police stations etc.</p> <p>2. Conduct community awareness raising activities including production &amp; dissemination of relevant materials, regarding the boundary, fires etc.</p> <p>3. Develop a plan for a “Community Forest Watch” that involves community in providing information and also participating in some Ranger duties, and implement</p> <p>4. Develop and Implement plans to address specific threatening issues</p> <p>5. Develop and Implement a revised fire management plan</p>	<p>Monthly Reports including Maps</p> <p>Reports</p> <p>Plan and Reports</p> <p>Plans and Reports (As above)</p>	<p>Chief of Corps National Park Rangers</p> <p>Funding for: educational materials and activities, stipends for “community wardens” e.g. Trainee Rangers and Education Programme – Community Awareness</p>	<p>1. Year 1 and ongoing (High Priority)</p> <p>2. From Year 1 (High Priority)</p> <p>3. By Year 2</p> <p>4. By Year 3</p> <p>5. By Year 3</p> <p>3 – 5 (Medium Priority)</p>
	<p><b>Emergency Preparedness and Management</b></p> <p>Revise and update the National Park’s disaster/emergency preparedness plan.</p>	<p>1. Conduct audit of current state of BJCMNP ability to manage emergencies</p> <p>2. Revise and update the Plan; Seek funds for training and equipment identified to enhance management capacity</p> <p>3. Conduct or obtain hazard vulnerability and risk assessments for Park</p> <p>4. Conduct refresher and other training</p> <p>5. Ensure proper reporting</p>	<p>Audit Report</p> <p>Revised Plan</p> <p>Reports</p> <p>Reports</p> <p>Reports</p>	<p>Chief of Corps National Park Rangers</p> <p>Training funds</p>	<p>By Year 2 (Medium Priority)</p>

## Chapter 9

### Education and Public Involvement Programme

Environmental education results in the empowering of communities to participate in the environmental management of their surroundings. Education is communication in a sustained and organised manner to bring about changes in attitudes, values, practices or knowledge (Saeed, S. et. al, 1998, IUCN).

The Education and Public Involvement Programme of the BJCMNP supports its ultimate conservation goal by providing the impetus for stakeholder involvement in activities that facilitate this goal, in particular, increasing the environmental sustainability of resource use and livelihoods around the National Park. The 2011 - 2016 programme builds on the success of the 2005 – 2010 programme. The latter had several relatively new components, based on lessons learned through experience and evaluation of previous programmes and activities.

#### 9.1 Promoting Public Involvement

The public can be involved in supporting National Park management directly through donations of money or time, and indirectly through sustainable practices outside the boundary. This support is essential for the effectiveness and sustainability of the programmes that will conserve the resources of the BJCMNP. Involvement of the public (living and working within the Community Buffer Zone and further afield) requires first, an awareness and knowledge of the National Park – its natural and cultural resources, its role and importance to our lives; then concern and motivation to want to do something; and finally the skills and practical experience to actually implement a particular activity.

Within the context of managing the BJCMNP, the focus of education must ultimately be on changing practices, particularly those impacting on the integrity of its ecosystems. This will be of particular relevance to communities and resource users around the National Park with respect to promoting sustainable livelihoods that incorporate conservation of the natural resources of the BJCM. Education will therefore need to be addressed in the broadest sense, from raising awareness through to changing attitudes, values and practices. In order to change practices, education must include skills training and hands-on activities that allow participants to implement new or modified practices and assess the results for themselves. For community-based resource users and other community members there will likely be a need for empowerment and capacity building to enable participation as good stewards of the resources within the National Park and its Community Buffer zone. These are time-consuming and labour-intensive activities, which due to limited resources for park management (even partnering with relevant agencies and focusing only on a few communities at a time) it may not be possible to implement at an ideal level. Despite this, facilitating involvement of local community members in sustainable livelihoods will be an important Park management strategy.

Income generation (often at significant levels e.g. coffee production), cultural practices, government policies and product market strongly influence the overuse or inappropriate use of resources, therefore, it will be important to raise awareness beyond the communities surrounding the BJCMNP. A communications strategy should be designed and implemented to address this wider target group. The role of the National Park's recreational areas in promoting an interest in conserving its resources, through interpretation will be relevant to both local communities and the wider public.

**Table 9.1 – Education and Public Involvement Programme Goal and Objectives**

<b>PROGRAMME GOAL</b>	<b>PROGRAMME OBJECTIVES</b>	<b>TARGET GROUPS</b>	<b>SUB-PROGRAMMES</b>
<i>To raise support for conservation of the BJCMNP's natural and cultural heritage and improve resource management and the sustainability of livelihoods, particularly in Buffer Zone communities.</i>	1. To facilitate capacity building of at least 120 persons from at least 6 communities, for more environmentally sustainable livelihoods and greater involvement in management of the resources of the BJCMNP and its Community Buffer Zone.	1	Community Conservation and Sustainable Livelihoods Programme
	2. To increase awareness about the National Park's natural and cultural heritage, importance and management, in order to increase the level of support for the BJCMNP.	1 and 4	Public Awareness Campaign – community and general public
		2 and 3	Interpretive Programme
		1 and 2	Buffer Zone Schools Programme

### **Target Groups**

**Group 1:** Communities (particularly resource users) around the park. They include farmers, community-based organizations such as citizens, churches, schools, youth and women's groups; and business entities such as shops and business interests in coffee, spring water and tourism.

**Group 2:** Schools (teachers and students) around the park, in eastern Jamaica and the rest of the island.

**Group 3:** Visitors (to the Park's and Buffer Zone's recreation areas).

**Group 4:** The wider public including businesses and government agencies.

## 9.2 Community Conservation and Sustainable Livelihoods

The purpose of this programme (or sub-programme of the Education & Public Involvement Programme) is to empower community members and organisations to better conserve natural and cultural heritage, improve environmental management and practice sustainable livelihoods. Ultimately, the natural and cultural resources within the BJCMNP and its Community Buffer Zone will show improvement in status and appearance. This sub-programme will facilitate training and ventures in sustainable livelihoods e.g. sustainable agriculture, manufacture of value-added products, and will link closely to the Recreation and Tourism Programme e.g. facilitating sustainable community tourism through the Blue Mountains Sustainable Tourism Programme.

Based on the successful implementation of activities under this sub-programme over the past five years, the emphasis will be on strengthening capacity and preparing to move on to target other communities, with the assistance of persons from communities targeted in the previous and current five years.

**Objective 1: To facilitate capacity building of at least 120 persons from at least 6 communities, for more environmentally sustainable livelihoods and greater involvement in management of the resources of the BJCMNP and its Community Buffer Zone.**

Capacity building aims to improve the effectiveness of individuals and organizations in their implementation of various functions. In order to better conserve the BJCMNP, management must aim to increase and improve environmentally sustainable livelihoods around the National Park, and increase involvement of community members and other stakeholders in conserving natural and cultural heritage in and around the BJCMNP. Capacity building is often thought to be synonymous with skills training and material resources, but it also includes elements such as culture and structure of an organization, adaptive strategies and linkages (Krishnaryan et. al., 2001). These elements are relevant to individuals and organizations. Strengthening capacity is a major factor in empowering individuals and organizations to address issues that impact them.

### **Strategic Activities**

Activities under this objective will focus on targetted communities, for greater effectiveness and impact. Partnership with organizations such as the Social Development Commission (SDC) and JNHT will be essential, e.g. for provision of resource personnel for training. There will continue to be two main strategies:-

- (i) A focus on youth (17 – 25 years) as potential change-agents in local communities) and the development of a cadre of young Community Buffer Zone members who are concerned, willing and able to work for the conservation of BJCM resources.
- (ii) A focus on adults, particularly through community-based organizations (CBO) with activities that aim to make existing livelihoods more sustainable, and to introduce and develop new sustainable livelihoods opportunities. The youth will be encouraged to participate in these activities, and play a role in the local CBO.

## **Youth Programme:**

There will be two levels of activity: (i) the basic level which will target larger numbers of youth, primarily through skills training activities, and (ii) the intensive level which will target a smaller number of keen, interested youth from within the larger group. Training will include basic BJCMNP knowledge, life skills (e.g. conflict resolution), sustainable craft development, horticulture, tour guiding and other tourism related skills. The intensive level will see the formation of a small group of environmental stewards who can accompany and assist National Park Rangers on various park management activities.

Based on the success of the 2009 youth programme, the initial focus of the first one or two years under this Management Plan may be intensive work with this cadre of youth. This will result in deepening and strengthening of the impact of the programme.

**Table 9.2 Activities Under the Youth Programme**

<b>Basic Level Activities</b>	<b>Intensive Level Activities</b>
<p>i) Identify training needs and interests along with potential business opportunities in specific buffer zones around the park.</p> <p>(ii) Identify training providers in the various knowledge/skill areas and make arrangements for training.</p> <p>(iii) Source funding for training activities.</p> <p>(iv) Design training such that all skills relate to natural and cultural heritage conservation.</p> <p>(v) Conduct training.</p> <p>(v) Encourage youth to upgrade their education, pursue further training, seek employment or start their own business</p>	<p>i) Identify youth from the basic level activities who have the aptitude and interest in working more closely in park management.</p> <p>ii) Identify funding sources to at least be able to provide stipends.</p> <p>iii) Roster environmental stewards to work alongside National Park Rangers in park management activities e.g. reforestation, visitor management and enforcement.</p> <p>iv) Facilitate youth in further training, job placement, business start-ups etc.</p>

## **Monitoring and Evaluation**

This programme will be evaluated by the use of questionnaires and possibly, focus group discussions or interviews. Up to 2009, UNESCO supported this activity, inclusive of evaluation; however, the Park's management will need to develop its own source of funding in order to continue the programme.



### **Adult Programme:**

Four to six communities will be selected each year (not necessarily different ones each year) based on interest shown by CBO and individual community members, and organizational capacity within the management entities. Participatory methodologies will be used to work with these communities to identify issues of concern related to the BJCMNP and its management and to develop and implement action plans that allow community members to participate in natural resource management activities that benefit both the National Park and themselves. Raising awareness and concern within these communities through these core groups will be one component of the activities planned. This process will also allow identification of persons interested in park management support e.g. accompanying National Park Rangers on patrols or other activities.

The basic thrust will be to:

- i) facilitate the strengthening of local, community-based capacity for cultural and natural heritage management through training and more participatory approaches; and
- ii) facilitate socio-economic benefits to communities from conservation through to sustainable livelihood opportunities, particularly in sustainable recreation, tourism, agriculture and cultural heritage use.

Training will be facilitated by Park management, such that where relevant knowledge is available in-house – this will be used, but an emphasis will be placed on using the resources of volunteers and other organizations e.g. Rural Agricultural Development Agency (RADA), Jamaica Cultural Development Commission (JCDC), FD, SDC, JNHT.

Documentation of the process, achievements and lessons learned, along with the dissemination of this information will assist park management in evaluating and improving its programmes in this area. Use of photography to portray “before” and “after” conditions is a very useful method of recording information in a way that can be used for monitoring and evaluation. The following documents “*A Plan for Ongoing Stakeholder Involvement in the Management of the BJCMNP*” and “*Monitoring and Evaluation of On-going Involvement of Community Stakeholders in BJCMNP Management*” prepared by Janet Bedasse for JCDT in 2005, with funding from CANARI, will be useful in guiding the monitoring and evaluation of the activities with each community-based organisation.

Recognising the long-term and human resource-intensive nature of participatory resource management, the selected communities will be focused on for long periods of at least three to five years. Bearing this in mind, and based on activities and successes over the past five years, the targeted communities for at least the first two years of this Management Plan period should be drawn from the following:-

- Millbank and the Bowden Pen Farmers’ Association
- Ginger House/Comfort Castle
- Charles Town and the Charles Town Maroon Council
- Moore Town and the Moore Town Maroon Council
- Woodford/Freetown and the Woodford Community Action Group

- Cascade/Section
- Irish Town/Redlight/Middleton
- Mavis Bank
- Hagley Gap/Minto/Penlyne Castle

These communities have already participated in exercises to determine appropriate sustainable livelihoods and plans have already been developed and some training implemented. As per the approach described for the Youth Programme with a basic and a more intensive level, these communities will focus on implementation of their plans, and later on in the five year period, if possible other communities can begin to be targeted for capacity building. For the majority of the communities identified above, the main focus will be on sustainable community-based tourism through the implementation of the Blue Mountains Sustainable Tourism Programme e.g. trails and provision of meals.



*Plate 24: Farmers from Woodford and Freetown learn to use an A-frame to contour land (Source: JCDT)*

The sustainable agriculture activities initiated in the Woodford/Freetown and Cascade/Section communities should also be built on. Whilst training activities have already been implemented, “refresher” training activities should not be ignored. These communities will be encouraged to visit each other and learn from each other and a spirit of competition and local community pride will be encouraged. Where possible, for example with the Bowden Pen Farmers Association, communities should also be involved more formally in aspects of park management. This can link with the Enforcement and Compliance Programme objective of involving community members.

The use of the monitoring and evaluation system described in the Management Plan was not used in a formal or consistent manner, due to changes in staffing and general resource challenges. Effort should be made to improve implementation of the monitoring and evaluation system during the new Management Plan period.

## **Monitoring and Evaluation**

The methodology for monitoring and evaluation will be that described in Bedasse, 2005. This has a focus on the monitoring and evaluation of activities implemented based on an action plan developed by each community, using a participatory process. The action plan will focus on areas in which the community can assist with natural resources and Park management, and address the sustainability of their livelihoods. Where there is funding for a specific project, the action plan for that project will guide monitoring and evaluation.

In addition, and particularly for communities that may not be at a stage to develop action plans, photographs will be taken pre- and post-activities and work in the community in general. Permanent photo-monitoring points will also be established and used.

### **9.3 Public Awareness**

For people to be interested enough and then willing to be involved in new or different activities e.g. improving the sustainability of their livelihoods, volunteering to assist with park management activities, or making a cash donation, they must first be aware of the cause. They need to know what the issue is, how it is relevant to them, why and how they should get involved. The first step therefore in education aimed at changing practices, is to raise public awareness, which will require different approaches for the different target groups. There are three main target groups to be addressed under this objective – BJCMNP Community Buffer Zone members, general public and students.

**Objective 2: To increase awareness about the National Park’s natural and cultural heritage, importance and management, in order to increase the level of support for the BJCMNP.**

#### **Public Awareness Campaign**

A public awareness campaign which delivers basically the same message about the BJCMNP’s natural and cultural heritage, their importance and management should be developed which targets different groups. As there will be different target groups, not all the methods of delivery will be exactly the same, although some tools will probably be used for more than one group. The two main target groups identified are local communities within the National Park’s Community Buffer Zone, and the wider public.

Ideally, the public awareness campaign should be designed and implemented by professionals and should involve the use of focus groups to gather information regarding perceptions of the park, which would then be analysed and used to develop messages and the most appropriate means of delivery for each target group. Bearing in mind the limited resources available for Park management, and the fact that an organized public awareness

campaign was aimed for but not implemented during the previous Management Plan period, it is recommended that efforts are made to develop and implement a campaign using available resources. For example, information can be derived from the management planning community meetings that have already been held, and a simple questionnaire; also partnerships can be strengthened with other organizations that have professional capacity, and assistance can be obtained from volunteers.

### **9.3.1 Buffer Zone Communities**

There are about 51 communities with a total population of approximately 30,210 within the BJCMNP's Community Buffer Zone (a 1km wide zone around the boundary plus a few other strategically located or relevant communities e.g. Charles Town, Portland) and these are listed in Appendix 6. Experience from the previous five years of National Park management and feed-back from communities during the planning process for this Management Plan indicate a need for greater outreach to communities beyond those targeted under the capacity building component of the Education and Public Involvement Programme. Whilst it is impossible to build capacity within all the Buffer Zone communities (due to the intensive work required and the limited resources available) it is essential to raise public awareness about the BJCMNP, in all of these communities.

#### **Community Awareness-raising Campaign**

Whilst the over-arching theme will always be the BJCMNP and the importance of its natural and cultural heritage, and the message one encouraging its conservation, there will be sub-themes and messages addressing particular issues and perhaps specific target groups within a community. A slogan encapsulating the "Protect our National Park" message and a clear concise set of sub-messages (what community members should do) needs to be developed. Bearing in mind the issues raised by stakeholders, key sub-messages (not actual text) could be:-

- Look out for the National Park boundary ! – stay on your side of the line
- Admire our beautiful animals – don't kill them – many are unique to Jamaica
- Plant more trees
- Careful with the Fire !

These could be repeated regularly as part of the campaign, under the broader "Protect our National Park" message, and smaller campaigns developed for each sub-message.

Special attention must be paid to the issues raised in the Enforcement and Compliance Programme e.g. Park offences (See Section 8.6 for detailed information).

In addition to the usual dissemination of flyers, brochures and posters, the following should be considered for the community awareness-raising campaign, bearing in mind that a campaign consists of several components all with the same theme and message:-

- Presentations during regular meetings of existing groups

Link into existing community groups e.g. Agricultural Production and Marketing Organisations, Police Youth Clubs, Church Groups, and obtain permission to make a presentation during one of their regular meetings. Standard presentations can be

developed so that different staff members or volunteers can present. Links can be made through government agencies that liaise or support these community groups e.g. SDC or RADA. However, linkages may need to be made through the parish headquarters rather than the national, which may not have detailed information. With respect to churches – there are usually several groups within the church, and it may be possible to place a notice or make an announcement at church services.

- Town-square meetings

These have been used successfully over the past five years, and community members recommended them for continued use. Essentially these are community meetings where an audio-visual presentation is made to disseminate the key messages. However, the venue is very central e.g. literally within the town square, and not within a community centre, school or church, as often-times some people will not enter these venues. This type of meeting is primarily for raising awareness of the wider community. If there is a need for greater participation of community members e.g. for planning or evaluation, then an in-door venue is more appropriate. Provision of refreshment e.g. soup can encourage persons to participate in meetings at in-door venues, if this will be more appropriate or convenient e.g. during rainy season. Use of relevant popular music or showing a popular video are strategies that have been used successfully to draw a crowd.

- Exhibit at Community Events or Key locations

“Pay-day” at Coffee Factories is likely to be an event at which numerous community members are gathered in one location. Sporting events e.g. football matches may also create a setting where community members are gathered. These may be opportunities to set up exhibits about the BJCMNP to capture a community audience that would not be willing to come out for a “National Park” event.

- “Walk and Talk”

Use National Park Rangers and volunteers to walk through the community prior to the meeting, to disseminate brochures and talk to community members about the BJCMNP.

- Park Song/DJ Competition

Organising a Song/DJ Competition between communities may be another way to create interest. This could be associated with the hosting of town-square meetings/events – which feature local competitors and would lead up to the grand finale which could be held during Misty Bliss. The theme of the song would have to be BJCMNP-related and it might be useful to focus on “sing-jays” to ensure both musical and lyrical content. Clear rules and regulations will need to be provided to make certain the items can actually be used in later promotion of the National Park. The National Environmental Education Committee and Panos have experience implementing such a competition.

- Radio

Use of time signals or temperature announcements should be considered as they are repetitive and relatively low cost compared to other formats. The most popular stations listened to in the Community Buffer Zone must be used.

- DVD

Brief features (15 minutes) should be produced on a variety of key conservation issues e.g. fires, clearing of forest. They could then be used not only for community awareness-raising e.g. at regular community meetings, town-square meetings, exhibitions but also in schools and in the Interpretive Programme.

#### Specific Community Target Groups

Within the local communities, a sub-target group was identified – farmers, particularly Blue Mountain Coffee farmers. Where possible, a specific campaign e.g. through a brochure and participation in Coffee Industry Board activities should be implemented.

### 9.3.2 General Public

General public refers to all Jamaicans (outside the Buffer Zone communities) and it is important for all Jamaicans to be aware of the BJCMNP as it is a significant component of Jamaica's heritage and of international importance too. For the purposes of reducing this broad group to a more manageable target group, the focus should be on adults, and at least initially (bearing in mind limited resources) a major focus should be placed on those adults in the Kingston Greater Metropolitan Area and then Eastern Jamaica. The following are key groups that should be targeted:-

- Tertiary level students – send information/make presentations at clubs to encourage hiking, outings, research
- Persons interested in natural history and cultural heritage – through participation in exhibitions that such persons might attend
- Corporate Jamaica (the business community) – invitation to sponsor and participate e.g. corporate family outings linked to planting trees
- Government agencies

The focus of the Public Awareness Campaign targeting the 'general public' should be on the national and global significance of the BJCMNP – its unique biodiversity and rich cultural heritage. The message should be that all Jamaicans need to get involved in conserving our National Park's natural and cultural heritage. This approach could easily be linked to possible UNESCO World Heritage Site status and maybe to Jamaica's 50<sup>th</sup> Independence celebrations in 2012. Further, this could be linked (for a full year or more of activities) to the BJCMNP 20<sup>th</sup> Anniversary in 2013. For the purposes of this Management Plan, the Campaign will have two components – the on-going public awareness raising described below, and the components that will be added with the raising of additional funds for a formal campaign.

On-going public awareness-raising should include:

- Website – this should highlight the BJCMNP's natural and cultural heritage and feature its management programmes, activities and achievements. The public should be encouraged to get involved by visiting the National Park and its Community Buffer Zone (linking with the Recreation and Tourism Programme marketing) and through membership/volunteering with the JCDT. The JCDT's

existing website is already dedicated to the BJCMNP however it needs updating on a more regular basis and more links to relevant environmental and cultural sites as well as a Facebook link and a search bar.

- Media – at least once a month, an article on some activity in the BJCMNP, linked to a topical issue should be prepared and sent to the media for release. More frequently, captioned photographs from events, projects and training workshops should be disseminated to the media. This will require maintenance of an updated media/journalists data-base.
- Exhibitions – these are organized by partner and other organizations on a regular basis, often associated with celebrations such as Earth Day and World Environment Day. The exhibit should include posters, brochures, multi-media and actual items e.g. plants, equipment. Where possible, efforts should be made to participate in events which will attract the wider public, and not just those with an interest in the environment. Exhibits on the BJCMNP should continue to be a component of Misty Bliss – the National Park’s annual cultural festival and the JCDT organized Green Expo.

Funds should be raised to professionally design and implement a public awareness-raising campaign about the BJCMNP, associated with major events noted earlier. This should involve greater media coverage including regular advertorials, website updating, billboards etc.

### **Government Agencies**

In addition to the activities implemented to raise awareness, copies of documents such as the Park’s Management Plan and Annual Reports should be sent to relevant agencies. Further, invitations should be sent to agencies (both formal letters and flyers for posting on notice boards) for events such as Misty Bliss and Green Expo. Assistance should be sought from government partner agencies – NEPA and FD.

### **Students**

Students, particularly primary and secondary level will be addressed mainly through the Interpretation Sub-programme.

## **9.4 Interpretation**

Interpretation can be described as “an educational method that aims to reveal meanings and relationships through the use of original objects, by first-hand experience, and by illustrative media rather than simply to communicate factual information” Tilden, 1957.

Interpretation is an important aspect of the Environmental Education and Recreation/Tourism Programmes in any national park. Its purpose is to engender support for the park by relating the features of a site to everyday things with which people can identify; and hence, build understanding and appreciation of the park.

The only persons who will be impacted by the BJCMNP’s Interpretive Programme are those who see or participate in it. Therefore, the success of this programme (in terms of numbers of persons participating) is dependent on the marketing of the recreation areas

since most of the interpretation will be at these sites. As Holywell receives the most visitors of all the recreation areas within the BJCMNP, that site will be the major focus for the Interpretive Programme. However, Millbank and Portland Gap ranger stations will have posters, brochures etc., and major trails e.g. Blue Mountain Peak Trail and Cunha Cunha Pass Trail will have interpretive and other signage. Whilst the programme will be designed to impact on all visitors, some aspects will only be experienced by those persons who partake in guided tours or educational packages.

The National Park's Interpretive Programme should use a variety of strategies including signs, brochures, exhibits, Visitors' Centres (featuring all these) and interaction with people through activities like audio-visual presentations, guided tours and games.

### **Visitors' Centres**

The Visitors' Centre is an important component of the recreational area of any national park as it plays a critical role in interpretation and education. Such a location has information on the park in the form of exhibits, brochures etc. As Holywell is the BJCMNP's main recreational area, the focus of this section will be on that location. However, the ranger stations at Portland Gap and Millbank should also be used for interpretation. This can be done through the use of copies of signs, posters, brochures and other exhibits from Holywell. Further, signage and information about the BJCMNP should be made available through the Blue Mountains Sustainable Tourism Programme, in participating community ventures e.g. Charles Town Maroon Museum and the proposed Visitors' Centre at Mavis Bank.

During implementation of the previous Management Plan, efforts were made to source funding for a new Visitors' Centre – the Holywell Pavilion in the main picnic area, and for the renovation of the existing Visitors' Centre into an Education Centre. The intention was to continue to use the existing Centre for multiple functions e.g. training and to improve the exhibits. Unfortunately, funds were not sourced for the new construction but new signs were erected and improvements made to the existing Visitors' Centre.

Under this Management Plan, efforts should continue to source funding for implementation of the Holywell Ecotourism Development and Management Plan, however whilst that is occurring the existing Visitors' Centre should be maintained and improved as possible, and information placed in other appropriate locations.

### **Signage Programme**

Signs and exhibits should be made of durable materials (to resist weather and vandals). There should be consistency in both the design and type of materials. Treated lumber should be used, and galvanised nails/screws because of the wet conditions at the sites.

As described in the 2005 - 2010 Management Plan, a BJCMNP Signage Plan exists which guides design in terms of measurements and layout for all Park signs particularly those at Holywell. Some of the signs are directional – guiding visitors to trails and services, others are informational e.g. labeling of amenities. The majority, however are larger signs which are interpretive or provide information on trails. At locations other



than Holywell, most of the signs to be used will be directional and informational. If interpretive signs are to be prepared for other areas, it will be better to use different, location-specific content - even for those more general signs e.g. orchids.

Twenty-three signs were proposed for Holywell, some of which will be grouped at strategic locations. Appendix 10 provides an overview of these signs but they are described further in the Holywell Ecotourism Development and Management Plan and in detail in the Holywell Signage Plan. Despite efforts to produce and erect interpretive signage during the past five years, this was not achieved until 2009 when some funds were accessed which allowed for the implementation of a small component of the Holywell Signage Plan in 2010. These signs provide interpretation regarding Holywell Trails and also include signs or name tags for the cabins and gazebos.

Relevant here and for the Community Awareness-Raising Sub-Programme, interpretive signage is proposed for the Blue Mountains Sustainable Tourism Programme. These would be at the entry to targeted, participating communities, identifying them as BJCMNP Buffer Zone Communities, indicating the importance they place on protecting their natural and cultural heritage and encouraging visitors to participate. Signage related to issues of concern to the Enforcement and Compliance Programme (illegal activities and the Park boundary) are also recommended.

#### Botanical signs

These are generally small signs which provide the scientific and common names (that in general use, and the local name if different) of plants, sometimes with a little detail about same. Some of these were placed at Holywell and a “Tree Treasure Hunt” - was developed for use with groups on educational tours, indicating how these signs can be incorporated into interpretive activities, particularly for children.

The signs or name tags for the Holywell cabins and gazebos should be used to develop an interpretive activity for possible inclusion in the schools educational packages.

Care must be taken to avoid over-signage by placing the signs in locations where they are likely to be viewed. Smaller signs or tags for plants can also be considered.

#### **Guided Tours**

Tour guides are important to interpretive and ecotourism programmes. Their friendliness, knowledge and ability to impart information in an interesting and appropriate manner can make or break a visit. Over the past five years, the following strategies were successfully implemented and this work should continue with refresher training, improvements and new involvement under this Management Plan.

All National Park Rangers and as many other persons as possible should be trained as tour guides. Training is available locally, however at least one person should be trained abroad, in order to be exposed to international approaches and standards for tour guiding and other aspects of interpretation. This individual should be required to conduct local training on completion of his/her international training. Whilst use should be made of

formal training and certification e.g. Tourism Product Development Company, tour guide training must not be viewed as a one-time activity, as experience improves tour-guiding skills. In addition, tour guides should always be improving their knowledge base through reading e.g. information from the Internet, talking with elders, etc. Further, the techniques used for different age and interest groups will vary. The activity is a skill that can provide income-generating opportunities for community members and this kind of training and marketing of the service can be a useful benefit from park management.

Basic outlines of interpretive information should be prepared for each trail and provided to tour guides through a training session. Similarly, the current slide presentation for the National Park should be reviewed and revised as necessary and an outline script prepared. This type of outline can help to ensure that key interpretive points are covered by each tour guide, as well as provide a useful revision tool that guides can use to refresh their memories. Information should be readily available for National Park Rangers and tour guides e.g. brochures and books on plant and animal identification and therefore, a small reference book area should be maintained in the ranger station.

### **Educational Tours/Packages**

This component of the Education and Public Involvement Programme was successfully implemented over the past five years and should continue into the future. All schools in the island will be encouraged to visit Holywell for educational and recreational visits.



*Plate 25: Holywell guided tour starts at an interpretive sign describing the Trail (Source: JCDT)*

Activities will be tailored according to the age-group of the students and the school curriculum. These will include a multi-media presentation e.g. power-point, viewing of exhibits, guided trail tour and activities that will help to teach concepts in a fun and interactive manner.

The packages of activities designed for primary school age groups, during the last implementation period will be improved as needed or opportune. The Kids Discovery Zone will continue to be a highlight of the educational packages for basic and primary level students.

The focus of the Education and Public Involvement Programme will be ensuring the content and successful implementation of these packages, led by trained community youth, however the Programme Officer must play a significant role in the marketing of these educational packages. Visitation will be promoted by direct marketing consisting of letters to the principals accompanied by a brochure or flyer describing the fun, educational packages, and presentations to schools, teachers and other groups. In addition, letters will also be sent to companies inviting them to sponsor a school visit, since many companies support schools in their communities.

#### **Kids' Discovery Zone (KDZ)**

The Kids' Discovery Zone is an interactive, interpretive play centre at Holywell, for children between the ages of 3 – 12 years. It is described in detail in the Holywell Ecotourism Development and Management Plan, and is geared at improving the Interpretive Programme geared at students and children in general. Efforts should be made to increase interpretive usage of the KDZ on weekends in addition to the already existing educational packages for schools.

#### **Educational Guides**

Consideration could be given to the development and implementation of two “stand-alone” educational guide projects that are not essential but would enhance awareness and knowledge of the BJCMNP in schools. These educational guides would be produced by education consultants working in collaboration with Park management, which would have to source the funds. The consultant(s) would provide liaison with the Ministry of Education and relevant agencies and schools. In this way, Park management would not be over-burdened by the implementation of these projects:-

##### **(i) BJCMNP Field Trip Guide for Secondary level Schools**

Funds should be sought for the development of a BJCMNP field trip guide describing activities suitable for secondary level students, particularly those taking Caribbean Examinations Council (CXC) examinations in Geography, Biology etc. at both the Grade 10/11 and 12/13 levels. This could be done in collaboration with a Teacher Training College and would need to involve the Ministry of Education and possibly the CXC. This would then allow the school teachers to lead these activities with Park management providing only an introductory presentation. Such a guide would be very useful, as both examination levels curricula require field trips and activities, but very little information is available for teachers to assist them in implementing these.

(ii) BJCMNP Environmental Education Manual

A manual for environmental education for sustainable development activities should be developed with a focus on the BJCMNP. This manual would be different from the Field Trip Guide as it would focus on 'in-school' activities for Grades 1 – 9, rather than field activities for Grades 10 – 13. The activities would essentially provide curriculum infusion ideas for each grade and subject area, but set within the context of the BJCMNP. It would be particularly appropriate for use by schools within the National Park's Community Buffer Zone or in eastern Jamaica generally. It could be field tested in the Community Buffer Zone schools selected for the Environmental Stewardship Programme.

## 9.5 Community Buffer Zone Schools

This programme is designed to ensure that awareness and knowledge about the BJCMNP is developed from the earliest stages within the communities around the Park. In addition, based on lessons learned, every effort will be made to integrate the schools programme into the community capacity building component, for increased impact.

### Schools' Visitation

During 2008 and 2009, the Schools' Visitation programme was expanded from the primary level to include basic schools. This was done through the involvement of trained community youth from the Youth Programme. There are about 38 primary and secondary level and 15 basic level schools within and around the park's buffer zone (see list of schools in Appendix 9), and at least 35 will be visited once per year with a presentation about the BJCMNP, its resources and how to better manage these. A different theme will be identified for each year, ideally in coordination with any other community awareness theme. The Schools' Visitation Programme ensures that a new set of youth are targeted each year and that messages are reinforced among those already exposed. This will help to develop an environmentally aware community, over time.



*Plate 26: Youth presenter and National Park Ranger visit a basic school (Source: JCDT)*

Presentations are to be made by the Education Officer assisted by the Youth Programme members and National Park Rangers where possible. A short training session will be held at the beginning of the school year to train all presenters on the format and materials to be used. Youth Programme members who participated in training provided through the Dudley Grant Early Education Centre will be targeted to assist, particularly with the basic schools, where they will lead the visit. A report form will be used to report on the details of the school visit, including the teacher's comments and signature.

The presentations in the primary schools will target grades five and six (not three to six as for the previous Plan) and will correlate with the national curriculum subject matter relevant to those grades. Younger children will be targeted through basic school visits and presentations. Every year, a new theme will be selected based on topical conservation issues (based on activities in other programme areas and the relevant community awareness theme). A presentation aimed at delivering a message related to the issue and promoting appropriate action will be developed. The presentation will be designed to take about one hour and will include audio-visual and interactive components, as well as activity sheets which will be left behind with teachers.

### **Monitoring and Evaluation**

1. A short questionnaire will be administered to a sample of at least twelve primary school students before and after the presentation, to assess knowledge changes.
2. The reporting form will be used to obtain feedback on the usefulness of the presentation from the responsible teacher.

### **Teacher Training Workshop**

A training workshop will be organized annually for Buffer Zone community school teachers. This will focus on the theme selected for that year and its incorporation into the school curriculum through a variety of activities appropriate for different grades. This has proven to be a well appreciated activity and was not implemented in the previous few years as there was no funding. Assistance from the Ministry of Education Curriculum Unit will be sought in terms of resource persons for the curriculum infusion component, with JCDT providing the content in terms of conservation and environmental information.

### **Monitoring and Evaluation**

A workshop questionnaire will be prepared and circulated to capture not only views on the workshop but for teachers who had participated in the previous year, they will be asked to indicate if they had used the information and lessons learned in the classroom.

### Schools' Environmental Stewardship

Every year, 3 - 6 of the schools in communities selected for the Community Conservation and Sustainable Livelihoods Sub-Programme, will be selected to work on the implementation of a variety of environmental activities geared at promoting environmental stewardship. There will be a focus on integrating the school and community environmental stewardship activities by facilitating linkages e.g. with school Parent Teachers' Associations and Citizens' Associations.

**Table 9.3 Activities For the Schools Environmental Stewardship Programme**

<b><i>Manual</i></b>	Develop a manual of activities for dissemination in the schools and for use by the teachers. This can be a simplified version of the old Schools for the Environment Programme Manual, modified for the context of use in the BJCMNP Community Buffer Zone.
<b><i>Liaise with Schools</i></b>	To identify interest and obtain agreement for involvement regarding implementation of at least one of the activities suggested in the Manual.
<b><i>School Visits</i></b>	Visit each school at least three times for the school year:- <b>1<sup>st</sup> visit</b> – make BJCMNP presentation and work with teacher(s) to outline plans. Emphasis should be on a small number of simple and feasible activities. This can be done in conjunction with the presentation. <b>2<sup>nd</sup> visit</b> – monitoring. Observe implementation (take photographs) and assist the teacher(s) to adapt plans, as necessary, <b>3<sup>rd</sup> visit</b> – monitoring and assessment.
<b><i>Monitoring</i></b>	Schools will be asked to maintain scrapbooks for documenting their activities. These, along with observation of projects/activities and talking with the teacher(s) and student(s), will be used to assess and evaluate levels of performance.  Monitoring forms will be completed on the first and final visits to assess improvements in environmental management, etc.  Schools will be asked to submit essays, poems, reports, etc. on their work and these will also be used to monitor and assess performance.
<b><i>Newsletter</i></b>	A newsletter will be produced at least once a year, featuring information on school activities. The best of the items submitted, will form a “Children’s Environmental Link” to JCDT’s website.
<b><i>Provision of Incentives</i></b>	Photos, poems etc. from schools that are performing well will be included in the newsletter and sent to the media e.g. Childrens’ Own. Creative forms of rewards and incentives will need to be identified for students and teachers e.g. ice-cream/cake, gift baskets/certificates. Groups visiting the national park e.g. tourists, researchers etc. can be taken to visit the best performing schools.
<b><i>Evaluation of the Schools</i></b>	Best performing schools will be recognised with awards e.g. plaques and certificates, and mention in a media release.

**PROGRAMME SUMMARY: Education and Public Involvement**

**PROGRAMME GOAL: *To raise support for conservation of the National Park’s natural and cultural heritage and improve resource management and the sustainability of livelihoods, particularly in Buffer Zone communities.***

Programme Objective(s)	Programmes/Strategies	Activities	Monitoring & Evaluation	Resources	Timeframe and Priority
<p>1. To facilitate capacity building of at least 120 persons from at least 6 communities, for more environmentally sustainable livelihoods and greater involvement in management of the resources of the BJCMNP and its Community Buffer Zone.</p>	<p><b>Community Conservation and Sustainable Livelihoods.</b></p> <p>Through this strategy, community members and organisations will receive training and assistance in implementation of more sustainable livelihoods, particularly in:-                      (i) recreation and tourism (through the Blue Mountains Sustainable Tourism Programme)                      (ii) agriculture and                      (iii) cultural heritage.</p> <p>They will also be encouraged to participate in park management e.g. assisting with school visits, reforestation, enforcement. This Sub-Programme will focus on youth and adults in targeted communities.</p>	<p>1. Build capacity of at least 12 youth/year through training and work experience, assistance in establishing sustainable livelihoods and/or furthering their education.</p> <p>2. Build capacity of at least 12 persons/year from each of the targeted communities through training and involvement in sustainable livelihood activities.</p> <p>3. Involve at least 20 persons/year from targeted communities in Park/natural resource management activities e.g. in recreation areas and reforestation</p>	<p>Records and reports provide information on quantitative targets.</p> <p>Reports as per details within chapter.</p> <p>Photo and video monitoring indicates improved environmental and natural resource management.</p>	<p>Education &amp; Community Outreach Officer (ECCO)                      Recreation &amp; Tourism Officer (RTO)</p> <p>Resource personnel from other agencies</p> <p>Funds for transportation, stationery etc.</p> <p>Funds to assist communities with training &amp; implementation of sustainable livelihoods \$480,000 in Year 1 and ongoing; major projects of \$1.3 million/yr</p>	<p>High Priority                      1a. Year 1 – 2 focus on existing youth group                      1b. Year 2 - start another programme, possibly with the assistance of members from the existing group</p> <p>2. From Year 1, with possible expansion to other communities in Year 3</p> <p>3. From Year 1</p>

**PROGRAMME SUMMARY: Education and Public Involvement**

**PROGRAMME GOAL: *To raise support for conservation of the National Park’s natural and cultural heritage and improve resource management and the sustainability of livelihoods, particularly in Buffer Zone communities.***

Programme Objective(s)	Programmes/Strategies	Activities	Monitoring & Evaluation	Resources	Timeframe and Priority
2. To increase awareness about the National Park’s natural and cultural heritage, importance and management, in order to increase the level of support for the BJCMNP	<p><b>1. Public Awareness Sub-Programme</b>            Increase level of awareness of:-            (a) Buffer Zone community members through a campaign with main message “Protect our National Park” and sub-messages e.g. fire, trees, boundary, to include educational materials and community meetings            (b) General Public through (i) regular website &amp; Facebook updating, use of media and participation in exhibitions (ii) a major sponsored Campaign linked to BJCMNP and national events            (c) Visitors to the BJCMNP and its Community Buffer Zone through Interpretation e.g. guided tours, Visitors’ Centres</p>	<p>1a. Conduct simple survey to guide campaign design.            1b. For both community and public implement on-going low-cost campaign aspects e.g. participate in meetings of existing CBOs, town-square meetings, website, media releases &amp; exhibitions            2. Seek funds and implement short, major media campaign            3. Interpretation:-            (a) Visitors’ Centres – Holywell, Ranger Stations, community locations            (b) Signage at Holywell, Peak and other Trails, targeted communities            (c) Guided Tours designed &amp; marketed and local &amp; international training            (d) Educational packages at Holywell            (e) possible education guides – field and class</p>	<p>Simple surveys conducted in communities, Holywell, and parish capitals             Records kept of all materials and information sent out and being published.             Campaign Report             Track support e.g. number of visitors, volunteers, donations and sponsorship.             Brief questionnaire for random sample of visitors and school groups entering and leaving Holywell and other locations.</p>	<p>EEO, RO            Technical Assistance (marketing)            Volunteers            Rangers             Funds for campaigns e.g. posters, flyers, DVD, radio/TV signage, marketing of tour packages             \$480,000 in Year 1 and ongoing for public awareness and interpretation;            2 major campaigns at \$2million each            \$2million for new signs &amp; \$1million for guides</p>	<p>1a. By mid-Year 1            1b. Start Year 1 and on-going             Basic public and community awareness campaigns are High Priority             2. As funds available but at least one media campaign by Year 5 (High Priority)             3. On-going and as funds available (High Priority)</p>



**PROGRAMME SUMMARY: Education and Public Involvement**

**PROGRAMME GOAL: *To raise support for conservation of the National Park’s natural and cultural heritage and improve resource management and the sustainability of livelihoods, particularly in Buffer Zone communities.***

Programme Objective(s)	Programmes/Strategies	Activities	Monitoring & Evaluation	Resources	Timeframe and Priority
2. as above  Buffer Zone communities Teacher training workshops at least every other year	<p><b>2. Buffer Zone Schools Programme</b></p> <p><b>i. Schools’ Visitation:</b> geared at raising awareness and knowledge of park buffer zone students and school leavers regarding the BJCMNP and ensuring an aware community member in the future.</p> <p><b>ii. Schools’ Environmental Stewardship:</b> geared at developing and improving natural and cultural heritage management skills and practices in schools, for transfer to the community</p> <p><b>iii. Teacher Training Workshops:</b> geared at enhancing knowledge and ability to integrate BJCMNP issues into the school curriculum</p>	<p>1. Visit at least 35 schools in the Community Buffer Zone once per year with an audio-visual and interactive presentation.</p> <p>2. Facilitate implementation of environmental activities in 3 – 6 schools each year e.g. newsletter production and implementation of park-related projects in selected schools.</p> <p>3. Training workshop for Community Buffer Zone School teachers</p>	<p>A pre- and post-presentation quiz will be implemented with at least 12 students in each presentation. Reporting form to be signed by teacher.</p> <p>Records, reports and monitoring forms kept to show changes over each year.</p> <p>Questionnaire for school leavers.</p> <p>Questionnaire for teachers</p>	<p>ECOO Assistant from Youth Prog., Ranger, Volunteer</p> <p>Funds for Transportation, Communications, Supplies and Stationery, Materials</p> <p>AV Equipment</p> <p>Technical Assistance</p> <p>\$240,000 in Year 1 and ongoing for all activities</p>	<p>High Priority</p> <p>Ongoing from year 1</p> <p>Ongoing from year 1</p> <p>Start Year 1 and every other year thereafter</p>

## CHAPTER 10

# Recreation and Tourism Programme

### 10.1 Promoting Support For Conservation

Whilst conservation has occurred since ancient times as part of religious or other purposes, modern conservation practices have developed out of a concept originating in the USA, with the establishment of the Yellowstone National Park in 1872, Yosemite National Park in 1890 and the National Parks Service in 1916. Providing the public with areas where they could enjoy beautiful natural sites and opportunities for recreation were two of the main reasons for the establishment of these first national parks (Ceballos-Lascurain, 1996). Jamaica's policy on protected areas articulates recreation and public education as a goal for the system of protected areas and includes recreation and tourism as primary uses of national parks (GOJ, 1997).

*Tourism* is defined by the World Tourism Organisation (WTO) as “the activities of persons travelling to and staying in places outside his or her usual environment for not more than one consecutive year for leisure, business, and other purposes” (WTO in Ceballos-Lascurain, 1996). *Recreation* is activity pursued during leisure i.e. free time, usually for pleasure. Tourism can be considered a form of recreation that takes a person outside of his/her usual environment or place of residence for at least one night. Domestic tourism or the recreational activities of citizens is an important component of the tourism industry, particularly for protected areas (Cochrane, 2006). Use for recreation and relaxation, even for a few hours on a weekend, is particularly relevant for city dwellers.

Tourism in protected areas has become increasingly relevant to both the tourism industry and protected area managers. It can provide opportunities for numerous direct and indirect benefits for protected area management e.g. income generation, increased support for protected areas and the provision of benefits to local communities. Tourism and recreational use can result in degradation of the very resources that attract the visitors, therefore in protected areas, tourism must be carefully managed to maximise benefits and minimise negative impacts (Drumm and Moore, 2001).

The management approach to recreation and tourism in the BJCMNP should be ecotourism – sometimes referred to as sustainable nature tourism. Whilst not all the recreation areas or all parts of these sites are pristine, the use of ecotourism as a management tool rather than a marketing tool is an important approach for the programme, within the context of a national park. The World Tourism Organisation (2002) makes a distinction between ‘nature tourism’ and ‘ecotourism’ as follows:

***Nature tourism:*** *a form of tourism in which the main motivation is the observation and appreciation of nature.*

**Ecotourism:** *a form of tourism with the following characteristics:*

- (i) *All nature-based forms of tourism in which the main motivation of the tourists is the observation and appreciation of nature as well as the traditional cultures prevailing in natural areas,*
- (ii) *It contains educational and interpretation features,*
- (iii) *It is generally, but not exclusively organized, for small groups by specialised and small locally owned businesses. Foreign operators of varying sizes also organise, operate and/or market ecotourism tours, generally for small groups,*
- (iv) *It minimises negative impacts on the natural and socio-cultural environment,*
- (v) *It supports the protection of natural areas by:*
  - *generating economic benefits for host communities, organisations and authorities that are responsible for conserving natural areas,*
  - *creating jobs and income opportunities for local communities, and*
  - *increasing awareness among both locals and tourists of the need to conserve natural and cultural assets.*

Holywell is the largest and most developed of the BJCMNP's recreational areas. It provides an opportunity to achieve all the Recreation and Tourism Programme objectives and to learn from implementation of the various strategies and actions. The Holywell Ecotourism Development and Management Plan (JCDDT, 2005) is being used to improve and guide activities at Holywell, but can also help guide the development and management of the other areas. Of course, not everything implemented at Holywell will be relevant to all the areas e.g. the Blue Mountain Peak Trail is more adventure oriented and the Cuna Cuna (Cunha Cunha) Pass Trail is more cultural-heritage based.

Whilst a significant amount of work and improvements were made during implementation of the 2005 to 2010 Management Plan, some of the targets were not completely achieved. Under this Plan, the main aim will be to complete the implementation of the Holywell Plan, make the repairs to the Peak Trail and its related trails and sites as targeted in the previous Management Plan and implement the activities described in the Blue Mountains Sustainable Tourism Plan. The latter was a major output and is aimed at making the Recreation and Tourism Programme completely self-sustaining but also returning a profit for use in wider management of the BJCMNP (see Appendix 13. This will require a full-time manager for the National Park's Recreation and Tourism Programme with a focus on marketing and product development (standards and new developments).

**Table 10.1 Recreation and Tourism Programme Goal and Objectives**

Goal	Objectives
<p><i>To provide and facilitate the provision of recreational opportunities for local and international visitors using ecotourism principles in order to generate income and support for the BJCMNP.</i></p>	<p>1. To provide and facilitate recreational and educational opportunities geared at raising awareness and support of the BJCMNP, as per existing plans.</p>
	<p>2. To generate income to support park management by increasing income from the BJCMNP’s recreational areas and the Blue Mountains Sustainable Tourism Programme by 150% over the five years.</p>
	<p>3. To engender community support for the BJCMNP as well as natural and cultural heritage conservation by facilitating benefits to local communities.</p>
	<p>4. To ensure that recreation and tourism activities do not threaten the BJCMNP’s biodiversity, provision of ecosystem services and cultural heritage.</p>

## **10.2 Recreation and Interpretation**

A wide variety of recreational opportunities can be made available within the National Park and its environs. In the context of national park management, it is important that ecotourism principles guide the development and management of these activities. In particular, there should be an educational component linked to the recreational activities to be achieved through interpretation, in addition to the educational opportunities provided for schools, universities and other interest groups.

Visitor activities range from “soft” to “hard” in terms of the level of activity of the visitor. Some activities are solitary whilst others involve groups of varying sizes. In addition, whilst some activities focus on enjoyment of the natural areas, others are simply making use of the relaxing ambience e.g. retreats.

### **Objective 1: To provide and facilitate recreational and educational opportunities geared at raising awareness and support of the BJCMNP as per existing plans.**

In addition to maintaining and improving the recreational and educational opportunities within the BJCMNP over the timeframe of this Management Plan, the other part of the objective will be to facilitate the provision of recreational and interpretive opportunities in the Community Buffer Zone, particularly in communities near to the National Park’s existing recreational areas. This will be implemented through the Blue Mountains Sustainable Tourism Programme guided by the Manual developed under the IDB funded project between 2006 and 2008. The proposed Newcastle Heritage Village as well as the

community-based ventures are key recreational and educational opportunities to be established under the Programme.

**Table 10.2: Visitor Activities in the BJCMNP and its Community Buffer Zone**

<b>Visitor Activities</b>	<b>Visitor Services/Facilities Required</b>	<b>Comments</b>
Socialising in picnic areas.	Picnic Gazebos/Shelters Benches/Tables Seating Areas Toilets/Washrooms.	Snacks and meals are now offered at Holywell through a community concession
Quiet enjoyment of the ambience and views.	Viewing sites with seating areas.	Clean surroundings.
Playing	Spaces/Activities particularly for children who may be too young to go hiking e.g. KDZ at Holywell Provision of board or other games.	Safety must be considered.
Walking the grounds and short nature trails.	Attractive, safe, accessible areas linked by trails.	Safety and interpretation.
Meetings e.g. retreats, workshops.	Spaces for meetings of different sizes.	Hospitality.
Bird-watching	Trails Information Specially trained tour guides	
Hiking	Trails of varying distances and difficulties. Information Tour guides	Establish carrying capacity for all trails. Establish closed and open seasons for certain trails.
Streams, Rivers and Waterfalls	Change room & Toilet Facilities Tour guides	Mainly outside the National Park with varying levels of access challenges; care with respect to location of toilet – possible composting toilet
Cultural Experiences	Maroon Heritage Blue Mountain Coffee Rural Lifestyles – farming, cooking, music, craft etc. Military History/Hill Station	Within the communities – some more developed than others
Overnight stays	Accommodation – ranging from camping to cottages and small hotels/guest houses.	Hospitality. Clean, dry facilities

### **Picnic and Other Recreation Areas**

Areas where visitors can sit and relax, stroll around and enjoy the ambience and views, as well as eat meals, are an important component of a recreational area. The following are specific targets for the Recreation and Tourism Programme:

- i) In the next five years, the Holywell Ecotourism Development and Management Plan will be fully implemented to improve the product and increase income.
- ii) In the next two years accommodation facilities at Portland Gap, particularly the kitchen and dining areas and bathroom, and shelter facilities at the Peak will be improved.
- iii) In the next three years, camping and research facilities will be established in the Upper Rio Grande Valley (Millbank)
- iv) In the next five years, there will be at least three community-based picnic/recreational areas being marketed under the Blue Mountains Sustainable Tourism Programme.

### **Trails – Establishment, Development and Management**

Several trails exist in the BJCMNP and many have historical significance e.g. Maroon trails and market trails. Trails were the main routes that rural communities used to travel between communities to hunt, access farm-land or to go to market in large towns. With the advent of parochial and other roads and relatively improved transportation in rural areas, many of these trails are now over-grown, eroded and impassable. With increasing interest in hiking and exploring natural and cultural heritage and the increased perception of nature/eco/community tourism as potential income-generating activities for rural communities, there is an increase in the desire to re-open trails.

Trails, like roads, increase access not only to the destination point but also to numerous other areas along the access route. Observation of active trails shows that they tend to widen with time – causing increased deforestation and soil erosion as well as changing micro-environments. This has the potential to cause changes in forest habitats, including the introduction of invasive species. Some trails access spectacular waterfalls but these may be important water sources downstream and protection from contamination is important. Other trails result in the accessing of delicate or unique ecosystems which then require protection from trampling, cutting or other forms of destruction.

Further, trails that pass through the National Park can often be accessed without knowledge of any park personnel or even community members who are seeking to manage the trail. This means that it is difficult to control access and threatening activities e.g. setting fires, littering, collecting plants along trails, much less to collect a user fee that could make a contribution to trail management.

In light of these serious issues and the conservation objectives of the BJCMNP, the focus of the Recreation and Tourism Programme for the next five years will be on existing,

open trails including roads, primarily outside the BJCMNP's boundaries. Further, trails will not be included in the BJCMNP's system of trails until studies are conducted to determine carrying capacity, and impact assessments and management systems are designed for the new trails. The following are the main trails currently being used in and around the National Park:

- Holywell trails
- Gordon Town to Redlight/Greenwich
- Holywell to Cascade (Lowe Piece and Green Hills Pass)
- Woodford/Holywell
- Oatley Mountain Road
- Blue Mountain Peak
- Cunha Cunha Pass
- White River Falls
- Sambo Hill

The following are some specific targets:-

i) In the next three years, the Blue Mountain Peak Trail and its access trails will be improved in terms of surface/drainage, low level interpretation and management, working with local communities to train them for management (particularly of the access trails) tour guiding and other services.

ii) In the next five years, at least two trails in the Upper Rio Grande Valley area will be improved in terms of surface/drainage, low level interpretation and management and recreational areas and working with local communities.

iii) In the next five years, a Trail Management Guide will have been developed which can be used to guide management inclusive monitoring for ecosystem health, safety, etc. for all trails within the Blue Mountains Sustainable Tourism Programme

### **Public Safety**

Public safety and health must be considered at each recreational area and therefore, steps must be taken to encourage safety e.g. through signs and rails. First aid supplies must be on hand and trained and certified staff (with competence in administering CPR and first aid) must be on duty at each site. Disaster preparedness and emergency plans should be prepared and steps taken to ensure that the plans can be implemented, as needed. Public health issues must be considered, particularly with respect to the preparation and sale of food and the maintenance of sanitary facilities.

National Park Rangers should be trained in search and rescue techniques and the current system maintained and improved, where possible. This activity is usually needed only along the Blue Mountain Peak Trail but may become important on the Cunha Cunha Pass Trail, amongst other areas. Essentially, searches are implemented on request e.g. the reporting of missing hikers.

The BJCMNP Disaster Preparedness and Emergency Management Plan provides additional details regarding Public Safety and is to be updated during this Plan timeframe.

**Box 10.1 Procedure for Handling Missing Persons in the BJCMNP**

**Procedure for Handling Missing Persons**

- i) A member of the hiking party needs to check in at Portland Gap so that the National Park Ranger on duty knows how many persons have gone to the Peak. This is often not the case, so there needs to be some sensitisation among the hiking public.
- ii) The National Park Ranger will seek assistance from local community members, as needed.
- iii) Once the person is found, first aid is administered.
- iv) BJCMNP head office or personnel is contacted for notification and assistance, if necessary.
- v) If the person is injured and requires airlift to get medical attention, the JDF is called.
- vi) If, due to bad weather the helicopter cannot land or the person cannot be hoisted out of Portland Gap on a medicine board, the National Park Ranger will need to take the individual to the Penlyne Castle All-Age School further down the mountain, where helicopters are usually able to land.
- vii) A record of the incident and action taken should be made in the incident log, and the Chief of Corps or Recreation and Tourism Officer should follow-up and record a concluding comment.

**Education and Interpretation**

The National Park's recreation areas can provide numerous opportunities for education ranging from interpretation to skills training.

Information must be available at each recreational area e.g. in the form of signs and brochures. There is need for significant improvement in signage in the Portland Gap/Blue Mountain Peak Trail area and the Millbank/Upper Rio Grande Valley area. Whilst Holywell has several interpretive signs and a Visitors' Centre with exhibits, the implementation of the Holywell Signage Plan has only started in the last two years, due to inadequate funding. With the implementation of the Blue Mountains Sustainable Tourism Plan, there will need to be signage outside the Park as well. These signs should



promote pride and the need for conservation within the Community Buffer Zone (as these are areas of high natural and cultural heritage significance).

Training of community members was conducted in interpretation and tour guiding over the last five year period, however this foundation will need to be built on, particularly as it relates to the professionalism of tour guides. The educational packages developed and being implemented at Holywell for primary level students have benefited from significant training and experience of the Park's Youth Programme members.

The Maroon Museum and Asafu Yard at Charles Town is quite impressive and the Moore Town Maroon Council has plans to establish a Cultural Centre. Both Maroon communities should continue to be given assistance, and are targeted communities under the Blue Mountains Sustainable Tourism Programme. Museums in both locations should include exhibits and information on the Blue and John Crow Mountains National Park.

Specific targets are:-

- i) At least two persons receive international level interpretation training over the next five years, and are sharing the knowledge with BJCMNP personnel and community members and using it to improve interpretation in the BJCM.
- ii) Within three years, a planned set of interpretive and directional signs are placed:
  - Along the Peak Trail and its access trails
  - Along the Cunha Cunha Pass Trail
  - Along at least two other Community Buffer Zone trails or attractions
  - At the 'entrance' to at least 6 targeted Buffer Zone communities
- iii) By the end of the first year, BJCMNP information should be available at all museums or other centres in targeted communities and by the end of the fifth year a small visitors' centre should be established at Holywell or other suitable location.

### **10.3 Business Management**

The National Park's recreation areas must be run as viable businesses so they can generate income to support their own operational costs, and eventually provide some support for other park management activities. The tendency in the past for many protected areas around the world, has been to see the provision of recreational opportunities as a public service and therefore, very low rates are charged for use of the facilities. As funding becomes increasingly difficult to obtain, it is important for new sources to be tapped. Another problem faced by many protected areas around the world is that there is not enough for the visitor to purchase e.g. food, snacks, craft, and therefore, the full level of support that can be obtained from visitors is not attained. In addition, as park management seeks to facilitate benefits to local communities associated with sustainable management of the area's natural and cultural heritage, it will be essential to have a business approach to ensure a reasonable profit is made. Between 2005 and 2009, income increased by 98% and was impacted mainly by hurricanes.

The main challenge to establishing the Park's Recreation and Tourism Programme as a business is financing the capital and initial recurrent expenses.

**Objective 2: To generate income to support park management by increasing income from the BJCMNP's recreational areas and the Blue Mountains Sustainable Tourism Programme by 150% over the five years.**

### **Strategic Activities**

Strategic action as described under each of the following headings must be taken over the next two years in order to achieve Objective 2:-

### **Preparation and Implementation of Relevant Plans**

The Holywell Ecotourism Development and Management Plan will help to guide activities there and to a certain extent, the other sites. The Business Plan contained within the Holywell Plan should be updated, but can also be used as the basis for preparing a business plan for the BJCMNP in terms of Recreation and Tourism. Under the implementation of the Blue Mountains Sustainable Tourism Plan, the preparation of a Business Plan will be an important early action. Site specific plans of varying levels of detail will need to be prepared e.g. Blue Mountain Peak Trail and Access Trail Repairs and Maintenance, to guide purchase of materials, and actual work.

### **Management and Supervision**

All other BJCMNP management programmes have a full-time manager responsible for programme implementation, the employment of a professional Programme Officer for the Recreation and Tourism Programme will make a significant improvement in business and other aspects of management. Because of the different responsibilities involved in this role, a Site Supervisor – ideally one each for Holywell and Portland Gap, or at least one supervising both sites should also be considered. Currently, these roles are played by personnel who have other major responsibilities and this has resulted in inefficient and sometimes ineffective management, at Portland Gap in particular. This is something that has been observed and remarked on by both visitors and community members, and must be addressed with urgency.

Administration e.g. bookings, purchases, accounting and financial management and reporting can continue to be roles played by relevant personnel at JCDT. NEPA conducts an annual audit, and JCDT's books are audited by an independent auditor.

### **Marketing and Sales**

Marketing is also implemented by the JCDT using mainly public relations activities e.g. events, media releases and participation in tourism fairs. Advertising is used to a lesser extent, consisting mainly of direct mailing e.g. to churches, schools and business places and associated with events or seasons e.g. summer. The main event held in the BJCMNP is Misty Bliss, held annually at the end of February to celebrate the National Park's

designation. This cultural festival features traditional music, dance, craft and food as well as exhibits and information about the BJCMNP and its natural and cultural heritage.

The new Blue Mountains Sustainable Tourism Programme will feature the National Park's recreation areas as the centre-piece of the tourism product, with associated tours and packages linking the community-based and private sector attractions and accommodations around them. A plan for marketing and sales forms a major component of the Blue Mountains Sustainable Tourism Programme and there is also information in the Holywell Plan. If the BJCMNP is successful in being listed as a World Heritage Site, this will assist in its marketing, particularly for the type of visitor who is willing to journey long and rugged roads to experience unique natural and cultural heritage.



*Plate 27: Kumina dancing at Misty Bliss, Holywell (Source: JCDT)*

Particularly in light of limited resources, marketing must continue to be creative and the focus on PR and direct marketing rather than more costly advertising may need to continue for some time. However there are several other approaches which must be strengthened and tried, including:-

- Improving the web-site and web-based marketing including links to other sites
- Use of Facebook and other social networking tools
- Partnering with other tourism organizations e.g. sharing event booth space
- Partner with tour companies to assist in assessing proposed tours – particularly the community-based tours, and then to develop and promote packages
- Partner with Kingston hotels and the Kingston and Portland Tourism Associations

Marketing must be linked to sales and this will be particularly important for the Blue Mountains Sustainable Tourism Programme in which the National Park through JCDT will act as the secretariat for a cluster of Blue Mountains tourism ventures, providing marketing and sales, product development and other services. The success of this venture will depend on the level of actual sales.

### **Hospitality and Product Development**

Hospitality and good customer service is essential, as customers must feel welcome and satisfied if they are to return and also to recommend their relatives and friends. Training, standards and supervision are required to ensure high levels of hospitality. The product e.g. trails and infrastructure must be maintained and further developed, both in terms of new infrastructure and services. Plans for product development have been prepared under the Holywell and Blue Mountains Sustainable Tourism Plans. Holywell in particular must endeavour to complete all requirements in order to obtain its Tourism License. This will necessitate close collaboration with the Tourism Product Development Company. Park management having this licence for the National Park's recreation areas will be in a better position to assist community-based ventures with this process.

### **Use of Profits**

The lease signed for Holywell stipulates the purpose of any profit – for use in managing the National Park, and this is premise of the whole Recreation and Tourism Programme. As funding, particularly untied funding continues to be a challenge to source, revenues from this Programme will become increasingly important. It would not be wise however, to use all profits for operational purposes, it would be prudent to invest some for long term needs e.g. to cover costs currently covered by other sources and hurricane repairs. The latter is particularly important as climate change predictions suggest more frequent and stronger tropical storms, and donor agencies may not always be able to provide the funds necessary for repairs.

## **10.4 Community Benefits**

As per ecotourism principles, local communities must benefit from the park's recreation and tourism ventures. Otuokon, 2010a found that the practices at Holywell constituted ecotourism as defined earlier, and that community members living around the site generally felt that their communities were benefitting from the site through employment, income generation and opportunities for training, education and recreation. Specifically, events such as Misty Bliss were mentioned as opportunities for community members to earn some money and have fun, and also, the Youth PATH programme which was empowering community youth through skills training.

### **Objective 3: To engender community support for the BJCMNP as well as natural and cultural resource conservation by facilitating benefits to local communities.**

During this five year period, this objective will be met by enhancing community-based recreation and tourism opportunities in the National Park's Community Buffer Zone through the Blue Mountains Sustainable Tourism Programme. It will also be met through activities under the Education and Public Involvement Programme (community members target group) and the Cultural Heritage Conservation Programme.

The following principles will continue to be followed:

- ▶ Employ local community members, use local services and purchase local products, whenever possible.
- ▶ Encourage and promote local businesses and the establishment of cottage industries even through the provision and/or facilitation of training and other business assistance e.g. provision of incubator services.
- ▶ Encourage local visitation to ensure local communities enjoy the recreational and educational opportunities that the park provides.

The Blue Mountains Sustainable Tourism Plan was designed with community and industry stakeholders, specifically to provide for financial and other benefits to local communities and the National Park. Its implementation will be the major focus for the Recreation and Tourism Programme during this Management Plan period. Under this Programme, targeted communities (which have already worked with Park management in developing the Plan) will be assisted with product development through training, business planning and the sourcing of funds, and marketing and sales will be conducted as an umbrella activity. Marketing will continue to include events marketing and support for community festivals will be an important component of the Programme. Where concessions can be made to community members such as reduced entry fees to events, this should be done, as has been the case with Misty Bliss. It will therefore be important to seek sponsorship for all these events as early as possible, perhaps through sponsorship packages such that sponsors obtain promotion throughout the year.

The Blue Mountains Sustainable Tourism Programme was also seen as providing a forum for community members and businesses to come together to support conservation of the area's natural and cultural heritage and lobby government for sustainable development of the rural communities e.g. improved road maintenance, garbage collection, water supply, health services and greater support for eco- and community-based tourism.

## **10.5 Environmental Management**

All the BJCMNP's recreational areas should be managed using ecotourism principles, one of which is minimising environmental impacts. Environmental management is also an essential component of sustainable tourism, therefore every effort should be made to strengthen it in the community-based ventures being marketed under the Blue Mountains

Sustainable Tourism Programme. Environmental management should be addressed under the following sectors:

- ▶ Land use and Development – selection of environmentally and culturally appropriate sites for attractions and infrastructure; use of appropriate materials for construction; retain as much natural vegetation as possible
- ▶ Visitor Management – from requiring compliance with rules and regulations through to establishment and monitoring of carrying capacity and limits of acceptable change
- ▶ Water Use and Conservation – water-saving devices installed at Holywell
- ▶ Solid Waste Management – PET plastic is collected for recycling from Holywell
- ▶ Sewage Treatment – generally soak-aways considered adequate for low usage but not ideal – composting toilets should be considered where possible
- ▶ Energy Use and Conservation – fluorescent bulbs in use at Holywell
- ▶ Use of Chemicals – limited use at all locations

An Environmental Policy and Environmental Management System (EMS) were prepared for Holywell in 2004 following an audit in 2003, and Green Globe certification achieved in 2005. However, due to the significant costs involved in maintaining the certification, it was decided to discontinue with the programme. These and other documents including the Holywell and Peak Trail Biodiversity Conservation Management Plans (prepared under a USAID funded project) contain significant details to guide environmental management. The main challenge is lack of resources to implement these plans.

The BJCMNP's recreational areas (Holywell, Peak Trail/Portland Gap and a small section of the Cunha Cunha Pass Trail) comprise less than 1% of the National Park's area, and are generally located at the edges of the site in degraded or altered habitat. Therefore, their use for recreational activities has limited impact on the majority of the National Park's forest ecosystems.

**Objective 4: To ensure that recreation and tourism activities do not threaten the BJCMNP's biodiversity, provision of ecosystem services and cultural heritage.**

Observations at Holywell suggest that biodiversity is not being threatened, perhaps because the vast majority of persons stay in the high intensity zones and hardly venture on most of the trails. Despite this, a carrying capacity study and development of a Limits of Acceptable Change Visitor Impact Management System should be established for both Holywell and the Peak Trail. The Environmental Management System developed for Holywell is not being significantly implemented, and should be strengthened.

The Peak Trail, and particularly the Blue Mountain Peak itself are of some concern as these sites are at the highest elevations, within high montane zones of the Park and therefore contain critical habitat, unlikely to be located elsewhere. However, the Peak and Peak Trail have been in used for over a century and is a long-standing traditional use. A study is urgently needed regarding the location of key species and habitats, in order to devise and implement a plan to reduce visitor impact.

With the establishment of the Blue Mountains Sustainable Tourism Programme, park management will need to be more concerned about environmental impacts outside the National Park, and socio-cultural impacts within the Community Buffer Zone. This will require training for buffer zone community groups involved in the Programme, and monitoring of their activities. The behavior of visitors must be managed, for example with respect to littering (a major issue on the Peak Trail) noise (e.g. trail bikes at Holywell) and the pulling of plants (e.g. along trails). Tour guides need to be aware of these issues and the rules, and need to be trained with respect to promoting appropriate behavior amongst visitors. With an increased focus on community-based tourism and the conservation of cultural heritage, consideration will need to be given with respect to visitor behavior that may be offensive to community members in general and Maroons specifically. Preparation of guidelines for distribution to visitors (and tour operators) as well as signage to alert visitors to the behavior expected would be useful.

Specific targets for this Management Plan period:-

- i) Establish a system to reduce visitor impact on any critical habitat in the Peak area.
- ii) Establish carrying capacity estimates and/or a Limits of Acceptable Change Visitor Management System for Holywell and the Peak Trail area (including a study re: vegetation at the Peak with recommendations for its protection)
- iii) Strengthen the EMS at Holywell, particularly in terms of record-keeping.
- iv) Prepare environmental best practice guidelines for implementation at Portland Gap and Blue Mountains Sustainable Tourism sites, provide training to the relevant community groups and monitor these.
- v) Prepare visitor guidelines for distribution, particularly for the Blue Mountains Sustainable Tourism Programme.
- vi) Improve signage re: rules and regulations at all sites.

<b>Programme Summary: Recreation and Tourism</b>						
<b>Programme Goal: To provide and facilitate the provision of recreational opportunities for local and international visitors, using ecotourism principles in order to generate income and support for the BJCMNP.</b>						
<b>Objective</b>	<b>Programmes/Strategies</b>	<b>Activities</b>	<b>Targets</b>	<b>Resources</b>	<b>Monitoring</b>	<b>Time-Frame &amp; Priority</b>
1. To provide and facilitate recreational and educational opportunities geared at raising awareness of, and support for the BJCMNP.	Holywell - Improve product	Implement Holywell Ecotourism Development and Management Plan – in particular Cabin for large groups and Visitors’ Centre in main picnic area	See plan for details	Programme Officer, Site Supervisor  Funds (\$40 million) Technical Assistance	- Track numbers of visitors and income, - Track support e.g. donations or other assistance from visitors.	High Priority  Five years, starting in Year 1.
	ii) Portland Gap and Blue Mountain Peak Trail - Improve product	- Blue Mountain Peak Trail: repairs and maintenance, signage - Blue Mtn. Peak: shelter and signage, - Portland Gap: repairs - Access Trail & Centre: plan, repairs and community programme	- Trail surface improved - Improved facilities, maintenance & interpretation	Funds (\$3million) JDF Support, Technical Assistance		By Year 3
	iii) Upper Rio Grande Valley - Improve product	- Interpretive Prog. for Cunha Cunha Pass - Ranger station hosts Research Station and camping - Restoration of White River Falls Trail, including repairs to swinging bridge		Technical Assistance, Funds ( at least \$2million)		By Year 2
						By Year 2
						By Year 3
						By Year 3



<b>Programme Summary: Recreation and Tourism</b>						
<b>Programme Goal: To provide and facilitate the provision of recreational opportunities for local and international visitors, using ecotourism principles in order to generate income and support for the BJCMNP.</b>						
<b>Objective</b>	<b>Programmes/Strategies</b>	<b>Activities</b>	<b>Targets</b>	<b>Resources</b>	<b>Monitoring</b>	<b>Time-Frame &amp; Priority</b>
	iv) Blue Mountains Sustainable Tourism Programme	- community recreation areas being marketed - Newcastle Plan	At least 3  Plan	Funds (all required funds not included in Plan budget)	Records  Document	By Year 5  Years 1–2
	v) Interpretation – to international standards	- Participation in international training - use and share knowledge	At least 2 persons	Technical Assistance  Funds	Reports	By Year 3
	vii) Signage	Design (as per Park Signage Plan) appropriate signs for different locations	-Peak area trails, Cunha Cunha Pass Trail - 2 community attractions - 6 Buffer Zone Entrance	Env. Education Officer, Funds for signage etc. (see Education Programme)	Signs	By Year 1  By Year 5  By Year 2
	viii) Visitors' Centre	-Park exhibits and information in community sites -Visitors' Centre e.g. Holywell	At least 3 sites  At least 1	Env. Education Officer, Funds for brochures, exhibits	Photographs  Plans & Reports	By Year 2  By Year 5
	vii) Disaster Preparedness & Emergency Management Plan	Update Plan and conduct refresher	By end of year 1	Chief of Corps	Document Attendance Records	By Year 2

**Programme Summary: Recreation and Tourism**  
**Programme Goal: To provide and facilitate the provision of recreational opportunities for local and international visitors, using ecotourism principles in order to generate income and support for the BJCMNP.**

Objective	Programmes/Strategies	Activities	Targets	Resources	Monitoring	Time-Frame & Priority
2. To generate income to support park management by increasing income from BJCMNP's recreation areas and the Blue Mountains Sustainable Tourism Programme by 150% over the five years.	i) Improve management and supervision	Secure funding and source appropriate personnel	Employ Programme Officer and 1 Site Supervisor	Funds (see budget)	<ul style="list-style-type: none"> <li>- Project and Monthly Reports</li> <li>- Track income,</li> <li>- Track expenditure,</li> <li>- Track marketing activities</li> <li>- Track visitor satisfaction e.g. through survey.</li> </ul>	High Priority
	ii) Implement and Prepare Plans for implementation	Holywell, Signage, Blue Mountains Sustainable Tourism, Business Plan(s), Peak Area Trails	<ul style="list-style-type: none"> <li>-Complete Holywell Plan</li> <li>-Sustainable Tourism Prog established</li> <li>-Signage up</li> <li>-Business Plans in use</li> <li>-Peak Trail Plan Prepared</li> </ul>	<ul style="list-style-type: none"> <li>Programme Officer,</li> <li>Funds for planning (at least \$2million)</li> <li>Technical Assistance,</li> <li>All funds for Blue Mountains Sustainable Tourism</li> </ul>		<ul style="list-style-type: none"> <li>By Year 1</li> <li>By Year 5</li> <li>By Year 1</li> <li>By Year 2</li> <li>By Year 2</li> </ul>
	iii) Marketing and Sales significantly increased	Tourism, Park Management & other relevant Plans	Marketing as per Blue Mountains Sustainable Tourism Programme	Programme not included in Park budget		By Year 1
	iv) Hospitality & Product Development – services and standards increased and improved	<ul style="list-style-type: none"> <li>-Training</li> <li>-Monitoring for maintenance etc.</li> <li>-Licences – Park 1st</li> </ul>		Funds for marketing (\$600,000/yr for ongoing and additional \$1.4million over period)		Ongoing
	v) Increase income	Implement business plans; Invest in “RainyDay” Fund	As per objective			By year 5

<b>Programme Summary: Recreation and Tourism</b>						
<b>Programme Goal: To provide and facilitate the provision of recreational opportunities for local and international visitors, using ecotourism principles in order to generate income and support for the BJCMNP.</b>						
<b>Objective</b>	<b>Programmes/Strategies</b>	<b>Activities</b>	<b>Targets</b>	<b>Resources</b>	<b>Monitoring</b>	<b>Time-Frame &amp; Priority</b>
3. To engender community support for the BJCMNP and natural and cultural heritage conservation by facilitating benefits to local communities.	Implementation of the Blue Mountains Sustainable Tourism Programme (working with targeted communities)  Working through the park's Education sub-programme- Community Conservation and Sustainable Livelihoods (working with targeted communities)	- Work with targeted communities to establish and further develop attractions, trails, accommodation to be marketed - Training in, and assistance to community members for tour guiding, craft, horticulture etc. -Lobby for better services e.g. road - Use local labour, services & products	Increase number of persons employed to the park or in ventures related to the Park.  Blue Mountains Sustainable Tourism Programme working	Programme Officer, Education Officer, Technical Assistance  Funds spent on other activities will contribute to this objective.	Records of the Blue Mountains Sustainable Tourism Programme  Surveys/ Interviews	Year 1 and ongoing.  High Priority
4. To ensure that recreation and tourism activities do not threaten the BJCMNP's biodiversity, provision of ecosystem services and cultural heritage.	Focus initially on the Park but prepare a Manual and provide training to guide community ventures	- Strengthen EMS at Holywell - Visitor impact management at the Peak re: critical habitat - Establish limits of acceptable change or other similar system for Holywell & Peak - Develop best practice manual for use in community ventures	- EMS & related environmental management in place at Holywell (Reports) - Visitor Impact Monitoring at Peak, Holywell and action at Peak (Reports) - Manual	- Conservation Science Officer - Recreation Area Staff - Technical Assistance - Funds - \$2million	Reports Records	By end Year 2 By Year 2  Year 3  By Year 2  Medium Priority

## Chapter 11

### Monitoring and Evaluation Programme

Monitoring refers to the intermittent (regular or irregular) surveillance carried out to ascertain compliance with a predetermined standard and to investigate the degree of deviation from an expected norm. Monitoring is focused on assessing compliance with limits or standards, with an important aspect of the process dealing with the action to be taken whenever such limits are exceeded. Monitoring provides the information by which projects and programmes may be evaluated.

In managing the BJCMNP, monitoring will take the form of a combination of target-based and threat-based monitoring. This will allow an assessment of both the threat status and the ecological integrity of the natural resources. This is a necessary combination for effective monitoring of the national park, as each method has its own benefits and shortcomings. The BJCMNP Monitoring and Evaluation Programme is therefore aimed at providing information on the effectiveness of management, particularly with respect to the National Park's conservation goal and objectives.

Collecting information for threats monitoring is easier and simpler and the information is more straightforward. This type of monitoring is also more sensitive to changes over short time periods. Outcomes or target-based monitoring however, gives a more direct measure of biodiversity which allows us to measure the effectiveness of the actions we are taking to protect biodiversity but the information is more difficult to collect and requires a higher level of expertise.

#### **Monitoring and Evaluation of the Park's Programmes**

There are monitoring and evaluation activities associated with each of the Park's management programmes, to assess achievement of programme specific outputs and outcomes. Targets are set within the management plan and annual targets are also set, which usually relate to both programmatic and project targets. As described in the Governance and Administration Programme, there are several methods of monitoring park management and tracking achievements including regular meetings, Programme Officer, Park Manager and Project reports. Further, at least once a year, a report is prepared which assesses achievement of targets and this is compiled into a five year report at the end of each management planning period. The summary table for each programme chapter indicates the monitoring approach.

In addition, with respect to evaluation of management effectiveness, it may not be clear that any changes have been effected by BJCMNP management, as they may be due to some unrelated factor. Despite this, monitoring and evaluation is a necessary tool for guiding management, to allow it to be adaptive and more likely to result in success. A variety of approaches is therefore very useful. One useful approach that must be incorporated to a greater degree under this Management Plan, is a participatory approach

to monitoring and evaluation. Various stakeholders can and should be involved in monitoring, particularly local community members. This will enhance their knowledge and understanding of resource management and promote greater support for conservation. In addition, people living within the Community Buffer Zone are likely to be aware of relevant changes outside regular monitoring times. Involvement of community members will require their training and stipends for expenses e.g. transportation and meals, and an honorarium.

**Table 11.1 Monitoring and Evaluation Programme Goal and Objectives**

Goal	Objectives
<b>To track and record both the threats and the changes to ecosystem health, so that it is possible to assess whether or not the BJCMNP is achieving its over-arching conservation goal.</b>	1. To track, record and mitigate threats to the BJCMNP, posed by use of its resources
	2. To monitor the populations of key, threatened species – the Giant Swallowtail Butterfly, the Jamaican Coney and the Yellow Boa.
	3. To monitor forest area and encroachment activities.
	4 To monitor the quality of fresh water ecosystems in the BJCMNP.
	5. To monitor the bird distribution in the BJCMNP.

## 11.1 Monitoring of Traditional, Subsistence and other Resource Use

### Threats Monitoring/Ranger-based Monitoring

Numerous occurrences of traditional use, subsistence and other resource use activities that place stress on, and threaten the resources, still occur in the Community Buffer Zone and may encroach into the National Park. These include hunting of the Jamaican Coney and Giant Swallowtail Butterfly, catching crayfish with toxic chemicals, harvesting of non-timber forest products such as orchids, forest clearing for lumber, and slash and burn farming. As indicated, some of these activities are traditional uses e.g. Coney hunting, some are subsistence use e.g. slash and burn farming whilst others are commercial uses e.g. catching crayfish with toxic chemicals, forest clearing for lumber and sometimes clearing of forest by a large scale farmer, with bull-dozer and/or fire. Monitoring of these threats will reveal whether they are changing in their severity or geographic range as a result of conservation strategies (or lack thereof).

This type of monitoring may be referred to as ranger-based monitoring - the most effective source of observation of sudden change and conservation status in the protected area. Rangers are regarded as the eyes and ears of protected area management as they are closest to situations on the ground. In fact, the physical presence of rangers is regarded as the main factor in the conservation of the ecological integrity of protected areas. This is because the rangers have the power to effect immediate action against unacceptable changes and are the first line of defence against offenders of protected area legislation.

In addition to the timely detection of threats, communication of the situation to the appropriate management level is equally important as rangers will often require assistance (from the police, for example) in handling delicate situations. National Park Rangers should properly record and communicate their observations and actions and the information must be analysed and reported to the Park Manager for the appropriate management actions to be taken. This must include timely and detailed reports to the relevant government agencies responsible for enforcement including legal action. The Rangers should always be informed of action taken as this feedback will be motivating.

Another important aspect of threats monitoring and surveillance is keeping tabs on the progression of mitigation and stopping the effects of illegal activities. Once detected, National Park Rangers and other enforcement officers must work towards putting an end to threatening activities. In conservation, immediate action is essential to stopping new offences (such as deforestation) in their tracks and preventing these activities from permeating as once they filter through, they are very difficult to remove.

### **Objective 1: To track and record threats to the BJCMNP, posed by use of its resources**

This objective was changed slightly from the previous Plan by removing the section about threat mitigation (being more appropriate for the Enforcement and Compliance Programme) and no longer referring specifically to traditional and subsistence use. Not all the strategies below were implemented in the last period e.g. analysis of old enforcement log books, and this is something that an intern or researcher will need to do as the National Park's human resources are insufficient. There will need to be liaison between the Chief of Corps and Education Officer to expose incidents to the wider public as this would require a captioned photograph or media release.

#### **Box 11.1 Strategies for Threats-Based Monitoring of the BJCMNP**

**Threats-based monitoring of the BJCMNP will use the following strategies:**

- 1. Rostering National Park Rangers to conduct patrols so as to circle the BJCMNP at least twice a year, collecting and reporting field information and enforcing the law. Information from Buffer Zone community members and other stakeholders will help guide patrol locations.**
- 2. Entry of incidents into an enforcement and compliance log book and computerized database to record all instances and action taken towards the resolution of destructive illegal activities within the park.**
- 3. Photo monitoring of the location of the incident, wherever appropriate.**
- 4. Photo monitoring of permanent points. Appendix 6 contains a list of the photo-monitoring sites.**
- 5. Exposure of the incidents encountered (including partner agencies with jurisdiction and the wider public).**

## 11.2 Tracking Trends and Changes in Ecosystem Health

### 11.2.1 Outcomes/Targets Monitoring

As opposed to monitoring threats to biodiversity, this type of monitoring aims to provide data to assess the impacts management activities are having on the biodiversity we are trying to protect, that is, management effectiveness. Since biodiversity conservation is the National Park's goal then the biodiversity conservation targets should be tracked to help assess their status e.g. population, distribution, health. It provides the opportunity to manage adaptively, and demonstrate effectiveness to donors and other stakeholders, thereby providing the accountability needed to sustain investments for conservation. Objectives 2 through 5 aim to monitor the Park's biodiversity conservation targets.

#### Box 11.2 Examples of Outcome Indicators for the BJCMNP

##### Outcome Indicators

The following are the chief outcome indicators (that may be assessed at the end of this five year management period) for the overarching goal of the Park – to maintain and enhance the remaining area of closed broadleaf forest and component species of plants and animals that exist in the Blue and John Crow Mountains.

- 1. Extinctions and Endangerment avoided** – no increase in the threat status of biodiversity targets (according to the IUCN Red List).
- 2. Population assessments of key species** (Giant Swallowtail Butterfly, Jamaican Coney and Jamaican Boa) show at least the same (recent) historical distribution.
- 3. Maintenance or increase in the remaining percentage of closed broadleaf forest cover** – with corridors, lowlands and edges showing no further contraction in their forest cover.

#### **Objective 2: To monitor the populations of key, threatened species – the Giant Swallowtail Butterfly, the Jamaican Coney and the Yellow Boa.**

The first two indicators could only be monitored accurately with external technical assistance due to the limited amount of information available e.g. regarding species populations and species threat status. The need for such studies is already listed in the Research Prospectus but will need increased attention under the Conservation Programme's research promotion objective. Despite this, observations and reports of the conservation targets were recorded and mapped and this will eventually provide useful information, perhaps for more detailed research. In fact, National Park Rangers identified a previously unknown population of Giant Swallowtail Butterflies and this was reported to relevant experts for further investigation.

Management will continue to track these indicators as far as possible with limited resources, and should improve monitoring, if information and resources become available. Reporting by local community members and other stakeholders e.g. researchers, will be promoted and the information included in the databases.

### **11.2.2 Forest Area Monitoring**

Perhaps the most important key ecological attribute of the BJCMNP is the remaining area of closed broadleaf forest. Once this forest is in good condition (sufficiently large area and high representative biodiversity) the assumption can reasonably be made that we are in good stead with conservation at the species level. Forest area is also something that the general public readily identifies with; everyone notices when trees are being cut down, while they will not so readily notice other conservation issues.

In the BJCMNP, what we experience is an edge issue, whereby encroachment eats away at all the edges of the forest. As the connections between the mountain ranges are relatively narrow, we risk fragmentation of this contiguous mountain habitat if linkages like Silver Hill Gap and Corn Puss Gap are not preserved. Monitoring forest area will therefore, focus on the transition zone (where encroachment meets closed broadleaf forest), examining aerial photographs that date back to the 1950s and comparing these with the latest ones in order to track trends and direct monitoring and enforcement activities to the areas which are being destroyed. It is because of these issues that the overarching goal of park management, as stated in Chapter 1, is *to maintain and enhance the remaining area of closed broadleaf forest and component species that exist*. This describes a more feasible ecosystem approach rather than the single-species approach.

The threat to this remaining area of closed broadleaf forest is *encroachment* in one form or another and this will cause the *undesirable changes* in forest area, while the activities of park management (including FD, NEPA and JCDD) such as reforestation, enforcement and education will cause the *desirable changes*. It is these *changes* that this monitoring plan is designed to map - to show where and to what extent they are occurring so that management can be informed and appropriate steps taken to address the situations. Monitoring forest area will therefore, provide a means of accountability, to show up the results and impacts of park management.

### **Objective 3: To monitor forest area and encroachment activities**

It was anticipated that this activity would be the responsibility of the Forestry Department (FD), as they have the experience and expertise. However, limited funds and human resources had a negative impact on implementation. Despite this, some funding was accessed by JCDD allowing forest area to be assessed by the FD through comparison of 2009 aerial photography (from a JDF helicopter) with 2003 satellite imagery. In addition, an independent study was undertaken by Cambridge University researcher and former BJCMNP Conservation Science Officer, Shauna Lee Chai. The latter comparison used satellite imagery and ground-truthing, and compared the periods 1983 – 1992 and 1992 –



2002. FD found no differences in forest area and Chai et al. 2009 found net deforestation had decreased due to an increase in forest re-growth.

The BJCMNP has one of the oldest sets of forest sample plots for research – 38 years. This is an asset that will be used, by liaising with the relevant researchers.

During the 2011 – 2016 period the following should be implemented:-

- i) Repeat the Chai et. al study with imagery from 2003 – 2008 and 2002 – 2012.
- ii) Conduct photo-monitoring from helicopter at least once a year, and analyse data
- iii) Partner with the FD for bio-inventory of watershed management units and satellite imagery analysis

### **11.2.3 Freshwater Monitoring Programme**

The freshwater habitats of the BJCMNP are mainly the small high-altitude headwater streams and waterfalls of the eastern third of Jamaica but may also include subterranean habitats associated with the white limestone of the John Crow Mountains. These are the highest elevations at which freshwater ecosystems are found in Jamaica, with many streams flowing at over 1800m above sea level. Freshwater communities found in these habitats tend to be adapted to low temperatures, high dissolved oxygen levels and turbulent currents. The BJCMNP encompasses the upper parts of 10 of Jamaica's 26 watershed management units (WMUs which are vital to the water supply of metropolitan Kingston and surrounding areas. The integrity of rivers and streams in the National Park is threatened by altered hydrological regimes, degraded physical habitat and water quality and altered biological community composition and structure.

#### **Objective 4: To monitor the quality of freshwater ecosystems in the BJCMNP**

Freshwater ecosystems were selected as one of the National Park's conservation targets during Conservation Project Planning for the BJCMNP (2001 and 2004). Park management will require information in order to gauge the effectiveness of conservation strategies and to evaluate the general status of freshwater ecosystems. This information will be provided by the monitoring programme outlined below. Five years of freshwater ecosystem monitoring data have been collected under the previous Management Plan and a detailed report has been prepared. Essentially, the quality of headwater streams in the Park remained the same and even improved at some sites, but outside of the Park there were some negative changes. The programme will continue during 2011 – 2016.

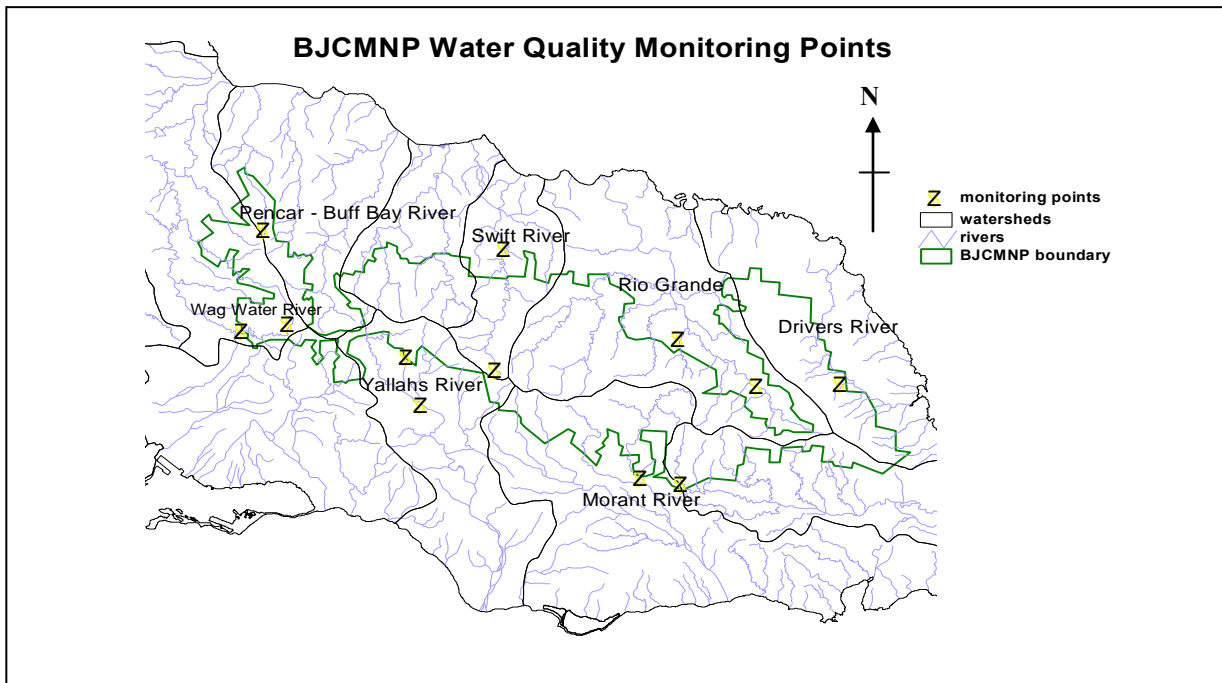
##### **i) Monitoring regime and sampling sites**

The monitoring regime described below was designed to facilitate a holistic evaluation of BJCMNP freshwater ecosystems by measuring a broad range of ecological attributes while limiting the number of indicators and costs. Physical habitat quality describes the substrate of the streams as well as allochthonous inputs. Stream water quality includes the concentration of solutes in the water, temperature and suspended sediment. The

hydrological regime describes the distinct temporal patterns in stream discharge that regulate the entire ecosystem. Biological community structure and composition describes the biotic condition of the ecosystem and includes direct measurement of the stream fauna and flora. Twelve sample sites (Tables 11.2 & 11.3) have been selected based on accessibility (proximity to roads and trails), representation of the WMUs and representation of different upstream land uses.

**Table 11.2: Analysis of the Water Management Units (WMU) of BJCMNP and the Number of Sampling Sites**

Drainage Basin	Percentage Drainage Basin in the BJCMNP	Number of Sampling Sites
Buff Bay/Pencar	20	1
Drivers River	35	1
Hope River	6	0
Morant River	20	1
Plantain Garden River	15	1
Rio Grande	45	2
Spanish River	35	1
Swift River	45	2
Wagwater River	10	1
Yallahs River	5	2
<b>TOTAL</b>		<b>12</b>



**Figure 11.1: Map of BJCMNP Water Quality Monitoring Sample Sites (Source: JCDT)**

**Table 11.3 BJCMNP Freshwater Ecosystem Monitoring Regime** (Source: JCDT)

Attribute	Indicator	Method of Measurement	Frequency of Measurement	Responsibility
i) Physical Habitat Quality	- % area of park under closed broadleaf forest & other land uses.	Derived from Forestry Department biophysical inventory, etc..	Once every five years	BJCMNP science staff
	-Forest cover at site	-Record observations	Twice per year	BJCMNP Park Rangers
ii) Stream Water Quality	Total suspended solids/turbidity	Turbidity meter measurements at permanent sampling sites.	Twice per year	BJCMNP Park Rangers
iii) Hydrological regime	Mean monthly stream discharge	Water Resources Authority (WRA) stream gauge recordings.	Data should be obtained from the WRA twice per year and collated	BJCMNP science staff
iv) Biological community composition and structure	Benthic macroinvertebrate relative abundance and community diversity	3 2-minute kick-samples at permanent sampling sites.	Twice per year (once in wet season-May to Nov. and once in dry season-Dec. to April)	BJCMNP Park Rangers

## ii) Sampling methods

### Biological monitoring

Biological monitoring is the direct measurement of the condition of the aquatic community. There are a variety of ways of measuring the fish, invertebrate and plant communities of streams. It is recommended that benthic macro-invertebrates are sampled because they are a relatively diverse group and are found throughout park streams even when fish and macrophytes are absent. Macro-invertebrates are also indicative of other environmental conditions such as the food base (allochthonous and autochthonous inputs), the relative health of the fish community which often preys on invertebrates, and pollution. The collection of macro-invertebrates requires simple and inexpensive equipment and with minimal training many invertebrates can be identified with the unaided eye.

## Methods

At each site, three 1-minute kick samples of the macro-invertebrate community are taken every six months. This yields semi-quantitative information on the aquatic community. Qualitative sampling of the macro-invertebrate community is conducted by searching for them in likely places such as under rocks and in leaf packs. The numbers and amounts of invertebrates collected is recorded in the field (with identification to at least family) on the field sheets designed for BJCMNP by TNC. This information is analysed using the Shannon-Weiner Diversity Index. Sampling should be non-destructive and for quality control purposes, the invertebrates collected should be preserved in 70% alcohol once per year and sent to the freshwater ecologist at the Life Sciences Department, University of the West Indies for detailed identification. General observations concerning human use, riparian vegetation and allochthonous inputs, exposure to sunlight and algal growth should also be made and recorded on field data sheets.

## Stream water quality

Turbidity and temperature readings should be taken at each sampling site during biological sampling and ideally, additional parameters should also be measured. Purchase of additional meters mid-way through the past five years, allows for measurement of pH and dissolved oxygen, which is very useful particularly the latter which is an indicator of biological oxygen demand (BOD). However, given their high costs, it is recommended that they only be measured to verify the effect of human activities when upstream changes in land use (such as forest clearing, agriculture or settlement) are observed. In that case, water samples should be collected, kept in cold storage and analysed by a certified laboratory for nitrates, phosphates and BOD.

## Effort

- 12 sites @ 2 sites/day
- 6 days per 6 months (plus 2 additional days to cover possible delays)
- Total = 14 days per year dedicated to freshwater monitoring

Where possible (with funds for training and stipends), community-based organizations and community members will be involved.

## 11.2.4 Bird Monitoring Programme

As one of the most important bird habitats in the island, the BJCMNP has been engaged in bird monitoring activities for over 10 years. Being abundant, easily seen and indicative of habitat quality, birds have understandably been chosen as one of the park's conservation targets, and so monitoring their distribution is an important undertaking.

### **Objective 5: To monitor the bird distribution in the BJCMNP**

Bird monitoring was planned to take place over the National Park's area in a five-year cycle. This was accomplished and so the first five-year cycle of this programme will serve as baseline information for the long term monitoring of birds in the Park. Monitoring using the same methodology will continue under this Management Plan. Each

year, one area will be monitored and point counts will be conducted twice per year, once in the breeding season (mid April – late July) and once in the winter season (mid September - March). Forty point counts (200m apart) will be conducted in each of three habitat types for the chosen area. Habitat types will be chosen to reflect:

- (i) good habitat quality** - montane rain forest,
- (ii) intermediate habitat quality** - modified montane rain forest, and
- (iii) poor habitat quality** - ruinate (heavily degraded woodlands often dominated by invasive plant species).

These habitat types can best be identified along access trails with an elevation gradient, whereby the likelihood is that: i) lower elevations would be representative of ruinate, ii) intermediate elevations would represent modified forest types, and iii) higher elevations would represent good quality habitat.

#### Sample areas

Five areas were identified in the previous Management Plan, however some changes were made after reconnaissance of the areas. The final areas monitored still result in the best possible coverage of the Park's area. Ease of accessibility was also an important factor in choosing the areas and therefore, existing trails that enter the forest were chosen (see Figure 10.2). The sites are:

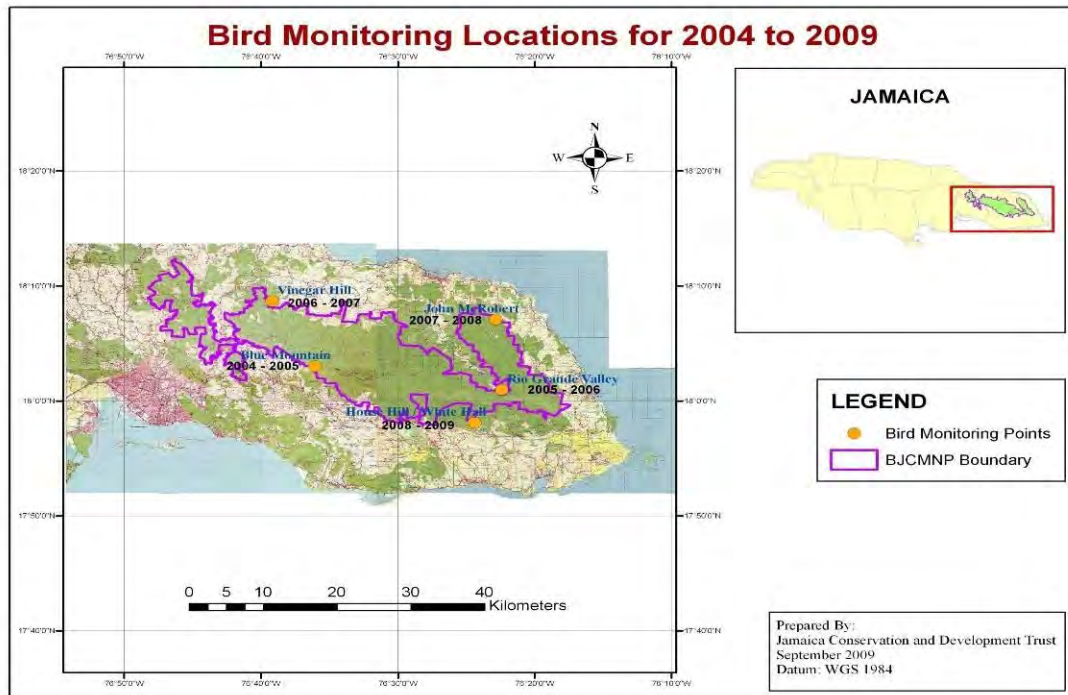
- i) Blue Mountain Peak Trail
- ii) Cunha Cunha Pass Trail
- iii) Vinegar Hill Trail
- iv) Sherwood Forest
- (v) White Hall/House Hill

#### Effort

One area will be covered each year totaling five sample areas over the park in a 5-year cycle. A minimum of two field personnel conducting a maximum of 15 point counts per day will yield 120 point counts per season and 240 point counts per year. This will require 18 field mornings (1 month) each year to be dedicated to this activity, with an additional 10 days being required to establish sample points in each of the five areas. Additional days are usually required as both monitoring seasons fall during the rainy season, and therefore some monitoring days are rained out. This can push the timeframe for bird monitoring to 6 or even 8 weeks. As some of these trails are not in active use, labour is required to clear a path. In addition, accommodation may need to be retained for the period, as the Rangers are in the field for 4 nights in order to conduct early morning monitoring.

Where possible (with funds for training and stipends), community-based organizations and community members will be involved.

**Figure 11.2. Bird Monitoring Sites in the BJCMNP (Source: JCDT)**



### 11.2.5 Climate Change Monitoring

In the 2005 – 2010 Management Plan, climate change was identified as a threat, but one that little could be done to address, except to implement planned programmes to conserve the forest ecosystems and to educate community members with respect to activities for both mitigation and adaptation. This would increase the resilience of both the forest and human communities to adapt to at least some levels of climate change and its impacts. Further, the protection of existing forest from clearing and the reforestation and rehabilitation of deforested and degraded forest, would help even in a small way to make a contribution to mitigation of climate change impacts.

This approach will continue during the 2011 – 2016 period, but efforts will be made to add some monitoring components. In light of the limited resources available for National Park management, the proposed monitoring activities can ‘piggy-back’ on other monitoring or patrol activities:-

- i) Bird monitoring – pay particular attention to the Smooth-billed Ani
- ii) Freshwater monitoring – identify any temperature related changes
- iii) Establish a monitoring plot at Portland Gap or the Peak

Further consideration should be given to monitoring climate change impacts and evaluating the effect on the Park’s resources, and this has been included in the Research Prospectus.

**Programme Summary: Monitoring and Evaluation**  
**Goal: To track and record both the threats and the changes to ecosystem health so that it is possible to assess whether or not the BJCMNP is achieving its overarching conservation goal.**

<b>Objectives</b>	<b>Strategies</b>	<b>Activities</b>	<b>Resources</b>	<b>Personnel</b>	<b>Monitoring &amp; Evaluation</b>
1. To track, record and mitigate threats to the BJCMNP, posed by use of its resources.	Gathering information from observations made during Ranger patrols and reporting to relevant agencies (through Enforcement and Compliance Programme Objectives 1 and 2).	1. Rostering National Park Rangers to conduct periodical rounds over the Park's area to collect and report field information, including photo-monitoring of sites.  2. Entry of information collected into database.  3. Analysis of the information collected.	Database system, digital cameras, log books.  Funds to train community members	National Park Rangers, CSO  Local community members	Log books and database established and up-to-date.
2. To monitor the populations of key, threatened species – the giant swallowtail butterfly, the Jamaican coney and the Yellow boa.	1. Use information available  2. Promote the population assessments in the research prospectus.	1. Record observations and reports of these species  2. Include population assessments in research prospectus and facilitate this research.	Database system, digital cameras, log books.  Field stations, vehicles	CSO, National Park Rangers  Local community members	Research log maintained
3. To monitor forest area and encroachment activities.	1. Aerial photo and possibly video-monitoring 2. Permanent point photo-monitoring 3. Comparison of satellite images over the years 4. Collaboration with FD on bio-inventory of Watershed Management	1. Seek assistance from the JDF for helicopter fly-over of the Park at least once a year for photo-monitoring 2. Photographing permanent photo points. 3. Seek funds for satellite imagery comparison 4. Assisting the FD in the bio-	GIS specialist, JDF Airwing, Funds Technical Assistance	CSO, National Park Rangers  Local community members (information)	Forest area monitoring results and analysis.

**Programme Summary: Monitoring and Evaluation**  
**Goal: To track and record both the threats and the changes to ecosystem health so that it is possible to assess whether or not the BJCMNP is achieving its overarching conservation goal.**

Objectives	Strategies	Activities	Resources	Personnel	Monitoring & Evaluation
	Units (WMU).	inventory of the WMUs.			
4. To monitor the quality of freshwater ecosystems in the Park.	1. Macro-invertebrate monitoring. 2. Water quality monitoring.	1. Establishing sample points, 2. Conducting invertebrate sampling and identification, 3. Measuring water quality parameters, 4. Analysing results, including any possible climate change related findings	Equipment for water quality monitoring (eg. kick nets, etc) Transportation	National Park Rangers, CSO  Local community members (if funds available)	Water quality monitoring results and analysis.
5. To monitor the bird distribution in the Park	Bird monitoring (using the point count method) in 5 areas over the Park's area	1. Establishing bird points, 2. Conducting bird counts, 3. Analysing results, including any possible climate change related findings	Equipment to conduct point counts (eg. binoculars), Transportation	National Park Rangers CSO  Local community members (if funds available)	Point count results and analysis.

It should be noted that in the Budget, the Monitoring and Evaluation Programme is combined with the Conservation Programme. This is because the two programmes are managed by the Conservation Science Officer and the main costs are personnel (particularly Rangers – whose costs are listed under the Enforcement and Compliance Programme), transportation, stipends and technical equipment and materials. For greater involvement of community members, funds will have to be sourced for training and stipends.



## CHAPTER 12

### Governance & Administration Programme

In order to meet the BJCMNP's over-arching conservation goal and to execute the management programmes aimed at achieving this, several management and administrative functions are essential. Planning, project management, supervision, financial management, monitoring and evaluation are all critical management functions that ensure timely and effective implementation of activities. Financing management is of particular significance in the Jamaican context where funding from government sources is limited and un-secured. Administrative functions include procurement, accounting, reporting, filing and correspondence. Administrators and the work they do, often behind the scenes, provides the necessary support that operations staff need to get the mission of the organization accomplished. Marketing and public relations activities are necessary, not only for the recreation and tourism components of park management, but to promote the National Park's work in order to garner increased support.

The BJCMNP protects the natural and cultural heritage of the people of Jamaica, and by extension (because of the international significance of the resources) the country is protecting this heritage for the benefit of the whole world. The agencies responsible for governance of the National Park are therefore responsible to the stakeholders, to provide the best management possible and in a participatory and transparent manner. Decision making, policy direction and synchronisation of efforts among relevant agencies, collaboration and support are important governance issues. The proposed park management structure (Figure 12.1) assumes that a collaborative approach to management will continue and that partnerships will be formed with various organisations, including communities to support park management.

In terms of governance, the NRCA through NEPA is the agency with responsibility for national park management (under the NRCA (National Parks) Regulations of 1993). This Management Plan has been prepared within the context of a ten year delegation agreement which was signed between NRCA (through NEPA) and the JCDT in October, 2002. As the BJCMNP is also a forest reserve, NEPA must collaborate with FD in order to effectively manage the natural resources of the area. A collaborative management agreement was signed between FD, NRCA/NEPA and the JCDT in 2001. With the recognition of the need to legally protect and otherwise conserve cultural heritage resources, the new collaborative management agreement will include the JNHT. Despite the lack of an up-to-date formal agreement, the principles and practices of the agreement have been maintained e.g. with regular Co-management meetings between the co-management partners, reporting and cooperative efforts. This Management Plan follows on a successfully implemented 2005 – 2010 Management Plan and anticipates the signing of new agreements shortly. Whilst management roles and responsibilities will be shared through one or more agreements, the government agencies are ultimately responsible for management of the nation's natural and cultural heritage.

**Table 12.1 Governance and Administration Programme Goal and Objectives**

Goal	Objectives
<p><b>To provide efficient, effective and sustained management that will allow the BJCMNP to meet its over-arching and other goals.</b></p>	<p>1. To coordinate management at the policy level through establishment of a BJCMNP Advisory Committee comprising key public, private sector and community stakeholders meeting twice a year.</p>
	<p>2. To coordinate management at the operations level through regular meetings of the Co-Management Committee (management partners as per relevant agreements) and community stakeholders.</p>
	<p>3. To provide supervision, project management, financial management and administrative support for the BJCMNP’s programmes</p>
	<p>4. To source short and long-term funding for park management through grant funding, government subvention, donations, sponsorship and opportunities provided through the Recreation and Tourism Programme.</p>
	<p>5. To ensure adaptive management through monitoring and evaluation of all programmes</p>

## 12.1 Management Committees

Management committees are a useful way of involving stakeholders for the purposes of collaboration, increasing the set of skills and other resources needed for management, and helping to ensure transparency and accountability. There is no one agency or organization in Jamaica that has sufficient capacity to manage the BJCMNP on its own. The JCDT has significant capacity, particularly in terms of its commitment, knowledge, skills, procedures and experience however, the National Park’s government co-management partners have specialized skills and legal responsibilities. The stakeholders of the BJCMNP are varied, ranging from other government agencies, statutory bodies, Maroon Councils, academia, private sector through to a diverse assemblage of community members. Each stakeholder group has relevant knowledge, skills and experience amongst other relevant capacities. Collaboration is essential to make use of the wealth of resources in such a way as to manage the BJCMNP for the common good.

Under the implementation of the 2005 – 2010 Management Plan, only one of the recommended committees was established and functioning – the Co-Management Committee. The Advisory Committee was not established due to lack of clarity as regards its establishment and functioning. The National Park Regulations section 34 provides for the Authority (NRCA) to establish a National Parks Advisory Council, and specifies the agencies to be represented and the functions of the Council. However, this Council is to

address national parks generally. This Plan provides for the establishment of a Committee specifically for to help guide management of the BJCMNP. Whilst there was significant involvement of Maroon Councils and other Buffer Zone community members in management and project planning especially for the Blue Mountains Sustainable Tourism Programme, the proposed formal involvement and monitoring and evaluation of this involvement did not occur. This was primarily due to limited human resources. During implementation of this Management Plan, more will need to be achieved.

**Objective 1: To coordinate management at the policy level through establishment of a BJCMNP Advisory Committee comprising key public, private sector and community stakeholders meeting twice a year.**

**i) Advisory Committee**

A BJCMNP Advisory Committee should be established to provide oversight and encourage collaboration and transparency for the National Park. As indicated above, this Committee will be specific to the BJCMNP and is not a replacement for the National Parks Advisory Council described in the Regulations which is to guide wider national park management. It should meet at least twice a year, with the Park Manager providing secretariat services. There should be no more than 15 members, including the Park Manager, NEPA, FD and JNHT representatives along with representatives of the main stakeholders including:

- a) Government agencies e.g. National Water Commission, Commissioner of Lands, Ministries of Land and Environment, Tourism, and Finance and Planning.
- b) Private sector e.g. Coffee Industry Board, Jamaica Hotel and Tourist Association
- c) Non-government and community-based organisations – including community representatives from around the park (no less than five)

The Park Manager will organize the meetings including invitations, preparation of the agenda, minutes and reports. A chairperson will be selected by the committee to guide the proceedings. Meetings should be no longer than about 2 hours and the focus should be on working together to resolve Park management challenges. Thus the Park Manager should make a 20 - 25 minute power-point presentation regarding the status of the National Park and achievement of its objectives, and highlighting specific challenges and other issues. The remaining time can then be used to jointly address thematic management issues e.g. breaches of legislation, funding challenges, promotional needs etc. Responsibilities will be assigned so that the Park Manager or other relevant officer can follow up.

The first meeting should be organized within the first half of Year 1 of this Management Plan and the Co-management Committee should play a key role in determining final membership (numbers and representation).

**Objective 2: To coordinate management at the operations level through regular meetings of the Co-management Committee (management partners as per relevant agreements) and with community stakeholders.**

## **ii) Co-management Committee**

A Collaborative management or Co-management Committee should be responsible for operational management – meeting at least three times per year to ensure that targets are set based on the operational plans (prepared annually and based on the management plan), to monitor and evaluate the effectiveness of park management and to facilitate cooperation between the main co-management partners. The structure and functioning of the Co-management Committee and co-management partners is described in the Co-management Agreement. It is a small committee consisting of representatives of the BJCMNP co-management partners (NEPA, FD, JNHT and JCDDT). Representatives from community or other organizations may be co-opted from time to time.

## **iii) Buffer Zone Community Involvement**

Local Advisory Committees (LACs) were established in the early to middle years of the park. Meetings were open to anyone who wished to attend but this resulted in large and somewhat cumbersome membership, with meetings being financially difficult to maintain. The following recommendations are based on an analysis of that experience and the last five years:-

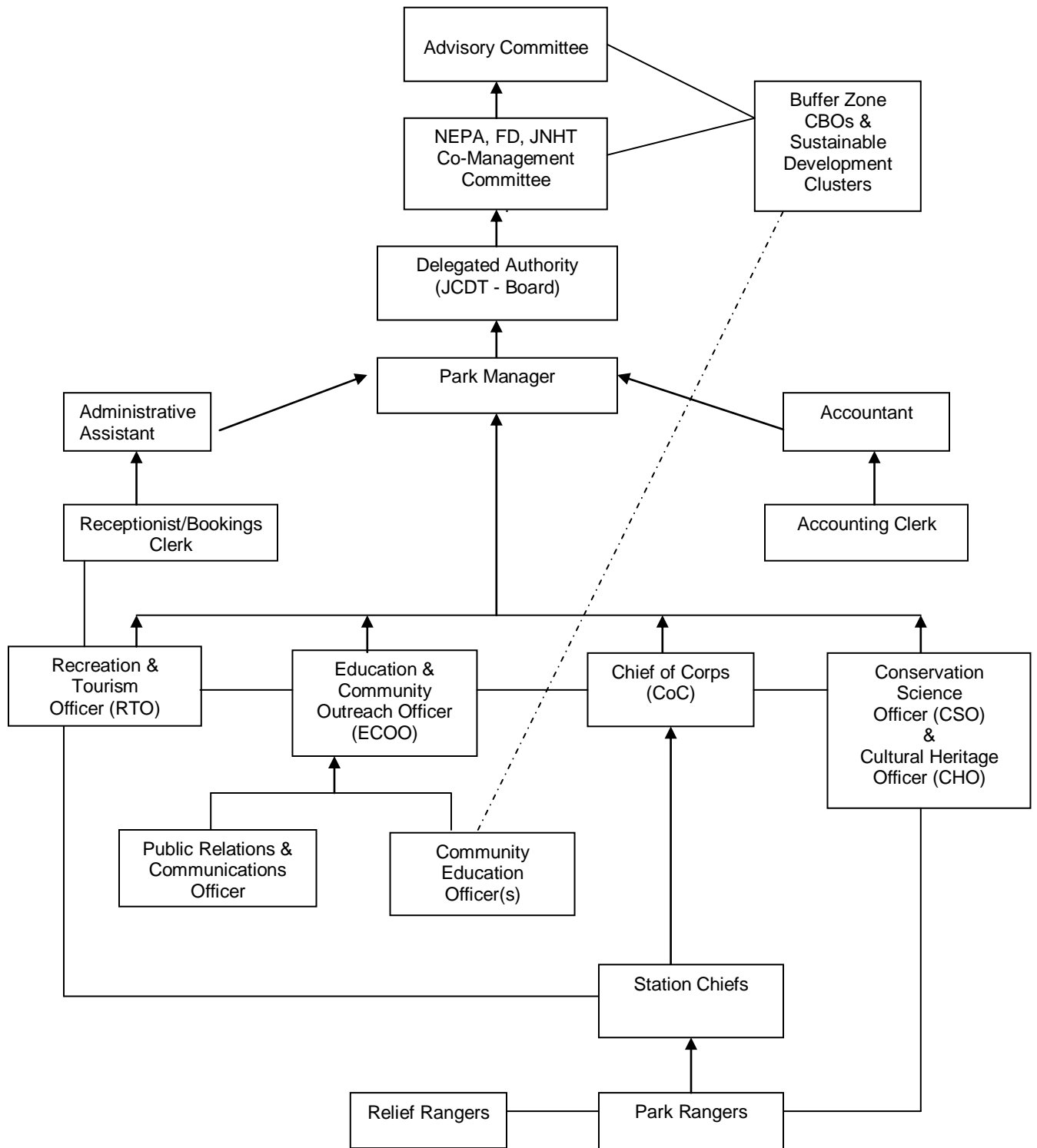
(a) **Community members should help select representatives to the BJCMNP Advisory Committee** – possibly through joint community meetings held annually.

(b) **Blue Mountains Sustainable Tourism Clusters could be expanded as Sustainable Development Clusters**, since all livelihood issues are relevant to tourism whether it is production of food, maintenance of roads, garbage collection or water supply. In fact, at the participatory planning meetings, community members saw the clusters as an opportunity to lobby government for greater support of conservation and to address livelihood issues of rural communities of the Blue and John Crow Mountains. These groupings would be similar to that of the original LACs, but much more focused and results-oriented, with hopefully a mechanism for sustainability.

(c) **BJCMNP management should liaise directly with existing, community-based organizations in the buffer zone.** In light of the importance of community involvement, park management should liaise with local community-based organizations on a regular basis through the Education and Public Involvement and other Park Management Programmes. Where assistance and other support can be provided to communities indicating interest in natural resource management this should be provided, working with other relevant agencies, and with a focus on empowerment. Selected communities will be involved in Park management through the mechanisms described in Bedasse, 2005.

(d) **Park management should ensure outreach to the wider Community Buffer Zone** (through the Park's Education and Public Involvement Programme) to ensure community members are aware of the National Park and its management.

**Figure 12.1: Proposed BJCMNP Governance Structure**



**Legend**

*Lines with arrows = reporting relationships*

*Straight lines = working/liasing relationships*

*Dashed line = working/liasing relationships between Park and CBOs*

## 12.2 Operations

Day to day operation of the BJCMNP will be guided by its annual operations or work-plan, which sets the annual targets geared at achieving programmatic objectives and goals. The Park Manager is responsible for employing the necessary management tools in order to ensure the Park achieves annual targets and hence five year objectives and finally the Park's ultimate conservation goal.

### Administrative Areas

Dividing the Park geographically into zones or administrative areas is a method that assists in planning strategically. Three administrative areas are recommended to cover west, southern and north-eastern regions of the park. This is in light of the large area to be covered and is based on the 1993 Management Plan in which this arrangement was first recommended. These areas correspond to specific watersheds and each contains areas of significance both in terms of biodiversity and cultural heritage conservation and threats. A Ranger Station is located in each of the administrative areas, which is useful for the marshalling of resources for patrols and other activities within each area. In addition, each of the three recreation areas - Holywell, Peak Trail and Cunha Cunha Pass Trail fall into one of the administrative areas. Particularly for the former two, this has resulted in greater National Park management presence and project activities in the surrounding communities.

Without a Corps of at least 12 Rangers and sufficient vehicles, it is not possible to operate the Enforcement and Compliance Programme in a way that has National Park Rangers based at the Ranger Stations full-time. This is also because the Rangers have several other duties including bird and freshwater monitoring and supervision of forest rehabilitation. Despite this, the concept of administrative areas is a good one.

**Table 12.2: Geographic Areas of BJCMNP Operation**

AREA	BOUNDARY	COMMENTS
<p><b>Area 1</b></p> <p>Southern Blue Mountains.</p>	<p>i) South-western Blue Mountains – upper Yallahs River Watershed.</p> <p>ii) South-eastern Blue Mountains – upper Morant and Plantain Gardens Watersheds.</p>	<p>The former section (i) of area 1 is under greater threat (mainly from encroachment for agriculture and related fires and overgrowth of invasive species) and will require more attention than the other sections. This area includes the Grand Ridge of the Blue Mountains where several peaks are located, including Middle Peak – more popularly known as the Blue Mountain Peak. The Grand Ridge has unique montane vegetation and requires special conservation attention. The Blue Mountain Peak and Trail (where it crosses the park boundary) are important for recreation and must be carefully managed and monitored because of the significance of the area's flora.</p>

AREA	BOUNDARY	COMMENTS
		<p>The Area 1 Ranger Station is located at Portland Gap, along the Peak Trail.</p> <p>Section (ii) is under less threat, and therefore requires less monitoring except priority sites.</p> <p>Buffer zone communities include Mavis Bank, Hagley Gap, Minto and Penlyne Castle.</p>
<p><b>Area 2</b></p> <p>Western Blue Mountains (Port Royal Mountains and Buff Bay Valley).</p>	<p>i) West Port Royal Mountains – upper Wag Water Watershed.</p> <p>ii) East Port Royal Mountains – upper Hope and Buff Bay Watersheds.</p>	<p>The West Port Royal Mountains area is mainly modified and ruinate forest. It requires a special plan with respect to sustainable use rather than conservation, per say. Whilst the eastern Port Royal Mountains and the Buff Bay Valley area are in better condition where forest cover and type are concerned, the sections under closed broadleaf forest are limited and in need of special attention. These areas are close to the Holywell Recreation Area. The corridor up into the Hope River Valley and down into the Buff Bay Valley is a scenic route, along which there is growing a small heritage tourism industry. With the close proximity of these areas to the large population of Kingston and the north coast tourist resorts, this area is important for raising awareness and support for the park. This however, must be balanced by conservation. The Area 2 Ranger Station is located at Holywell.</p> <p>Buffer zone communities include Woodford, Freetown, Irish Town, Redlight, Greenwich, Section, Cascade and Charles Town (physically outside the Buffer Zone, but considered within because of its Maroon community).</p>
<p><b>Area 3</b></p> <p>Northern Blue Mountains and John Crow Mountains.</p>	<p>i) Northern Blue Mountains – upper Swift and Spanish River Watersheds.</p> <p>ii) John Crow Mountains and Rio Grande Valley – upper Rio Grande and Driver’s River Watersheds.</p>	<p>The Blue and John Crow Mountains, bordering the Rio Grande Valley, will require greater attention as this section of the area is under greater threat. Furthermore, it is of particular significance because of the high biological diversity of the area. The forests in Area 3 provide habitat for many of the endemic animal species including the Giant Swallowtail Butterfly, Coney and Yellow Snake. Interest in heritage tourism and natural resource management is relatively high in this area, particularly in communities like Millbank, where the park management has been working with</p>

AREA	BOUNDARY	COMMENTS
		<p>communities for the longest and most continuous period. The Area 3 Ranger Station is located in Millbank.</p> <p>Buffer zone communities include Millbank, Moore Town, Ginger House, Comfort Castle and Bellevue. All have Maroon heritage.</p>
<b>Headquarters (HQ)</b>	Kingston	<p>An office will be maintained in Kingston as this is strategically located in terms of:</p> <ul style="list-style-type: none"> <li>- networking/meeting with other agencies,</li> <li>- logistical arrangement and facilities,</li> <li>- access to all areas of the National Park,</li> <li>- access for booking visitors.</li> </ul> <p>Administrative and field staff will be based at HQ. Rangers will be deployed from both the ranger stations in each administrative area and the park headquarters in Kingston, with a presence being maintained at least 5 days per month at each ranger station (excluding week-end visitor management duties) by the end of this five year plan.</p>

**Objective 3: To provide supervision, project management, financial management and administrative support for the BJCMNP’s programmes**

The annual status report and work-plan will be prepared by the Park Manager working closely with Programme Officers towards the end of each year. An annual staff retreat will reflect on the report of the successes and challenges of the year and hence, plans for the following year. The final work-plan will be prepared based on anticipated funding as well as the five-year Management Plan objectives. Programme Officers will report monthly (in a written report and verbally at a Programme Management meeting) on the status of achievement of the targets set for the year. This will allow the Park Manager and Programme Officers to set monthly targets, and to adapt approaches as necessary e.g. to take advantage of an unexpected opportunity e.g. visiting researcher, or to address a challenge e.g. hurricane damage. Since projects will be developed based on programme objectives, meetings and reports will reflect both project and programme target achievement, since project funding often has to be used to achieve annual work-plan targets and longer term objectives.

Each staff member whether line staff, senior or junior management has a role to play in implementing work-plans and achieving the targets and objectives that will make the



BJCMNP's conservation goal successful. Staff will need to be very familiar with the Management Plan and work closely together, as there are many over-lapping areas and activities that benefit more than one programme. This is particularly important within the context of limited resources; further, integration of programmes can create useful synergies e.g. community youth trained through the Education and Public Involvement Programme can work as tour guides in the Recreation and Tourism Programme.

## **12.3 Staffing and Job Profiles**

The staffing for the Park has been designed based on the programme areas and functional requirements. The following are recommendations and will have to be adapted as resources allow. This can be done by focusing work on threatened areas, increasing partnerships and increasing the level of funding. National Park Rangers will work mainly in enforcement – particularly with respect to patrolling and surveillance/monitoring activities but also in each programme area, particularly conservation, monitoring and recreation/tourism (for visitor management). The smaller the number of National Park Rangers, the more work each will have to perform in the other programmes. However, these are all field activities, so they are still effectively on patrol whether they are supervising forest rehabilitation or conducting freshwater monitoring. With more National Park Rangers, there will need to be more attention to community outreach, which has generally been reduced due to limited resources.

### **National Park Rangers**

Multi-disciplinary National Park Rangers form the front-line of park operations. Whilst they may be simply considered as enforcement officers (and in terms of the Programmatic Budget are listed under the Enforcement and Compliance Programme), these personnel are literally the 'eyes and 'ears' of the Park in terms of all forms of monitoring and they use an interpretive approach to enforcement. This is an approach that promotes stakeholder understanding and interest as well as community involvement in park/natural resource management. National Park Rangers are therefore, involved not only in patrolling and investigation of breaches of legislation, but all the park management programmes and activities e.g. visiting schools, assisting with community conservation projects, natural resources monitoring and visitor management. An estimate of time for programme areas outside the Enforcement and Compliance Programme is provided in the Programme Summary Tables. National Park Regulations, section 32 describe the functions of a National Park Ranger (see Chapter 8) and refer to their recognition through the NRCA.

A National Park Ranger should have a secondary school certificate and at least two subjects at CXC level (or equivalent) including English Language. Experience working outdoors, with community groups and/or in the security forces would be an asset. A National Park Ranger must be physically fit, have an interest in conservation, enjoy the outdoors and be a responsible individual, a team-player, good communicator and always willing to learn.

### 12.3.1 Conservation Programmes

Implementation of the Natural Heritage Conservation and the Monitoring and Evaluation Programmes requires at least one full-time Conservation Science Officer (CSO) with about 60% of the time of two trained National Park Rangers. Implementation of the Cultural Heritage Conservation Programme requires ideally, a part-time Cultural Heritage Officer (CHO) since this Programme has been designed to work in tandem with both the Education and Public Involvement and the Recreation and Tourism Programme. The cooperation of co-management partner agencies, academic and other institutions e.g. UWI and IOJ (Natural History Museum of Jamaica and African Caribbean Institute of Jamaica) is assumed. There are numerous similarities in their job profiles, hence these are combined below.

**Table 12.3.1 Job Profile – Conservation Programme Officers**

<b>Job Title: Conservation Science Officer (CSO)</b>
<b>Candidate’s Profile:</b> The CSO will have at least a post-graduate degree in Conservation Science, Natural Resource Management or related field. S/he must have at least 2 years work experience in this field. S/he must have conducted research and have good field skills and excellent analytical and writing skills.
<b>Job Title: Cultural Heritage Officer (CHO)</b>
<b>Candidate’s Profile:</b> The CHO will have at least a post-graduate degree in Cultural Heritage Preservation and Management or related field. S/he must have at least 2 years work experience in this field. S/he must have conducted research and have good field skills and excellent analytical and writing skills. If the Community Education Officer had these skills, that position could cover the CHO responsibilities.
<b>Job Profile</b>
The CSO and CHO will report to the Park Manager and will be responsible for ensuring that the programme activities are implemented and annual work-plan targets are met - whether in-house, with or by the relevant co-management agency (NEPA, FD or JNHT) or a partner organisation e.g. UWI, IOJ, foreign universities.
S/he will liaise with the Chief of Corps in terms of assigning and rostering National Park Rangers for duties under the Programmes.
The Officers will need to seek funding for technical assistance in order to effect some aspects of their programmes.
The CSO and CHO will maintain a research prospectus available on-line, in order to promote research that will support park management.
The CSO and CHO will participate in relevant national committees to share the BJCMNP’s conservation work, and obtain input and support. S/he will convene the Scientific and Technical Advisory Committees for the BJCMNP and ensure that they meet at least once a year to provide support for the National Park’s conservation and monitoring & evaluation programmes.

### 12.3.2 Enforcement and Compliance Programme

It has been estimated that for this programme to be effectively conducted, based on the area of the BJMCNP, ideally there should be 15 National Park Rangers. The Ranger Corps consists of a Chief of Corps (supervisor) and National Park Rangers, at various levels. Under this Management Plan every effort should be made to bring the number of National Park Rangers up to at least 12. This is bearing in mind that the National Park Regulations (1993) recognise the JDF, JCF and ISCF personnel and other persons so designated, as National Park Rangers. JCDD employed National Park Rangers will be multi-disciplinary as this will help to reinforce the interpretive approach that the full-time National Park Rangers will employ in contrast to those from other agencies.

There should also be a group of trained persons (Relief Rangers) who can be called on when National Park Rangers are unavailable e.g. in cases of illness, or being on-leave, or when additional personnel are needed e.g. for special patrol or event. Ideally, each Ranger Station should be manned by at least one National Park Ranger or other suitable designated person, at all times.

A description of the National Park Ranger position is provided above and the functions from the National Park Regulations listed at Chapter 8.2. A supervisor or Chief of Corps has been found to be essential for the effective administration of the Programme.

**Table 12.3.2 Job Profile – Chief of Corps**

<b>Job Title: Chief of Corps (CoC)</b>
<b>Candidate’s Profile:</b> The Chief of Corps should have significant leadership, supervisory, organisational and administrative skills and experience. Excellent communication and interpersonal skills are essential. Tertiary level education in a relevant field would be an asset.
<b>Job Profile</b>
The Chief of Corps will be responsible for the Enforcement and Compliance Programme. Major responsibilities will include providing leadership and supervision for the Ranger Corps, organising joint patrols with other agencies on a weekly basis, monthly and other reports and convening quarterly meetings for review and evaluation of the programme.
The Chief of Corps will report to the Park Manager and liaise with other programme officers to ensure organised rostering of rangers for work under the various programme areas, as needed. This includes visitor management in recreational areas on weekends and public holidays.
The Chief of Corps will also liaise with other programme officers to ensure regular in-house training of national park rangers and relief or trainee rangers, along with other interested staff and community members.

### 12.3.3 Education and Public Involvement Programme

At least three officers are required for this programme – three sets of skills are required and ideally each of the three officers will have more than one of these skill sets. However, in the event that this is impossible, training will need to be conducted. The three skill areas are:

- a) Public Education and Interpretation,
- b) Communication e.g. media releases, production of newsletters,
- c) Community Education – participatory, sustainable community development.

With respect to the latter, ideally one Community Education Officer is required for each of the Administrative areas, if they are to be worked with simultaneously. However, it will be possible to implement focused community programmes over several small geographic areas if other personnel are trained in participatory skills, and by working with existing groups e.g. Development Area Committees (DACs) and Community Development Committees (CDCs) and agencies e.g. SDC. Further, with the appropriate skills, a Community Education Officer could implement the responsibilities of the Cultural Heritage Officer.

The Education and Community Outreach Officer will be responsible for the Programme and supervise full-time or part-time personnel in the positions. The ECOO will play a key role in implementing many activities related to the Conservation of Cultural Heritage.

**Table 12.3.3 Job Profile – Education and Community Outreach Officer**

<b>Job Title: Education and Community Outreach Officer (ECOO)</b>
<b>Candidate’s Profile:</b> The ECOO will have tertiary level qualification in education, social work or other related field; and experience in education, public education, community outreach and media relations. The ECOO will have excellent communications skills – able to produce power-point presentations, brochures, posters; address groups of students of all ages and levels, the general public, officers from other agencies; and be able to develop a good rapport with community members.
<b>Job Profile</b>
The officer will be responsible for implementation of the programme and work with the public relations and community officers (if they are in place) as a team. The ECOO will be responsible for ensuring that the programme activities are implemented - whether in-house, working with community members, volunteers and/or agency partners. The individual will assist in seeking programme funding and/or technical assistance as needed.
The Environmental Education Officer will report to the Park Manager and liaise with the Chief of Corps for National Park Ranger support and with other officers, as needed.
The Officers with specific responsibilities for public relations and communication and community education will have training and experience in these fields.

### 12.3.4 Recreation and Tourism Programme

A Recreation and Tourism Officer (RTO) will be required to manage this programme as a business so it can better support the other programmes. In fact, an alternate title could be Business Development Officer. Ideally, the RTO should be assisted by a full-time Site Supervisor who is responsible for ensuring maintenance of the two recreation areas managed by the Park, to the required standards, and also the supervision of construction and other product development within the Park. This will allow the RTO to focus on business development – product development, marketing and sales. Until this is possible, National Park Rangers at the level of Station Chief will carry out recreation area responsibilities.

The RTO will also play a role in implementing the Cultural Heritage Conservation Programme as this has a significant component related to tourism.

**Table 12.3.4 Job Profile – Recreation and Tourism Officer**

<b>Job Title: Recreation and Tourism Officer (RTO)</b>
<b>Candidate’s Profile:</b> The RTO will have tertiary level education in hospitality and tourism management, with marketing training and experience or in business development and management with tourism marketing experience. This individual should enjoy visiting natural and cultural heritage attractions and ideally should have some knowledge and experience of heritage, community-based and eco- tourism. They should have excellent communications skills and be able to develop a good rapport with community members.
<b>Job Profile</b>
The position will report to the Park Manager and liaise with the Site Supervisor or Station Chiefs and the Chief of Corps. Station Chiefs report to the Chief of Corps and are responsible for ranger stations that are located in the National Park’s recreation areas.
The RTO will be responsible for implementation of the programme, particularly the Blue Mountains Sustainable Tourism Programme which seeks to market the BJCMNP’s recreation areas along with local community and private sector ventures around the National Park in ways that benefit the BJCMNP conservation and sustainable development of local communities. For Maroon communities, cultural heritage conservation is an additional goal. The RTO will therefore need to:-
<ul style="list-style-type: none"> <li>- ensure adequate product development and standards for accommodations, attractions and services within the Programme, in particular, the BJCMNP’s own recreation areas.</li> <li>- liaise regularly with the Blue Mountains Sustainable Tourism Clusters to keep them informed and involved in the Programme.</li> <li>- liaise with the EEO to provide technical assistance for tour guide and other relevant training, and for interpretation e.g. signage.</li> </ul>
Ultimately the main focus of this Officer is developing the National Park’s Recreation and Tourism business, so it becomes significantly more profitable.

### 12.3.5 Park Management and Administration

Park management and administration are critical areas that are often taken for granted. Management includes planning, organizing, coordinating, monitoring and evaluating, as well as supervising and motivating staff to ensure objectives and targets are met. Administration includes clerical work, logistical support, accounting and financial management. With respect to the BJCMNP's recreation areas, bookings need to be made and fees collected. In addition, there are networking, partnership development, marketing and fundraising (proposal writing, corporate sponsorship, donations and events) activities that must be implemented to maintain operations in the short to long term.

**Table 12.3.5 Job Profiles – Management and Administration**

<b>Job Title</b>	<b>Candidate's Profile</b>
<b>Park Manager</b>	<p>The Park Manager will have tertiary level education in Environmental Management and/or Business Administration, with experience in these areas. The position will report to the Co-Management Committee and the Advisory Committee through the relevant organisation directly responsible for Park management. For the period of this Management Plan, this organisation is assumed to be the Jamaica Conservation and Development Trust (JCDDT).</p> <p>The Park Manager will have general oversight, planning, proposal writing and fund-raising responsibilities, in addition to project management and evaluation. Each of the senior staff i.e. Chief of Corps, Conservation Science Officer, Environmental Education Officer and Recreation Area Officer will report to the Park Manager with respect to project management and also to assist with project/programme development and fund-raising, particularly proposal writing.</p>
<b>Administrative Assistant</b>	An Administrative Assistant will provide administrative services e.g. correspondence, procurement, organisation of meetings and other logistics for park management.
<b>Receptionist/Bookings Clerk</b>	Receptionist and clerical functions are required, particularly for the operation of the recreation areas. These two functions could be combined into one position.
<b>Accountant and Accounts Clerk</b>	Accounting and financial management is also required. These positions may be part-time.

At least monthly, meetings should be held between the Park Manager and Programme Officers for reporting, communication, planning and monitoring of projects. The Chief of Corps should meet with National Park Rangers at least monthly for reporting, planning and monitoring as well as the coordination of activities through roster development. Each Officer will prepare a monthly report to the Park Manager, who in turn will prepare bi-monthly reports for the relevant co-management partners.

The Park Manager (and other Programme Officers as necessary) will organise and meet at least three times per year with the Co-management Committee, and twice a year with the Advisory Committee. The Park HQ acts as the secretariat for these meetings. The Park Manager or Programme Officers (as appropriate) will also be responsible for liaising with relevant agencies and stakeholders – informally, and also through established committees. Reports from such meetings should be shared during monthly meetings and minutes and other relevant materials made available to all personnel.

Further details regarding staff performance and organizational policy are found in the Park’s staff manual, which should be updated during this 5-year period.

## **12.4 Management Plan Review**

Annual operations plans will be developed from the management plan and these will identify the various activities, outputs and outcomes planned for this period. These will be monitored during regular monthly meetings and evaluated every six months at a special meeting of the Park Manager, programme officers and co-management partners. The results of these evaluations will be presented to the Advisory Committee along with the annual report and plans for the following year, which they will review and accept at their meetings twice per year.

The Management Plan will be reviewed and evaluated every two years and revision of the plan will commence after four and a half years.

Monitoring and evaluation will be based on the plans for these outlined under each programme area, and with respect to the over-arching goal of the national park, which is to protect the core natural (closed broad leaf) forest within the BJCMNP.

## **12.5 Human Resources Development**

The people involved in management of the BJCMNP are critical resources for management effectiveness. Without people to implement strategies, nothing can be done. Often, with relatively limited resources a small, committed and passionate staff can motivate local community members and other volunteers and together achieve great things. Of course, inadequate resources can de-motivate even the best team, but other sections of this chapter address the sourcing of the funding to obtain the necessary resources. Human Resource Development can be defined as: “the framework for helping employees develop their personal and organizational skills, knowledge, and abilities”, and includes such opportunities as:

“employee training, employee career development, performance management and development, coaching, mentoring, succession planning, key employee identification, tuition assistance, and organization development” (<http://www.about.com>).

Insufficient resources impact on management’s ability to provide for training and tuition assistance, however efforts to source training for staff is implemented through a variety of routes including projects and sponsorship. In addition, staff are allowed time off to

attend classes, once relevant to the work of the National Park. A small staff with horizontally oriented organizational chart as well as a poorly developed system of protected areas in Jamaica limits career development. Due to these and other restraining factors, training has been seen as a useful focus for human resources development.

Training can be a major benefit, and bearing in mind the limited benefits management may be able to provide, it is an excellent aspect to focus on. Further, training builds the capacity of the persons trained to implement their job more efficiently and effectively. It will also result in the identification of new and creative ways to do the job, and to integrate it with other aspects of National Park management. In addition, trained personnel can share their knowledge and experience with other staff and community members to enhance human capacity for park management. There are relatively few specialized training opportunities available in Jamaica and the Caribbean, particularly short-term courses.

**Table 12.4 – Training Needs and Opportunities**

<b>Programme</b>	<b>Needs</b>	<b>Opportunities (Relevant Agencies)</b>
Conservation	<ul style="list-style-type: none"> <li>• GIS</li> <li>• Taxonomy and Species Identification</li> </ul>	<ul style="list-style-type: none"> <li>• MonaGeoInformatix</li> <li>• UWI, IOJ - NHMJ</li> </ul>
Cultural Heritage Conservation	<ul style="list-style-type: none"> <li>• Awareness and sensitivity to cultural issues</li> <li>• Use of participatory and cultural tools in working with communities for conservation of both natural and cultural resources.</li> </ul>	<ul style="list-style-type: none"> <li>• JNHT</li> <li>• IOJ – ACIJ</li> <li>• Jamaica Cultural Development Commission (JCDC)</li> </ul>
Enforcement and Compliance	<ul style="list-style-type: none"> <li>• Development of a National Park Ranger Training Manual (working with relevant agencies for its design and implementation)</li> </ul>	<ul style="list-style-type: none"> <li>• NEPA</li> <li>• FD</li> <li>• JCF/ISCF</li> </ul>
Education and Public Involvement	<ul style="list-style-type: none"> <li>• International training in interpretation</li> <li>• Participatory Planning and Management</li> </ul>	<ul style="list-style-type: none"> <li>• National Association of Interpreters (NAI)</li> <li>• CANARI</li> </ul>
Recreation and Tourism	<ul style="list-style-type: none"> <li>• International training in ecotourism</li> </ul>	<ul style="list-style-type: none"> <li>• The International Ecotourism Society</li> </ul>
Monitoring and Evaluation	<ul style="list-style-type: none"> <li>• Bird and other species monitoring</li> <li>• Monitoring and evaluation techniques</li> </ul>	<ul style="list-style-type: none"> <li>• BirdLife</li> <li>• JCDT</li> </ul>
Governance and Administration	<ul style="list-style-type: none"> <li>• Business and Financial Management</li> <li>• Strategic and Business Planning</li> </ul>	<ul style="list-style-type: none"> <li>• UWI</li> <li>• Management Institute for National Development (MIND)</li> </ul>



Funds for training should be budgeted for and sourced as far as possible. Membership and participation in relevant regional and international associations can be an excellent way to develop human resources through materials on best practices and experiences in other places, training opportunities, conferences and workshops. Personnel who receive training are encouraged to share with other staff. The JCDT's significant experience and track record in protected area management make it an excellent training resource.

Training of National Park Rangers (inclusive refresher courses) is particularly essential as there is no formal course available in the Caribbean. Bearing in mind the target set under the Enforcement and Compliance Programme, of preparing a training programme and manual for National Park Rangers and the JCDT's knowledge and experience, a national and later a regional training programme should be considered.

Community members have received training during the last management planning period and this should be continued, as requested in management planning meetings. This will provide them with the knowledge and skills to assist with Park management as well as increase the environmental sustainability of their livelihoods.

## **12.6 Financial Plan**

Financing protected areas is a global challenge that impedes management effectiveness. The CANARI 2001 Review of Jamaica's protected areas system identified difficulties with financing as one of the issues affecting the whole system as well as individual sites. Protected area managers are encouraged to make their sites 'financially sustainable', however it is often not clear exactly what this means to different stakeholders. If by 'financially sustainable' one means that a protected areas self-generates enough income e.g. from user fees, concessions etc. then protected areas in Jamaica, as elsewhere in the world, will never be 'financially sustainable'. If the term is used to mean having secure funding from a variety of sources, then this is possible. Whilst the BJCMNP will self-generate income, it will be necessary to obtain funding from other sources, therefore the latter approach to 'financial sustainability' will be the focus of this financial plan.

The BJCMNP provides highly valuable ecosystem services including water supply and disaster mitigation. The people of Jamaica, as the beneficiaries of these services, must therefore support the conservation and management of this national park, through contributions from the Government of Jamaica (from taxes etc.) and other sources. In addition, because of its global significance and interest to special groups, the National Park will be able to generate additional income. A combination of funding sources will eventually provide the BJCMNP with financial sustainability. This financial plan seeks to guide the accessing of funds from a variety of sources over the short to long term.

### **12.6.1 History of BJCMNP Funding**

The BJCMNP was established under the Protected Areas Resource Conservation (PARC) project – a USAID/GOJ project, and during this period, much of the funding for

operations was provided by USAID. Just after the project closed, GOJ through NEPA (then NRCA) made much more substantial contributions, however these declined very rapidly. Further, the Jamaica National Parks Trust Fund (JNPTF) established during the PARC project, to assist with funding, suffered as major new funding expected during the second phase of the project was not forth-coming. This Fund was unable to garner significant funding from other sources and in addition, the interest rates fell drastically over the years after its establishment. The level of funding to the BJCMNP therefore declined from this source as well. The vast majority of funding for the National Park since about 1998 has been raised by the JCDT from a wide variety of sources.

## **12.6.2 Current Funding**

The JCDT is the main implementing agency for operations in the BJCMNP. It prepares budgets based not only on projected expenditure (from plans), but also the likelihood of funding. Therefore, more funds may be expended than originally budgeted for, as budgets are adjusted as new funding is sourced. It is difficult to source programmatic and operational funding, as donors prefer project grants – “one-off” activities with tangible outputs (and possibly outcomes) at the end of one to two years. The funding of salaries must be clearly linked to the production of the outputs, and are only available for the duration of the project, thus staff have little job security.

The Delegation Agreement between NRCA and the JCDT states that the former will provide a management fee to assist in management of the BJCMNP. The Agreement also states that the NRCA will allow JCDT to collect and retain all relevant user fees, once they are used for operational management of the National Park. These agreements are being implemented and NRCA audits JCDT annually in this regard.

The FD has several officers assigned to the area, but it is difficult to quantify their contribution to park management, although they play a significant role with respect to control of tree-cutting for lumber, boundary mapping and community involvement – in the Buff Bay/Pencar watershed area of the Park. The Forestry Department’s property at Portland Gap, Millbank and Holywell are used as ranger stations and recreation areas. It would be useful to quantify these and other GOJ contributions and include them in the Park’s budget, however the focus of this Plan is on management of the site as a protected area under the NRCA Act.

In 2004, approximately JA\$19 million was spent on park operations, and JCDT raised the vast majority of these funds. In the 2005 – 2010 Management Plan a proposed breakdown of source for income was proposed, and this is shown below along with actual figures for 2006 – 2009. This shows significant variation and although 2009 appears to be approaching the proposed breakdown it is not clear if this is the case, as none of the sources are secured. Even funds which may appear to be established to support the management of a site of national and even international importance, still require proposals to be entered in a form of competition which does not run in synch with the

Park's budgetary flow. There is still a need for greater and more secure funding support from the Government of Jamaica.

**Table 12.5 Breakdown of BJCMNP Income Sources by Percentage of Total**

Source	Percentage of Total Income (%)				
	Proposed 2010	Actual 2006	Actual 2007	Actual 2008	Actual 2009
Government of Jamaica (NRCA)	35	14	4	6	18
Grants (Bi- & Multi-lateral Agencies, Other Donors and JNPTF)	40	64	78	79	45
Recreation area (Holywell & Portland Gap)	15	13	8	8	7
JCDT – fundraisers, sponsors, donations, administrative fees etc.	10	9	10	7	30

*N.B.: JCDT raised the grant funding and operates the National Park's recreation areas.*

### 12.6.3 Budgets

Budgets have been prepared using a programmatic approach for both the first year of the Plan (2011) and five years. This information has then been summarised to provide comprehensive budgets (see Tables 12.6 and 12.7).

The budgets prepared for the 2011 – 2016 Management Plan aim to meet BJCMNP management requirements, but also to be reasonable and feasible. Despite this, it is likely, particularly with respect to the employment of staff, that insufficient funding will be sourced. Management should be wary of significantly increasing staff and then being unable to fund their salaries beyond the short term, as this “boom and bust” phenomenon results in erosion of the impact of activities implemented when funding was at a high level. Despite this, most of the National Park's activities rely on implementation by paid personnel, and it will be difficult to manage the BJCMNP effectively with limited and short-term funding for salaries.

**Sources of Funding.** The costs in the budgets are specific to operational park management and do not include any GOJ direct expenditure e.g. for the Forestry Department's North-Eastern Region or NEPA's Protected Areas, Enforcement or other Branches. Any expenditure by these agencies, therefore, is in addition to the budget in the BJCMNP's management plan, unless either of the agencies seconds its personnel to BJCMNP service formally or informally. For example, the Management Plan addresses the need to increase the level of presence of Enforcement Officers, and the budget includes 11 of 15 Rangers needed, which may be impossible to fund. Strategies to address this are described within the Chapter on the Enforcement and Compliance Programme, and include increasing the level of patrolling by other Enforcement Officers including the ISCF and involving community members e.g. as Trainee Rangers.

**Recurrent Expenditure.** The estimated recurrent expenditure for the BJCMNP for 2011 is about JA\$40.6 million or US\$472,782. Over the first five years of the 2011 – 2016 Management Plan, the total estimated recurrent expenditure is just over JA\$247 million or US\$2.9 million, averaging JA\$49.6 million or US\$576,281 per annum. This budget is based on staffing and operational expenses required to implement most of the Management Plan. Annual increases due to inflation have been factored into the budget. Some required expenditure has been placed in the Capital/Projects budget e.g. vehicles and major components of the Management Plan e.g. reforestation, public awareness campaign and recreation area development.

The 2005 – 2010 Management Plan recurrent budget estimates were fairly accurate except that less was actually spent primarily because staffing was not increased to the budgeted level. It should be noted that Jamaica’s Protected Area Master Plan Financial Report estimated US\$390,000 per annum for basic level recurrent expenditure. Over the 2005 – 2009 period, US\$480,000 was budgeted but actual JCDT expenditure was about US\$277,000. It is anticipated that unless major funding is accessed, actual recurrent expenditure for the new Management Plan period will be less than estimated due to inadequate funding, and this will have a negative impact on management effectiveness.

By programme, the Enforcement and Compliance Programme is the most costly, because it includes the salaries of all the National Park Rangers, whereas the other Programmes have ranger time included in their budget as time not cash. Some strategies described under the Enforcement and Compliance Programme are to be funded from the Education and Public Involvement Programme e.g. community outreach. The cost of the part-time Cultural Heritage Officer has not been added, as funds for Community Education Officer could be used instead. The Governance and Administrative Programme costs are about 30% of the Programmes budget.

**Capital and Project Expenditure.** Capital and project expenditure for the period is estimated at JA\$120.8 million or US\$1.4 million, that is an average of about JA\$24 million or US\$280,930 per annum. Vehicles currently being used in BJCMNP management are all over five years old, and suffering from the poor road conditions and the high cost of repairs. Vehicle purchase is, therefore, a critical component of the capital expenditure. Forest rehabilitation is an essential activity but most costs have been assigned to project expenditure as it is usually funded by donors. The strategies described under the Cultural Heritage Conservation Programme are budgeted under the Conservation and the Education Programmes as project funding will have to be sourced. The development of Holywell to improve its potential to generate income to support park conservation has been estimated at JA\$40 million or US\$465,110. Other major components of non-recurrent expenditure are community projects (sustainable livelihoods) and public education. The budget is rolling, so that if funds are not sourced for an activity in one year, the required amount would move to the following year. See budgets below.

**Table 12.6 BJCMNP 5 year Programme Budget**

<b>PROGRAMMES &amp; LINE ITEMS</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>TOTAL(JAS)</b>	<b>TOTAL(US\$)</b>
<b>ENFORCEMENT &amp; COMPLIANCE</b>							
<b>Personnel</b>							
Chief of Corps	1,738,134	1,877,185	2,027,360	2,189,549	2,364,713	10,196,941	118,569
3 Station Chief/1 Conservation Ranger	2,700,000	3,888,000	4,199,040	4,534,963	4,897,760	20,219,763	235,114
Ranger Level 1 (3)	1,742,400	2,822,688	3,048,503	3,292,383	3,555,774	14,461,748	168,160
Ranger (2) – 1 in Yr 1 and 2 after	492,822	1,064,496	1,149,655	2,420,718	2,614,375	7,742,066	90,024
Trainee Rangers (2) move to full-time 2014	936,000	1,010,880	1,091,750	0	0	3,038,630	35,333
Subsistence @ \$2,000/wk per Ranger	1,144,000	1,235,520	1,334,362	1,441,111	1,556,399	6,711,391	78,039
<b>Sub-total - personnel</b>	<b>8,753,356</b>	<b>11,898,769</b>	<b>12,850,670</b>	<b>13,878,724</b>	<b>14,989,022</b>	<b>62,370,541</b>	<b>725,239</b>
<b>Supplies and services</b>							
Uniform/gear @\$45,000/Ranger eg boots, raingear	315,000	534,600	577,368	623,557	673,442	2,723,967	31,674
Transportn - Fuel, service, ins/lic - 3vehicles, 5 bikes	1,200,000	1,296,000	1,399,680	1,511,654	1,632,587	7,039,921	81,860
Communication eg phone, meetings	250,000	270,000	291,600	314,928	340,122	1,466,650	17,054
Office supplies/stationery/equipment	210,000	226,800	244,944	264,540	285,703	1,231,986	14,325
Ranger station supplies/ maintenance	230,000	248,400	268,272	289,734	312,912	1,349,318	15,690
<b>Sub-total - supplies and services</b>	<b>2,205,000</b>	<b>2,575,800</b>	<b>2,781,864</b>	<b>3,004,413</b>	<b>3,244,766</b>	<b>13,811,843</b>	<b>160,603</b>
<b>Training - local</b>	120,000	129,600	139,968	151,165	163,259	703,992	8,168
International (2 – 3 Rangers)	550,000	0	650,000	0	700,000	1,900,000	22,093
<b>TOTAL RECURRENT</b>	<b>11,628,356</b>	<b>14,604,169</b>	<b>16,422,502</b>	<b>17,034,302</b>	<b>19,097,047</b>	<b>78,786,376</b>	<b>916,121</b>
<b>CAPITAL/PROJECTS</b>							
Vehicles (assume duty-free)	2,500,000	0	2,000,000	0	0	4,500,000	52,326
Ranger Station upgrade	1,000,000	0	0	600,000	0	1,600,000	18,605
<b>TOTAL CAPITAL/PROJECTS</b>	<b>3,500,000</b>	<b>0</b>	<b>2,000,000</b>	<b>600,000</b>	<b>0</b>	<b>6,100,000</b>	<b>70,930</b>
<b>GRAND TOTAL (Recurrent &amp; Capital/Projects)</b>	<b>15,128,356</b>	<b>14,604,169</b>	<b>18,422,502</b>	<b>17,634,302</b>	<b>19,097,047</b>	<b>84,886,376</b>	<b>987,051</b>
<b>CONSERVATION, MONITORING &amp; EVAL'N</b>							
<b>Personnel</b>							
Conservation Science Officer	1,890,814	2,042,079	2,205,445	2,381,881	2,572,431	11,092,651	128,984
Ranger (45 person dys each – 2 Rangers)	-	-	-	-	-	-	-
Casual Labour (Nursery/Invasive removal etc)	1,000,000	1,080,000	1,166,400	1,259,712	1,360,489	5,866,601	68,216
Subsistence @ \$4,000/wk	120,000	129,600	139,968	151,165	163,259	703,992	8,186
<b>Sub-total – personnel</b>	<b>3,010,814</b>	<b>3,251,679</b>	<b>3,511,813</b>	<b>3,792,758</b>	<b>4,096,179</b>	<b>17,663,244</b>	<b>205,387</b>
<b>Supplies and services</b>							
Transportn - Fuel, service, ins/lic - 3vehicles, 5 bikes	350,000	378,000	408,240	440,899	476,171	2,053,310	23,876
Communication eg phone, meetings	120,000	129,600	139,968	151,165	163,259	703,992	8,186
Office supplies/stationery/equipment	150,000	162,000	174,960	188,957	204,073	879,990	10,232
Uniform/gear	50,000	54,000	58,320	62,986	68,024	293,330	3,411
Technical Equipment & Supplies	80,000	86,400	93,312	100,777	108,839	469,328	5,457

<b>PROGRAMMES &amp; LINE ITEMS</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>TOTAL(JAS)</b>	<b>TOTAL(US\$)</b>
<b>Sub-total - supplies and services</b>	<b>750,000</b>	<b>810,000</b>	<b>874,800</b>	<b>944,784</b>	<b>1,020,367</b>	<b>4,399,951</b>	<b>51,162</b>
Training - local	40,000	43,200	47,520	51,322	55,427	237,469	2,761
- International (2 – 3 Rangers)	200,000		300,000		400,000	900,000	10,465
<b>TOTAL RECURRENT</b>	<b>4,000,814</b>	<b>4,104,879</b>	<b>4,734,133</b>	<b>4,788,864</b>	<b>5,571,973</b>	<b>23,200,664</b>	<b>269,775</b>
<b>CAPITAL/PROJECTS</b>							
Vehicles (assume duty-free)		2,500,000				2,500,000	29,070
Reforestation & Forest Rehabilitation	500,000	5,000,000	5,500,000	6,000,000	6,500,000	23,500,000	273,256
Research & other Projects	1,000,000	1,000,000	1,500,000	1,500,000	1,500,000	6,500,000	75,581
Cultural Heritage Projects	1,300,000	800,000	1,300,000	450,000	450,000	4,300,000	50,000
<b>TOTAL CAPITAL/PROJECTS</b>	<b>2,800,000</b>	<b>9,300,000</b>	<b>7,000,000</b>	<b>7,500,000</b>	<b>8,000,000</b>	<b>32,500,000</b>	<b>377,907</b>
<b>GRAND TOTAL (Recurrent &amp; Capital/Projects)</b>	<b>6,560,814</b>	<b>13,361,679</b>	<b>11,386,613</b>	<b>12,237,542</b>	<b>13,116,546</b>	<b>54,563,195</b>	<b>634,456</b>
<b>E. EDUCATION &amp; PUBLIC INVOLVEMENT</b>							
<b>Personnel</b>							
Education & Community Outreach Officer	1,491,180	1,610,474	1,739,312	1,878,457	1,972,380	8,691,804	101,067
Community Education Officer	1,400,000	1,512,000	1,632,960	1,763,960	1,851,777	8,160,333	94,888
Assistant Education Officer	1,050,000	1,134,000	1,224,720	1,322,698	1,388,832	6,120,250	71,166
Rangers (24 person dys each for 3 Rangers)	-	-	-	-	-	-	-
Trainee Rangers	-	-	-	-	-	-	-
Subsistence	120,000	129,600	139,968	151,165	163,259	703,992	8,186
<b>Sub-total - personnel</b>	<b>4,061,180</b>	<b>4,386,074</b>	<b>4,736,960</b>	<b>5,115,917</b>	<b>5,376,248</b>	<b>23,676,380</b>	<b>275,307</b>
<b>Supplies and services</b>							
Transport - Fuel, service, ins/lic - 2vehicles - Yr 2 on	350,000	728,000	786,240	849,139	891,596	3,604,975	41,918
Communication eg phone, meetings	150,000	162,000	174,960	188,957	198,405	874,321	10,167
Office supplies/stationery/equipment	400,000	432,000	466,560	503,885	529,079	2,331,524	27,111
Uniform/gear	45,000	48,600	52,488	56,687	59,521	262,296	3,050
Community training/projects/meetings	480,000	518,400	559,872	604,662	634,895	2,797,829	32,533
Schools programmes	240,000	259,200	279,936	302,331	317,447	1,398,914	16,266
Public awareness e.g. media, website	160,000	172,800	186,624	201,554	211,632	932,610	10,844
Interpretation e.g. signage, exhibits, brochures	320,000	345,600	373,248	403,108	423,263	1,865,219	21,689
<b>Sub-total - supplies and services</b>	<b>2,145,000</b>	<b>2,316,600</b>	<b>2,501,928</b>	<b>3,110,322</b>	<b>3,265,838</b>	<b>14,067,689</b>	<b>163,578</b>
Training - local	80,000	86,400	93,312	100,777	105,816	466,305	5,422
- International	200,000		300,000			500,000	5,814
<b>TOTAL RECURRENT</b>	<b>6,486,180</b>	<b>6,789,074</b>	<b>7,632,200</b>	<b>8,327,016</b>	<b>8,747,902</b>	<b>38,710,373</b>	<b>450,121</b>
<b>CAPITAL/PROJECTS</b>							
Vehicles (assume duty-free)	2,300,00	2,500,000				4,800,000	55,814
Community livelihoods training & projects	900,000	1,300,000	1,600,000	1,600,000	1,300,000	6,700,000	77,907
Cultural Heritage Awareness projects	1,500,000	2,000,000	1,500,000	150,000	150,000	5,300,000	61,628
BJCMNP EE for Schools Manual	400,000	700,000				1,100,000	12,791

<b>PROGRAMMES &amp; LINE ITEMS</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>TOTAL(JA\$)</b>	<b>TOTAL(US\$)</b>
Public Education/Awareness	200,000	1,800,000		200,000	1,800,000	4,000,000	46,512
Interpretation e.g. Sign Production	600,000	1,000,000	500,000			2,100,000	24,419
<b>TOTAL CAPITAL/PROJECTS</b>	<b>5,900,000</b>	<b>9,300,000</b>	<b>3,600,000</b>	<b>1,950,000</b>	<b>3,250,000</b>	<b>24,000,000</b>	<b>279,070</b>
<b>GRAND TOTAL (Recurrent &amp; Capital/Projects)</b>	<b>12,386,180</b>	<b>16,089,074</b>	<b>11,232,200</b>	<b>10,277,016</b>	<b>11,97,902</b>	<b>62,710,373</b>	<b>729,190</b>
<b>RECREATION &amp; TOURISM</b>							
<b>Personnel</b>							
Recreation & Tourism Officer	1,835,500	1,982,340	2,140,927	2,312,201	2,427,811	10,698,780	124,404
Holywell Supervisor	900,000	972,000	1,049,760	1,133,741	1,190,428	5,245,929	60,999
Booking Clerk	600,000	648,000	699,840	755,827	543,338	3,247,005	37,756
Holywell Grounds Staff	1,572,000	1,697,760	1,833,581	1,980,267	2,079,281	9,162,889	106,545
Portland Gap/Peak Trail Grounds Staff	650,000	702,000	758,160	818,813	859,753	3,788,726	44,055
Millbank Staff	200,000	216,000	233,280	251,942	264,540	1,165,762	13,555
Subsistence (RTO and Supervisor)	124,800	134,784	145,567	157,212	165,073	727,435	8,459
Subsistence	280,800	303,264	327,525	353,727	382,025	1,647,342	19,155
<b>Sub-total - personnel</b>	<b>6,163,100</b>	<b>6,656,148</b>	<b>7,188,640</b>	<b>7,763,731</b>	<b>8,162,529</b>	<b>35,934,148</b>	<b>417,839</b>
<b>Supplies and services</b>							
Transportn - Fuel, service, ins/lic - 1 vehicle, 1 bike	400,000	432,000	466,560	503,885	544,196	2,346,640	27,287
Communication eg phone, meetings	200,000	216,000	233,280	251,942	272,098	1,173,320	13,643
Office supplies/stationery/equipment	380,000	410,000	443,232	478,691	516,986	2,229,308	25,922
Uniform/gear e.g. overalls, water-boots, T-shirts	70,800	76,464	82,581	89,188	96,323	415,355	4,830
Marketing	600,000	648,000	699,840	755,827	816,293	3,519,961	40,930
Recreation Areas Maintenance e.g. repairs	700,000	756,000	816,480	881,798	952,342	4,106,621	47,751
Recreation Areas Operations e.g. fuel, pest control	550,000	594,000	641,520	692,842	748,269	3,226,631	37,519
<b>Sub-total - supplies and services</b>	<b>2,900,800</b>	<b>3,132,864</b>	<b>3,383,493</b>	<b>3,654,173</b>	<b>3,946,506</b>	<b>17,017,836</b>	<b>197,882</b>
<b>Training - local</b>	<b>150,000</b>	<b>162,000</b>	<b>174,960</b>	<b>188,957</b>	<b>141,617</b>	<b>817,534</b>	<b>9,506</b>
- International	200,000	0	300,000	0	0	500,000	5,814
<b>TOTAL RECURRENT</b>	<b>9,413,900</b>	<b>9,951,012</b>	<b>11,047,093</b>	<b>11,606,860</b>	<b>12,250,653</b>	<b>54,269,518</b>	<b>631,041</b>
<b>CAPITAL/PROJECTS</b>							
Vehicles (assume duty-free)			1,500,000		0	1,500,000	17,422
Marketing projects	200,000	300,000	300,000	300,000	300,000	1,400,000	16,279
Plans (Trail & Site, Environmental Mgmt etc)		2,000,000	2,000,000	0		4,000,000	46,512
Holywell Development Plan Implementation	5,510,000	9,700,000	6,750,000	17,540,000	500,000	40,000,000	465,116
Other Site Development	500,000	2,000,000	1,000,000	1,000,000	500,000	5,000,000	58,140
<b>TOTAL CAPITAL/PROJECTS</b>	<b>6,210,000</b>	<b>14,000,000</b>	<b>11,550,000</b>	<b>18,840,000</b>	<b>1,300,000</b>	<b>51,900,000</b>	<b>603,488</b>
<b>GRAND TOTAL (Recurrent &amp; Capital/Projects)</b>	<b>15,623,900</b>	<b>23,951,012</b>	<b>22,597,093</b>	<b>30,446,860</b>	<b>13,550,653</b>	<b>106,169,518</b>	<b>1,234,529</b>

<b>PROGRAMMES &amp; LINE ITEMS</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>TOTAL(JAS)</b>	<b>TOTAL(US\$)</b>
<b>GOVERNANCE &amp; ADMINISTRATION</b>							
<b>Personnel</b>							
Park Manager	2,200,000	2,376,000	2,566,080	2,771,366	2,993,076	12,906,522	150,076
Administrative Assistant	1,000,000	1,080,000	1,166,400	1,259,712	1,360,489	5,866,601	68,216
Accounting Services	1,400,000	1,512,000	1,632,960	1,763,597	1,904,685	8,213,241	95,503
<b>Sub-total - personnel</b>	<b>4,600,000</b>	<b>4,968,000</b>	<b>5,365,440</b>	<b>5,794,675</b>	<b>6,258,249</b>	<b>26,986,364</b>	<b>313,795</b>
<b>Supplies and services</b>							
Transportn - Fuel, service, ins/lic - 1 vehicle, 1 bike	250,000	270,000	291,600	314,928	340,122	1,466,650	17,054
Communication e.g. phone	250,000	270,000	291,600	314,928	340,122	1,466,650	17,054
Office supplies/stationery/equipment	200,000	216,000	233,280	251,942	272,098	1,173,320	13,643
Public liability, pers'nl accident, equip etc. insurance	200,000	216,000	233,280	251,942	272,098	1,173,320	13,643
Uniform/gear	30,000	32,400	34,992	37,791	40,815	175,998	2,046
General Office Expenses, Subscriptions etc.	400,000	432,000	466,560	503,885	544,196	2,346,640	27,287
Annual Audit/Bank Charges	500,000	540,000	583,200	629,856	680,244	2,933,300	34,108
HQ Rent and Utilities	2,000,000	2,160,000	2,332,800	2,519,424	2,720,978	11,733,202	136,433
Fundraising & Other Gov/Admin e.g. Meetings	400,000	432,000	466,560	503,885	544,196	2,346,640	27,287
<b>Sub-total - supplies and services</b>	<b>4,230,000</b>	<b>4,568,400</b>	<b>4,933,872</b>	<b>5,328,582</b>	<b>5,754,868</b>	<b>24,815,722</b>	<b>288,555</b>
<b>Training - local</b>	100,000	108,000	116,640	125,971	136,049	586,660	6,822
- International	200,000	216,000	233,280	251,942	272,098	1,173,320	13,643
<b>TOTAL RECURRENT</b>	<b>9,130,000</b>	<b>9,860,400</b>	<b>10,649,232</b>	<b>11,501,171</b>	<b>12,421,264</b>	<b>53,562,067</b>	<b>622,815</b>
<b>CAPITAL/PROJECTS</b>							
Vehicles (assume duty-free)		2,800,000				2,800,000	32,558
Equipment e.g. computers	100,000	300,000	400,000	200,000	400,000	1,400,000	16,279
<b>TOTAL CAPITAL/PROJECTS</b>	<b>100,000</b>	<b>3,100,000</b>	<b>400,000</b>	<b>200,000</b>	<b>400,000</b>	<b>4,200,000</b>	<b>48,837</b>
<b>GRAND TOTAL (Recurrent &amp; Capital/Projects)</b>	<b>9,230,000</b>	<b>12,960,400</b>	<b>11,049,232</b>	<b>11,701,171</b>	<b>12,821,264</b>	<b>57,762,067</b>	<b>671,652</b>
<b>BJCMNP Management Prog. Budget Summary</b>							
<b>TOTAL RECURRENT</b>	<b>40,659,250</b>	<b>45,309,534</b>	<b>50,485,161</b>	<b>53,258,214</b>	<b>58,088,839</b>	<b>247,800,998</b>	<b>2,881,407</b>
<b>TOTAL CAPITAL/PROJECTS</b>	<b>18,510,000</b>	<b>35,700,000</b>	<b>24,550,000</b>	<b>29,090,000</b>	<b>12,950,000</b>	<b>120,800,000</b>	<b>1,404,651</b>
<b>GRAND TOTAL RECURRENT &amp; CAPITAL/PROJECTS</b>	<b>59,169,250</b>	<b>81,009,534</b>	<b>75,035,161</b>	<b>82,348,214</b>	<b>71,038,839</b>	<b>368,600,998</b>	<b>4,286,058</b>



**Table 12.7 Blue and John Crow Mountains National Park 5-year summary budget**

LINE ITEMS	2011	2012	2013	2014	2015	TOTAL(JAS)	TOTAL(US\$)
<b>RECURRENT EXPENDITURE</b>							
<b>Personnel</b>							
Gov. & Admin Prog. (P/Mgr, Admin Asst., Accounting Services)	4,600,000	4,968,000	5,365,440	5,794,675	6,258,249	26,986,364	313,795
Enforcement & Compliance Prog. (Chief of Corps & Rangers)	7,609,356	10,663,249	11,516,309	12,437,613	13,432,662	55,639,149	647,199
Conservation Prog. (Science Officer & Casual Labour)	2,890,814	3,122,079	3,371,845	3,641,593	3,932,920	16,759,252	197,201
Ed. & Public Involvement Prog. (Education & Comm. Officers)	3,941,180	4,256,474	4,596,992	4,964,752	5,212,989	22,972,388	267,121
Rec. & Tourism Prog. (Officer, Sup., Clerk & Casual Labour)	5,757,500	6,218,100	6,715,548	7,252,792	7,615,431	33,559,371	390,225
Subsistence (All Field staff)	1,789,600	1,932,768	2,087,389	2,254,381	2,430,015	10,494,153	122,025
<b>Sub-Total Personnel</b>	<b>26,588,450</b>	<b>31,160,670</b>	<b>33,653,524</b>	<b>36,345,806</b>	<b>38,882,227</b>	<b>166,630,677</b>	<b>1,937,566</b>
<b>Supplies &amp; Services</b>							
Uniform/gear	510,800	746,064	805,749	870,209	938,125	3,870,947	45,011
Transportation - Fuel, service, insurance/licence	2,550,000	3,104,000	3,352,320	3,620,506	3,884,672	16,511,497	191,994
Communication eg phone, meetings	9790,000	1,047,600	1,131,408	1,221,921	1,314,006	5,684,934	66,104
Office supplies/stationery/equipment/ Tech. equipment & supplies	1,420,000	1,533,600	1,656,288	1,788,791	1,916,778	8,315,457	96,691
HQ & Ranger station rent, utilities & supplies/maintenance	2,230,000	2,408,400	2,601,072	2,809,158	3,033,890	13,082,520	152,122
Training (local and international)	1,840,000	745,200	2,355,680	870,134	1,974,265	7,785,280	90,527
Education & Public Involvement Prog. Activities	1,200,000	1,296,000	1,399,680	1,511,654	1,587,237	6,994,572	81,332
Recreation Area Operations, Maintenance & Marketing	1,850,000	1,998,000	2,157,840	2,330,467	2,516,905	10,853,212	126,200
Public liability/personal accident/equipment etc. insurance	200,000	216,000	233,280	251,942	272,098	1,173,320	13,643
General Office Expenses and Annual Audit & Bank Charges	900,000	972,000	1,049,760	1,133,741	1,224,440	5,279,941	61,395
Fundraising & Other Gov/Admin e.g. Meetings	400,000	432,000	466,560	503,885	544,196	2,346,640	27,287
<b>Sub-Total - Supplies &amp; Services</b>	<b>14,070,800</b>	<b>14,498,864</b>	<b>17,209,637</b>	<b>16,912,408</b>	<b>19,206,611</b>	<b>81,898,321</b>	<b>952,306</b>
<b>TOTAL RECURRENT EXPENDITURE</b>	<b>40,659,250</b>	<b>45,659,534</b>	<b>50,863,161</b>	<b>53,088,839</b>	<b>58,088,839</b>	<b>248,528,998</b>	<b>2,889,872</b>
<b>CAPITAL/PROJECTS COSTS</b>							
Vehicles & Equipment	4,900,000	8,100,000	3,900,000	200,000	400,000	17,500,000	203,488
Ranger Station Upgrade	1,000,000	0	0	600,000	0	1,600,000	18,605
Natural Heritage Conservation Projects	1,500,000	6,000,000	7,000,000	7,500,000	8,000,000	30,000,000	348,837
Cultural Heritage Conservation Projects	2,800,000	2,800,000	2,800,000	600,000	600,000	9,600,000	111,628
Education & Public Involvement Projects	2,100,000	4,800,000	2,100,000	1,900,000	3,100,000	13,900,000	161,628
Recreation & Tourism Projects	6,210,000	14,000,000	10,050,000	18,840,000	1,300,000	50,400,000	586,047
<b>TOTAL CAPITAL/PROJECTS COSTS</b>	<b>18,510,000</b>	<b>35,700,000</b>	<b>25,850,000</b>	<b>29,540,000</b>	<b>13,400,000</b>	<b>123,000,000</b>	<b>1,430,233</b>
<b>GRAND TOTAL (JAS)</b>	<b>59,169,250</b>	<b>81,359,534</b>	<b>76,713,161</b>	<b>82,798,214</b>	<b>71,488,839</b>	<b>371,528,998</b>	<b>-</b>
<b>GRAND TOTAL (US\$)</b>	<b>688,015</b>	<b>946,041</b>	<b>892,013</b>	<b>962,770</b>	<b>831,266</b>	<b>4,320,105</b>	<b>-</b>

## **12.7 Strategies for Financing the BJCMNP**

Several strategies will be required to obtain financing for the management of the BJCMNP. They can be divided into two main sources – Government of Jamaica and Non-Government. It is assumed that the delegated manager will continue to be the Jamaica Conservation and Development Trust (JCDT). As indicated in the 2005 – 2010 Management Plan, the relevant partner should be an organization that is able to access funding from a variety of sources including grant funding, corporate sponsorship, donations and endowments, as well as generate income from the operation of the Park’s recreation areas, and related business ventures.

### **12.7.1 Government of Jamaica Support**

The BJCMNP was established through legislation under the NRCA Act to protect the natural and cultural heritage of the people of Jamaica, maintain the ecosystem services provided to eastern Jamaica – particularly water, and to provide recreational and educational opportunities for Jamaicans and visitors. Ultimately, the Government of Jamaica (GOJ) has responsibility for managing and financing operations of the BJCMNP. There are several ways the GOJ can do this:

#### **(i) In-kind contributions e.g. staff time, vehicles, facilitating grants**

The contribution of staff time by various government agencies would be very useful, particularly with respect to enforcement officers, as this is where there is a major deficit. This should include the participation of enforcement officers from agencies such as the ISCF, FD and NEPA in regular joint patrols with the National Park Rangers (inclusive the provision of relevant stipends for these personnel). At one time, the Government through NEPA had contributed the use of vehicles, however this assistance declined significantly over the years and was eventually withdrawn under instruction from central government.

Often, bi- and multi-lateral agencies have funds available to NGOs but only if Government requests them. In addition, government agencies should be quick to respond to requests for letters of support for proposals seeking to raise funds for Park management. Very often Park management has to prepare proposals with only a very short time-frame, and considering that funds are being raised for management of a site for which government is ultimately responsible and for which there is already close collaboration, it would seem reasonable that two to three days would be sufficient for producing a general letter of support.

#### **(ii) Technical Assistance**

Use of technical expertise and equipment which government co-management partners may have is an important form of assistance. This can be for a variety of activities such as mapping and public education. The Forestry Department in particular provides significant technical assistance particularly with mapping and analysis of satellite imagery.

(iii) Financial contributions:

The Government of Jamaica, in addition to in-kind assistance must also provide financial assistance for management of the BJCMNP. The funds can come from a variety of sources, and consideration should be given to sourcing funds from a levy on resources from the National Park as suggested below.

Contribution from NRCA: As per the Delegation Agreement, since 2005/6 funding has been contributed by the NRCA to the JCDT for management of the BJCMNP. These funds presumably come from the NRCA's budget inclusive budgetary contribution from the Ministry of Finance and income generated by the NRCA through permits, licences etc. User fees from the BJCMNP recreation areas are also retained for management.

Levy on resources from the BJCMNP: As funding available from the NRCA/NEPA budget is likely to be limited, and further as a secure funding source is needed, it is recommended that a new source of income is tapped. Pantin and Reid (2005) estimate an economic value for the provision of water supply from the Buff Bay/Pencar Watershed alone, at US\$17.5 – 20.3 million. This value does not even consider water quality, and the role of forest and the work of National Park management in reducing soil erosion is significant. Bearing in mind that the BJCMNP protects the upper sections of 10 of the island's watersheds a levy on water from its watersheds would be most appropriate.

If the National Water Commission has about 400,000 connected customers, and it is assumed that half of those are in the eastern part of the island (mainly Kingston) and therefore get their water from the BJCMNP, 0.25% would make a reasonable contribution of about JA\$6 million assuming average water bill per annum is JA\$12,000. This should be seriously considered and lobbied for, and should not be placed in the type of fund that will require BJCMNP management to write proposals and compete with other groups for the funding. In other words, these funds should be used to provide a secure funding source (a definite sum provided annually) for management of the BJCMNP. Of course, there would have to be adequate reporting and auditing, as currently occurs with funds obtained through the NRCA.

Carbon Sequestration: This must be investigated as a source of funding for the management of the BJCMNP whether through informal markets or the formal market, which will likely require the involvement of the Government of Jamaica and large Trust Funds e.g. Forest Conservation Fund.

User Fees: The 2003 User Fee legislation improved the situation particularly for the marine parks, however the JCDT was already collecting a contribution from visitors at Holywell and the Blue Mountain Peak Trail for the BJCMNP. Of the approximately 10% of its budget that the Park earns from recreation areas, about 45% is from use of the cabins, 25% from services JCDT provides e.g. educational packages and only about 30% from the actual entry or 'user' fee. In addition, the fees legislated for the Peak Trail are very high and are proving near impossible to impose, particularly without the necessary funds to carry out repairs, improvements and a public awareness raising campaign.

GCT and other tax/duty exemptions: The Delegation Agreement addresses assistance with obtaining duty and GCT exemptions, and purchases could sometimes be made through NEPA in order to benefit from GCT exemptions but this has since been disallowed. Tax exemptions are available for some items through the Ministry of Tourism but Holywell would have to become licenced and the site like many other small business attractions is having difficulty in meeting the requirements. Permanent GCT exemption would provide significant assistance if addressed by the Government.

### **12.7.2 Other – Delegated National Park Manager (JCDT)**

The JCDT in its Strategic Plan for 2010 – 2014 has strengthened its commitment to the BJCMNP. Recognising the importance of financial sustainability and the increasing challenge of sourcing funds to cover operations and core costs, greater effort to generate income through business ventures relating to National Park management will be made. JCDT subsidises park management through contribution of staff time, administrative support e.g. communications and overheads e.g. office space. The sustainability of park management requires a strong and financially stable organization, therefore the JCDT will also increase efforts to improve its own long-term sustainability.

### **Grants**

These will remain an important source of funding; however due to increasingly stringent donor requirements, the focus of grant funding will increasingly have to support project (deliverables) and capital type expenditure only, or at least only the activity components of programmes. In the short-term, the usual donors will continue to be approached, however in the short to medium term, new donors will have to be sought and solicited. This will be particularly important as existing donor agencies in Jamaica have numerous commitments and there are many competing organisations.

### **Recreation Area Revenue**

Despite the negative impact of hurricanes, 2005 to 2009 was successful in terms of increasing income from the BJCMNP's recreation areas. Every effort must be made to continue to increase income from the Recreation and Tourism Programme, with least impact on the National Park itself. This will include:

- (i) Increasing the numbers of visitors, as currently the sites are under-visited – this will be done through improvements in marketing and increasing week-day visits. Carrying capacity and Limits of Acceptable Change issues need to be dealt with carefully and are an area for attention in the Research Prospectus.
- (ii) Increasing the facilities, services and products the visitor can purchase e.g. tours, craft. This will be done in conjunction with local communities in the National Park's Community Buffer Zone, thus contributing to rural development.

- (iii) Establishment of the Blue Mountains Sustainable Tourism Programme to market and facilitate the development of recreational opportunities in the National Park and its Community Buffer Zone.
- (iv) Improving management to reduce over-expenditure.

It should be noted that park management needs to begin to put aside and invest some of the profit from the recreation areas as an emergency fund e.g. repairs after hurricanes. If it was not for the emergency funds established by the Environmental Foundation of Jamaica and USAID Projects (which may no longer exist), Holywell would never have recovered from Hurricanes Ivan and Dean.

### **Corporate Sponsorship and Donations**

Donations will continue to be sought from corporate Jamaica and individuals. This approach will be improved, with the development and implementation of a campaign to encourage corporate and individual support of the BJCMNP. The current economic situation in the island makes it difficult for both companies and individuals to give, and there are an increasing number of worthy causes, particularly with government's budgetary cuts. Funding from corporate Jamaica tends to be for specific events, activities and tangible items e.g. equipment. Further, giving is often related to familiarity of the area/persons being given, and many people are still not aware of the fact that the Blue and John Crow Mountains is a national park. If they do, they likely assume significant government funding. The approach will have to bear these issues in mind in order to be effective. It will be necessary to seek assistance from Jamaicans living abroad as well, however attempts have been made and it requires a working "patron" who actually implements the programme abroad.

### **Fundraisers**

These will continue to be held e.g. Misty Bliss, but they require a significant amount of human resources for organisation of all the components e.g. logistics, advertising and ticket sales. This generally creates a drain on staff time, as there are not enough capable volunteers, nor enough funding for hiring organisers. Further, events require significant advertising to be successful and this requires funding from sponsors, which is very difficult to raise in the current economic climate and not being viewed as 'popular' events. The interest in a concessionaire-type venture has been explored but still seems limited until the product can be improved e.g. at Holywell or someone can be found interested in organising a fundraiser in Kingston. At the same time however, fundraisers provide marketing opportunities for the park and thus have added value.

### **Merchandise**

Although this will continue, a new product line will have to be developed and a new and improved approach to production and marketing created. This will focus on items that can be readily identified with the BJCMNP, involve local communities from the National

Park's Buffer Zone and target local consumers rather than just the tourist market. During the previous Management Plan, a craft line was developed and community youth trained for production, however as the business was about to start with its first order, the youth withdrew as it no longer seemed financially viable to them. Efforts will be made during this Management Plan, to resuscitate the Blue Mountains Craft Venture with a somewhat different business approach.

### 12.7.3 Proposed Breakdown of Sources

Over the next five years every effort should be made to maintain and increase support from GOJ (as described above in section 12.7.1) and reduce the dependency on grant funding. The former would be mainly for operational or recurrent expenditure, particularly salaries and transportation (fuel/oil and maintenance) and the latter would be mainly for capital and project expenditure (with some of the programmatic areas being projectised once funding for salaries of implementing officers was sourced otherwise). The target proposed for 2015 is shown below in Table 12.8

**Table 12.8 Proposed Breakdown of BJCMNP Income Sources by Percentage of Total**

<b>Sources</b>	<b>Percentage of Total Income</b>
GOJ (NRCA and NWC or other levy)	45%
Grants	35% (raised by JCDT through donor agencies including bi-laterals and JNPTF)
Recreational Areas	15%
Other Donations and Income raised by JCDT	5%

**Programme Summary: Governance and Administration**

**Goal: To provide efficient, effective and sustained management that will allow the BJCMNP to meet its over-arching and other goals .**

<b>Objectives</b>	<b>Strategies</b>	<b>Activities</b>	<b>Monitoring</b>	<b>Resources</b>	<b>Time-frame</b>
1. To coordinate management at the policy level through establishment of a BJCMNP Advisory Committee comprising of key public, private sector and community stakeholders who will meet twice a year.	Involve stakeholders at policy-making level to engender greater support and collaboration	Establish and organise regular meetings (twice per annum) inclusive preparing minutes and reports for the Committee  Use these meetings to address issues affected by factors outside National Park management's control	Minutes	Park Manager Secretarial Support Co-Management Committee Venue	Year 1 and on-going  First meeting by end first half of Year 1
2. To coordinate management at the operations level through regular meetings of the Co-Management Committee (management partners as per relevant agreements) and with community stakeholders.	1. Co-management Partners (NEPA, FD, JNHT, JCDT) meetings at least 3/yr  2. Coordinate and collaborate with community stakeholders, particularly Maroon Councils and communities	1. Organise regular meetings  2a. Blue Mountains Sustainable Tourism (Livelihoods) Clusters Meet regularly 2b. Liaison with targeted community-based organizations that assist with BJCMNP management or for projects 2c. Revisit concept of Local Advisory Committees 2d. Participatory planning	Minutes and Reports	Park Manager Secretarial Support Co-Management Partner Agencies Venues  Recreation & Tourism Officer Education & Community Outreach Officer	Ongoing from before Year 1 and on
3. To provide supervision, project management, financial management and administrative support for the BJCMNP's	Requires financial support for a small team of management and administrative staff	1. Park Manager provides over-arching technical and management support 2. Administrative support 3. Regular reporting and meetings 4. Update BJCMNP Staff	Annual & Project Workplans & Budgets, Monthly Programme Reports, Bi-monthly Park Reports, Project	Park Manager Administrative Manager Accountant Receptionist & Bookings Clerk	Ongoing from before Year 1 and on

**Programme Summary: Governance and Administration**

**Goal: To provide efficient, effective and sustained management that will allow the BJCMNP to meet its over-arching and other goals .**

<b>Objectives</b>	<b>Strategies</b>	<b>Activities</b>	<b>Monitoring</b>	<b>Resources</b>	<b>Time-frame</b>
programmes		Manual	Reports, Annual Reports and Financial Statements		
4.To source short and long-term funding for BJCMNP management through grant funding, government subvention, donations, sponsorship and opportunities provided through the Recreation and Tourism Programme.	<ol style="list-style-type: none"> <li>1. Lobby GOJ for secure and significant funding (at least 45% of budget</li> <li>2.Obtain at least 15% from national Trust Funds</li> <li>3.Obtain over 20% from grant funding from a variety of sources</li> <li>4.Generate at least 15% from Recreation &amp; Tourism Prog</li> <li>5.Obtain 5% from other sources e.g. donations etc.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reporting and requests to NRCA and Trust Funds</li> <li>2. Preparation of proposals to various foundations , companies and agencies</li> <li>3. Seeking long-term funds through lobbying GOJ, sourcing funds for Endowment</li> <li>4. Fundraisers and seeking donations</li> <li>5. Tourism and other businesses</li> </ol>	Financial Statements	Park Manager Administrative Manager Accountant Business Development Officer (i.e. Recreation & Tourism Officer)  Capital for business ventures and fund-raising events	On-going from before
5.To ensure adaptive management through monitoring and evaluation of all programmes	Monitoring implemented for all programmes in addition to the Monitoring & Evaluation Programme which monitors for the Park's conservation outcome.	<ol style="list-style-type: none"> <li>1. Regular reporting</li> <li>2. Regular meetings to assess workplan implementation and project status</li> <li>3. Make improvements in implementation as needed</li> </ol>	Reports	Park Manager	Ongoing from before



# APPENDICES

# APPENDIX 1

## Stakeholders in 2010 Management Planning Process

### Community Consultations

	Name		Name
<b>Bangor Ridge - Portland</b>		<b>Minto, Hagley Gap, Epping Farm – St Thomas</b>	
1	Nora Ellis	123	Sonia Hardy
2	Woodbourn Peat	124	Michelle Cain
3	Brian Jones	125	Renee Hardy
4	Sheron Stamp	126	Marsha Edwards
5	Doreen Jackson	127	Notata Sewell
6	Mickiah Bailey	128	Eulis Millwood
7	Tyrone Richards	129	Rose-Ann Shepherd
8	J. Carly Hamley	130	Ingrid Anderson
9	Olivia Jackson	131	Trudyann Duffus
10	Vincent Murray	132	Erwel Edwards
11	Melvin Tyrell	133	Ade Jackson
12	Jennifer Dunbar	134	Simona Lewis
13	Clifton McFarlane	135	Rose Marie Anderson
14	Herral Ellis	136	Shane Brown
15	Joel Leslie	137	Alton Henry
16	Antonette Roberts	138	Ninkcovia Millwood
17	Roy Ellis	139	Kenneth Moncrieffe
18	Neville Parks*	140	Leonard James
19	Lauren McFarlane	141	Lukasha Anderson
20	Felicia Dyce	142	Annette Brown
21	Aneita Morgan	143	Jerry Walker
22	Lester Richards	144	Melesia Daley
23	Shirlene Cobran	145	Vovena Whyte
24	Janet Richards*	146	Silford Gordon
<b>Cedar Valley - St. Thomas</b>		147	Kayden Shepherd
25	Maisie Duffus	148	Valsose Powell
26	Celeste Kelly	149	Nash Lewis
27	Diana Ford	150	Juanita Edwards
28	Murrie Blake	151	Hyacinth Ogelvie
29	Klinnified Cousins	152	Camellia Dalhouse
30	Desrine Jeffrey	153	Aletha Stewart
31	Pamila Cousins	<b>Cascade - Portland</b>	
32	Albert Small	154	Alice Henry
33	Tamika Whitton	155	Veronica Campbell
34	Sandra Parke	156	Marcella Taylor
35	Janice Spence	157	Garville Francis
36	Angela Bull	158	Marlon Hamilton
37	Caslia Gillian	159	Meshika
38	Euphema Cousins	160	Taj-Jaye Campbell
39	Cynthia Lynch	161	Cliftoff Finegan
40	Yasnivy Telles Legra	162	Mikaylia Scott
41	Lawrence Lawles	163	Enriave Campbell
42	Angella Lawles	164	Angella Penny

	Name		Name
43	Latoya Whitton	165	Eunice Lewars
44	Shalies Stewart	166	Ethelbert Mosaley
<b>Mavis Bank - St. Andrew</b>		167	Icylin Bailey
45	Clyde Jacobs	168	David Francis
46	Tashein Boothe	169	Carlton Sterling
47	Vivette Kelly Nixon	170	Marlene Henry
48	Joyce Sanford	171	Omar Henry
49	Louise Jacobs	172	Adrian Williams
50	Patricia Jacobs		<b>Millbank - Portland</b>
51	Stefanie Neale (USPC Volunteer) *	173	Eric McCurbin
52	Adlai Thompson (SDC)	174	Sonia Maragh
53	Nadine Edwards	175	Donald Folkes
54	Cereta Pinto	176	Donovan Gray*
55	Anna Marie Stewart	177	Evadne Gray*
56	Hezekiah Spencer	178	Elton Ewan
57	Renard Raymond	179	Errol Francis
58	L. Pack	180	Lenford McDonald
59	Lumen Minott	181	Myrtle Higgins
60	Paul Ward	182	Evadne Green
61	Kadian Brown	183	Linda Hall
62	Garfield Lattouche	184	Linnette Wilks*
63	Valus Francis	185	Dorothy Gray
64	Othniel Hall	186	Fitz King
<b>Sherwood Forest - Portland</b>		187	Dwayne O'Bryan
65	Devon Harris	188	Walter Gray
66	Edgar Rowe		<b>Moore Town Maroon Council - Portland</b>
67	Alton Nathan	189	Charmaine Shackelford
68	Pamela Leslie	190	Col. Wallace Sterling*
69	Ralph Blake	191	Major Osmond Smith
70	Winston Moore	192	Seymour Sterling
71	Ashman Cooke	193	Burchell McKenzie
72	Merlene Cousins	194	A.Burke
73	Claudette Buckley	195	Ivan Deans
74	Jenice Richards		<b>Irish Town, Redlight, Middleton – St. Andrew</b>
75	Leroy Harvey	196	Jeremy Schroeter
76	Evenise Clarke	197	Kalisha Shaw
77	Lois Daur	198	B.L.Dunbar
78	Valene Allen	199	Orani Dunkley
79	Rolman Hays	200	Denzil Thompson*
80	Roy Gregory	201	Dennis Shaw
81	Eric Nathan	202	C. Dunkley
82	Morrel Campbell	203	Valencia Dunkley
83	Dorvet Valentine	204	Amanda Howard
84	Jannet Purrier	205	Mr Taylor
85	Michelle Moore	206	C.Henry
86	Barbara Lodge	207	Denise McGonan
87	Davkin Sydney	208	Tonie Graham
88	Norman Moore	209	Charles Taylor
89	Dwayne Parkinson		<b>Claverty Cottage - Portland</b>
90	John McPherson	210	Sonia Willis
91	Velma Morrison	211	Delroy Lee
92	Annakay Moore	212	Marciann Shirley

	<b>Name</b>		<b>Name</b>
93	Alton Anderson	213	Leteria Barelay
94	Morlene Necrye	214	Annete Williams
95	R. McPherson	215	Ricardo Hamilton
96	Leslie-Ann Brown*	216	Janice Barclay
<b>Charles Town Maroon Council - Portland</b>		217	John Willis
97	Kerry Bryan	218	Dorine Perrin
98	Cashaine Richards	219	Delphena Willis
99	Marcia Douglas	220	Robert Watson
100	Rodney Rose	221	Madia Stewart
101	Col. Frank Lumsden*	222	Keresha Stewart
102	Omroy Anderson	223	Vanesia Tyrell
103	Delano Douglas	224	Keith Barclay
104	Gregory Hemy	225	Barbara Grant Miller
105	Danday White	226	Henry Lindo
106	Desmond Stewart	227	Lorna Tyrell
<b>Woodford, St. Andrew</b>		228	Sylvia Taylor
107	Kantalin Robinson	229	Evadney Sutherland
108	Christine Tapper	230	Veronica Campbell
109	Robert Hall*	231	Winsome Lee
110	Marcel Bryce	232	Jeline Headlam
111	Danyelle Okesanjo	233	Trevor Tyrell
112	Andya Morrison	234	Clifford Lewis
113	Joe Shako	235	Cardinald Taylor
114	Mervin Hibbert	236	Samuel Edwards
115	A. Jans	237	Andrea Hector
116	Debra- Kay Bailey	238	Annette Hector
117	Bradley R. Robinson	239	Glen Willis
118	Vera Simpson	240	Rufus Lee
119	Isoyln Harley	241	Frank Dixon
120	Maxine James	242	Kenneth Sterling
121	Douglas Froneiz	243	Delroy Crip
122	Patricia Brown		

(\* indicates attendance at Draft Plan Review Meeting and Community consultation)

#### **Agency Representatives at Programme workshops and Draft Plan Review meeting**

	<b>Name</b>	<b>Agency/Organisation</b>
1	John P. Knight**	Island Special Constabulary Force (ISCF)
2	Leslie Watts*	ISCF
3	Osbert Stitchell	Ministry of Agriculture, Fisheries Division
4	Samuel McIntosh	Jamaica Fire Brigade (JFB)
5	Astley Lindsay*	JFB
6	Amoy Bernard-Morrison**	Squatters Unit
7	Damart Williams**	Forestry Department (FD)
8	Stephanie Donaldson Francis	FD
9	D'owen Grant	FD
10	Charles Reid	FD
11	Francine Blank*	FD
12	Natalie Fearon	National Environment & Planning Agency (NEPA)
13	Marva Smith-Moodie	NEPA
14	Ranya Reid**	NEPA
15	Warren Thomas	NEPA

16	David Reid*	NEPA
17	Tameka Clough*	NEPA
18	Ava Tomlinson*	NEPA
19	Debra-Kay Palmer*	Jamaica National Heritage Trust (JNHT)
20	June Heath*	JNHT
21	Bernard Jankee*	African Caribbean Institute of Jamaica & Jamaica Memory Bank - Institute of Jamaica (IOJ)
22	Suzanne Davis	Natural History Museum of Jamaica (NHMJ)- (IOJ)
23	Dorsia Brooks	NHMJ
24	Lori-Ann Harris*	NHMJ
25	Elizabeth Morrison*	NHMJ
26	Mickelle Hughes	Jamaica Social Investment Fund (JSIF)
27	Michelle Moses	JSIF
28	Adlai Thomson	Social Development Commission (SDC)
29	Duane Harris	SDC
30	Denton Alvaranga	RADA
31	Bevene Martin	RADA
32	Eistein McLean**	RADA
33	Siran Bent	TPDCo.
34	Althea Heron**	Ministry of Tourism
35	Osbourne Chin*	Ministry of Tourism
36	Andrew Sharpe	Authentic Caribbean
37	Donna Levy	Sun Venture Tours
38	Errol Walcott*	Sun Venture Tours
39	Andreas Oberli	National Arboretum Foundation
40	Llewelyn Meggs	The Nature Conservancy
41	Bridget Lawrence-Blake	National Water Commission
42	Basil Forsythe*	Ministry of Water and Housing
43	Thera Edwards*	Environmental Consultant
44	Susan Otuokon	Jamaica Conservation and Development Trust (JCDT)
45	Marlon Beale**	JCDT
46	Donna Fray**	JCDT
47	Samuel Johnson**	JCDT
48	Wellington Taylor	JCDT
49	Herma Dawes	JCDT
50	Georgette Dallas**	JCDT
51	Jo-Ann Johnson*	JCDT
52	Kareen Wilson*	JCDT

(\* indicates attendance at Draft Plan Review meeting only)

(\*\* indicates attendance at Draft Plan Review meeting and Programme workshop)

## APPENDIX 2

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### List of Buffer Zone Communities

<b>Portland</b>	<b>St. Andrew</b>
Bellevue/Alligator Church	Bowden Hill
Berwick Spring	Brandon Hill
Birnamwood	Content Gap
Cascade	Free Town
Cedar Valley	Mt. Airy
Chelsea	Mt Horeb/Mt Prospect
Claverty Cottage/Clifton Hill	Newcastle
Comfort Castle	Redlight
Cornwall Barracks	Resource
Durham	Settlement (Middleton)
Ecclesdown	Somerset
Ginger House	St. Peter
Millbank	Westphalia
Moore Town	Woodford
Mt. St. Bernard	Irish Town
Pleasant Hill	Mavis Bank
Reach	
Seaman's Valley	<b>St. Thomas</b>
Section	Cross Pass/Mt. Felix
Spring Hill	Epping Farm
Tom's Hope	Hayfield
Whitehall	Hillside
Windsor	Johnson Mountain
Charles Town	Somerset
	Trinityville
	Westphalia/Whitfield Hall
	Penlyne Castle
	Minto
	Hagley Gap

# APPENDIX 3

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## Review of Relevant Legislation

### 1. Natural Resources Conservation Authority Act (1991)

The Natural Resources Conservation Authority (NRCA) Act provides for the management, conservation and protection of the natural resources of Jamaica. The Act establishes the Natural Resources Conservation Authority, a body of persons appointed by the Minister of the Environment. The functions of the Authority include the taking of such steps that are necessary to ensure the effective management of the physical environment of Jamaica. Section 5 permits the Authority to designate specific land areas as national parks, for the benefit of the public. Section 6 permits the Authority to delegate any of its functions, apart from that of making regulations, to an agent. Section 38 allows for the preparation of regulations to guide management of national parks. Appendix 14 is a copy of the Delegation Agreement, 2002 between the NRCA and JCDT regarding management of the BJCMNP.

### 2. Natural Resources Conservation (BJCMNP) Declaration Order (1993)

The Blue and John Crow Mountains National Park is located in the Blue and John Crow Mountains in Jamaica, which traverse the four easternmost parishes in the island. It is the first and only designated national park in Jamaica. The Declaration Order officially designates the area defined within the boundary as the BJCMNP (see Appendix 15).

### 3. Natural Resources (National Park) Regulations (1993)

These regulations provide for management of national parks in Jamaica (see Appendix 16). They list a wide range of offences and provide for fines or imprisonment where persons are convicted under any of these. The offences include (but are not limited to):-

- Littering with any kind of material – all litter is to be deposited in designated areas or receptacles;
- Pollution of all types or substances whether poisonous, industrial or otherwise; water pollution is noted in particular;
- Disorderly, offensive or indecent behaviour or language;
- Damaging or injuring a protected animal or a plant, or throwing anything which could injure a person, animal or thing;
- Defacing or damaging of buildings, rocks, trees etc.;
- Playing a radio or musical instrument which disturbs others;
- Refusing to comply with orders from authorised officers;
- Using vehicles in areas not designated for this purpose;
- Erecting of a building or structure;
- Making of a trail without Park Manager permission;
- Lighting a fire for other than domestic purpose, only in a designated area;
- Introduction of a plant that may be injurious to other plants or animals;
- Occupying land within the Park;

These regulations also govern persons conducting research in the park area who may be collecting specimens, audio recordings, data (including computer records) and producing scientific publications from their activities. The regulations make provisions for the final destination of these materials to be declared.

The regulations allow for, amongst other things, the:-

- collection of fees for certain commercial activities;
- installation of signs e.g. to designate areas for specific purposes;
- seizure and forfeiture of vehicles, vessels, articles or things used to commit an offence;
- arrest of persons where there is reasonable belief that they have committed an offence;
- zoning of the Park into areas for various purposes and for use under particular terms and conditions.

The regulations require the preparation of a management plan to guide Park management and describe the administration of the Park including the appointment of a Park Manager and an Advisory Council. The designation of National Park Rangers along with a description of their functions and responsibilities is stated and JCF, JDF and ISCF members and officers are deemed National Park Rangers under these regulations.

#### **4. Natural Resources Conservation (Blue and John Crow Mountains National Park) (User Fees) Regulations (2003)**

These regulations (see Appendix 17) make provisions for the issuing of a pass and collection of fees to enter a recreational area or trail within the Park, and for camping. This pass must be in the possession of the person using it for entry at the time of entry. Two areas are highlighted – Hollywell Recreation Area and the hiking trail from Portland Gap to the Blue Mountain Peak. With respect to Hollywell the pass may be either a single entry or annual pass for multiple entries. Authorised Officers under the National Park regulation of 1993 are exempt from using a pass. The procedure to account for the fees collected by the Park Manager is described and schedules are included stating the various fees prescribed.

#### **5. Natural Resources Conservation (National Parks) (Amendment) Regulations (2003)**

These regulations (see Appendix 17) amend the 1993 regulations, particularly by increasing fines and fees.

#### **6. The Forest Act (1996)**

This Act addresses the sustainable management of forests on lands in the possession of the crown and vests management responsibility in the Conservator of Forests. The Act provides for the establishment of forests reserves, the establishment of protected areas, the promotion of forestry research areas, reforestation initiatives and the preparation of a forestry management plan. The Act speaks to the establishment and maintenance of recreational facilities in forest conservation areas and forest management areas as may be



designated for that purpose as well as protection and preservation of watersheds in forest reserves, protected areas and forest management areas. The Act also recognises the protection and conservation of endemic flora and fauna.

With respect to recreational facilities, the Act allows that the Conservator may establish recreational facilities in such forest reserves or forest management areas as s/he considers appropriate and such facilities may include:-

- (a) parks;
- (b) roads and trails;
- (c) camp grounds;
- (d) picnic sites;
- (e) such other facilities as the Conservator may determine.

Fees may be payable for the use of facilities provided.

### **7. The Forest Regulations (2001)**

The Forest Regulations 2001 incorporate additional provisions related to the regulation of forest reserves, offences against burning without a permit in forest reserves and timber licences. There is no over-arching section in the Act that states that the Forestry Department is responsible for all of the island's forests. The department is restrained by the limitations placed on the areas over which the Act establishes jurisdiction namely: Forest Reserve (any area of land declared by or under the Act to be a forest reserve), Forest Management Area (any area of land declared under the Act to be a forest management area) and Protected Area (any area of land declared by the Minister pursuant to section 23 to be a protected area).

Recreation sites and facilities in a forest estate may be the subject of management contracts or leasehold arrangements with other parties. Government agencies, non-governmental organizations or private individuals who make application for such agreements may do so if:

- (a) the facility or site was approved in the Forest Management Plan; and
- (b) the Conservator is satisfied that the site or facility will be operated in compliance with the Act and the Regulations. In determining whether or not to recommend an application, the Conservator shall be guided by (but shall not be obliged to accept) the recommendations of the Forest Management Committee. The rates for any lease or management contract shall be the rates recommended by the Commissioner of Lands. The period of any lease or management contract shall not exceed 10 years in the first instance and shall be subject to performance standards and performance indicators and agreeable to both parties to the contract. A contract for the operation of a recreation site facility in a forest estate may be terminated if the terms of the contract are contravened.

### **6. The Wild Life Protection Act (1945) and relevant amendment orders and regulations**

This is the only statute in Jamaica specifically designated to protect species of animals and regulates hunting in Jamaica. The main provision that ensures the protection is found in Section 6 of the Act which states that:-

- (1) No person shall hunt any protected animal or protected bird.

- (2) Every person who
- (a) contravenes the provisions of subsection 1; or
  - (b) has in his possession the whole or any part of any protected animal or bird; or
  - (c) Takes or has in his possession the nest or egg of any protected bird, shall be guilty of an offence.

The Act designates all birds except the 22 birds in schedule 2 and birds kept as domestic birds as not protected and 14 animals as protected e.g. Jamaican Coney, Jamaican Yellow Snake and Giant Swallowtail Butterfly.

The Act regulates the hunting of game birds, designates game birds, hunting times and limits. It also prescribes the licence, provides for the declaration of game sanctuaries and games reserves.

### **7. The Country Fires Act (1942)**

The Act states that every person who sets fire to any crop shall be guilty of an offence. So too is every person who sets fire to any trash on any land unless the occupier of such land first serves on the officer or sub-officer in charge of the nearest police station and the occupiers of all adjoining lands the nearest boundaries of which lie within half a mile (0.8 km) of the place where it is intended to set fire to such trash, notice of his intention to set fire to such trash on the dates, not exceeding seven, specified in such notice; and clears an open space of at least fifteen feet(4.5 m) in width round such trash and removes from such open space all inflammable material or other matter likely to burn, land, unless the occupier of such land first-shall be guilty of an offence against this Act. Notices shall be served three clear days at least before the first of the dates specified in the notice. Every person who sets fire to any trash between the hours of six in the evening and six in the morning; or leaves unattended any fire he may have lit or used in the open air before it is thoroughly extinguished, shall be guilty of an offence against this Act.

Permits should specify the period, not exceeding fourteen days at the most, within which the permit shall be in force, and the hours during which fire may be set, and the person issuing such permit should send a copy thereof to the officer or sub-officer in charge of the nearest police station. Every person who, for the purpose of obtaining a permit, gives to the person to whom application is made any information knowing it to be false, or makes any statement knowing it to be false, shall be guilty of an offence against this Act. Every person who sets fire to any trash contrary to the provisions of any order issued under or contrary to the provisions of any permit granted shall be guilty of an offence against this Act.

Fires lit on any plants or trash to eradicate or prevent the dissemination of, any disease within the meaning of the Plants (Protection from Disease) Act as well as those lit for lime or charcoal kiln are noted exemptions to the main provisions of this act.

## **8. The Endangered Species (Protection, Conservation and Regulation of Trade) Act (2000)**

This Act was promulgated to ensure that Jamaica meets its obligations under the Convention for the International Trade in Endangered Species of Wild Fauna and Flora. The Act governs international and domestic trade in endangered species to and from Jamaica. It establishes a Management Authority, which is the Natural Resources Conservation Authority, as well as a Scientific Authority. The functions of the Management Authority include the grant of permits and certificates for the purpose of international trade, the determination of national quotas and the monitoring the trade in endangered species. The primary role of the Scientific Authority is to determine whether a species is at risk, vulnerable or threatened, to advise on trade matters and to monitor the grant of permits and certificates.

Offences under the Act relate to trading in any specimen of a species without a permit or certificate; enclosing in or with any letter, parcel, packet or other matter sent by post, any endangered species; or knowingly using for the transportation of any endangered species any mail bag or mail van, aircraft, ship or other vehicle used for the carrying of mail.

## **9. The National Solid Waste Management Act (2002)**

Commonly referred to as the 'Litter' Act, this act makes provision for a National Solid Waste Management Authority and mandates the Authority to take such steps as are necessary for the effective management of solid waste in Jamaica to safeguard public health including the collection, transportation, re-use and re-cycling of waste in an environmentally sound manner. The Act makes it an offence for any person to throw, drop or otherwise deposit and leave litter in any public place, or a private place without permission.

## **10. The Water Resources Act (1995)**

The Water Resources Act (1995) was promulgated in the Jamaican Parliament in September 1995 and enacted into law on 1st April 1996. This marked a 25-year effort to address the deficiencies in legislation for the proper administration, development and optimal use of the island's water resources. The Act gives to the Water Resources Authority (WRA) the responsibility for planning hence, the orderly development and equitable allocation of water resources, including the analysis of alternative methods of developing and supplying water, can now be executed. The alternative methods will examine how best to supply water without damage to the environment and economic setback.

The WRA will maintain an inventory of resources and demands by sector (domestic, irrigation, industrial and tourism), and determine the growth in demand well into the future, to ensure that available water can be optimally allocated while at the same time preserving the environment. This Water Resources Master Plan recommended the projects, programmes and other steps, which should be taken in respect of development, control, abstraction and storage of water as well as its supply, distribution and disposal. The Act allows the WRA to declare a water quality zone to protect water quality in the public's interest.

## APPENDIX 4

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### Controlling Invasive Plants

#### ***Pittosporum undulatum* (Wild Coffee/Mock Orange)**

Controlling this most threatening invasive is highly recommended, but control programmes involving forest disturbance should proceed with caution, as this invasive regenerates readily and competitively in gaps. When *P. undulatum* trees are removed, the disturbance created triggers increased recruitment of the invasive in the gaps created, giving the copious forest floor seedlings of *P. undulatum* an opportunity to sprout.

At the present time, there is little momentum on the issue of biological control of *P. undulatum*. There are always many risks involved in introducing biological control agents, and the costs and expertise required for such activities are likely to be out of the park's reach. As *Pittosporum* is heavily used by local people, there is also the question of the socioeconomic impacts, and the resulting bare slopes that would follow *Pittosporum* eradication. The fact that there are no native members of the Pittosporaceae is however encouraging as less work would be required on the specificity of the control agent.

As recommended by Goodland and Healey (1997), guidelines and priority actions for invasive control are:

- i) Control of *P. undulatum* in lightly invaded forest on a small scale so that more information can be gained about the procedures, effects and cost involved. Eradication in 2 topographically well-defined areas of 2-5 ha like the forest north of Cinchona – the north facing hillside below Morces Gap and the northern slopes of Sir Johns Peak is recommended. Such activities should provide employment for local people, and should be carried out under strict supervision. The effects of such programmes should be carefully monitored in permanent sample plots.
- ii) Control of *Pittosporum* on trails frequented by visitors (BM Peak trail) as trails are invasion conduits, and the benefits of rehabilitation would be readily visible to the public.
- iii) Control of *Pittosporum* in small areas (< 1 ha) of particular scientific interest/representative areas of natural habitat (Special Conservation Zones: Mor Ridge forest, forest near the East arm of the Morant River and Mt. Horeb).
- iv) Uprooting *Pittosporum* seedlings is an effective method of control as there is no need for herbicide use, no risk of regrowth, and little or no gaps created. *Pittosporum* trees in lightly invaded forest should be cut down using a machete or axe, and applying undiluted glyphosate to the cut surface.

v) Wherever *Pittosporum* is removed, removal of Wild ginger and Redbush should also take place, as these are threatening invasives, and will take advantage of gaps created by *Pittosporum* removal if they are not simultaneously controlled.

### ***Hedychium sp.* (Wild Ginger)**

*Hedychium* sp. invades wet habitats up to 1700 m and displaces native species. It has been included in the Invasive Species Specialist Group's list of the world's 100 worst invasive species. Its vast, dense colonies choke the understorey in degraded forests, and hinder forest regeneration.

- i) Wild ginger plants should be slashed and their rhizomes dug out.
- ii) Rhizomes should be packed up and dumped in municipal dumping areas. They should not be mulched or composted as they will re-sprout and re-infest.

### ***Polygonum chinense* (Redbush)**

Redbush can be controlled using a combination of cutting and glyphosphate.

## APPENDIX 5

### Plant Species for Possible Use in Reforestation/Rehabilitation

#### 1. Native fast-growing species recommended in McDonald et. al., 2003

Scientific name	Common name(s)	Altitude (m)	Mean density in southern slope forests (stems/ha)	Ecology and notes
<i>Alchornea latifolia</i>	Cornstick, Cornwood, Dovewood, Lablab tree,	75-1850	very abundant (>100 stems/ha)	Near pioneer, grows fast, wildlife eat seeds
<i>Turpinia occidentalis</i>	Candlewood	70-1850	130	Gap benefiting, grows fast
<i>Clethra occidentalis</i>	Soapwood, Soap Bush	610-1850	Very abundant	Near pioneer
<i>Symplocos octapetala</i> *		1160-1600	4	Gap benefiting A near threatened species occurring in the western Blue Mts. and John Crow Mts., The species has an occasional to common distribution over most montane habitats between 1160 and 1700m.
<i>Juniperus lucayana</i>	Juniper Cedar	460-1830	Moderately abundant (30-100 stems/ha)	Near pioneer, grows fast, Vulnerable This species is now rare in Cuba because of past overexploitation. It is technically extinct in Haiti and is rarely seen in the Bahamas. Of all tree species in the Blue Mts. in Jamaica, this is considered to be under the most direct threat because of its value as fuelwood and timber. It has a local and scattered distribution, mostly on steep slopes. In the Blue Mts. it occurs most commonly on southern slopes, where deforestation is prevalent and once remote populations are now accessible by road. Regeneration is spasmodic and young trees frequently colonise exposed sites and landslides.

## 1. Species recommended in McDonald et. al., 2003 (continued)

Scientific name	Common name	Altitude (m)	Mean density in southern slope forests (stems/ha)	Ecology and Notes
<i>Podocarpus urbanii</i>	Mountain yacca	1160-2256	100	Gap benefiting The species is common to locally dominant in the montane rainforests of the Blue Mts. At very high altitudes it is one of the commonest trees. Large populations exist on the Grand Ridge and in southern catchments. It is less common where slopes are steep or unstable.
<i>Guarea glabra</i> * <i>G. swartzii</i>	Alligator wood	150-1850	40	Shade tolerant
<i>Cinnamomum montanum</i>	Cinnamon, sweetwood	370-1700	16	Shade tolerant/gap benefiting
<i>Viburnum alpinum</i> *	Black Wattle	390-2140	113	Near pioneer/gap benefiting
<i>Turpinia occidentalis</i>	Mutton wood	70-1850	130	Gap benefiting
<i>Prunus occidentalis</i>	Prune	520-1450	3	Gap benefiting/shade tolerant
<i>Viburnum alpinum</i> *	Black Wattle	390-2140	113	Near pioneer/gap benefiting

## 2. Submontane species

Scientific name	Common name	Occurrence	Altitudinal range (m)	Notes
<i>Hernandia catalpifolia</i>	Water Mahoe Water wood	Locally common by streams, damp woodland and submontane woodlands	450-650	Vulnerable, A tree which is locally common in the parishes of Portland and St Thomas by streams and in damp ravines in submontane woodland. Deforestation has almost completely

Scientific name	Common name	Occurrence	Altitudinal range (m)	Notes
				removed the habitat in the latter parish, areas in ravines probably representing the only remaining fragments.
<i>Hibiscus elatus</i>	Blue Mahoe Mountain Mahoe	Common mostly as a result of planting	0-1,220	
<i>Cedrela odorata</i>	West Indian Cedar	Common in places where probably planted	30-1220	Grows fast, dense crown
<i>Calophyllum calaba</i>	Santa Maria	Woodlands on limestone in high rainfall areas	Sea-level to 630	
<i>Simarouba glauca</i>	Bitter Damson	Common in woodlands on limestone	Sea-level to 600	
<i>Pithecellobium arboreum</i>	Wild Tamarind	Mostly in woodlands on limestone	30 - 900	

### 3. Species recommended by communities

Scientific name	Common name	Notes
<i>Cecropia peltata</i>	Trumpet tree	Altitudinal range: 15-880m
<i>Cananga odorata</i>	Deel, Ylang Ylang	Native of Malaysia, cultivated for lumber
<i>Matabya apetala</i>	Wanika, Coby wood, Pigeon wood	Riparian, altitudinal range: 210-1310 m

### 4. Species for landscaping purposes in and around recreational areas

Scientific name	Common name
<i>Cephaelis elata</i> *	Hotlips
<i>Blakea trinervia</i> *	Cup and saucer
<i>Schefflera sciadophyllum</i> *	Umbrella tree
<i>Cococypselum herbaceum</i>	
<i>Cococypselum pseudotontanea</i> *	
<i>Salvia</i> sp	Scarlet sage
<i>Asclepias curassavica</i>	Redhead
<i>Asclepias nivea</i>	
<i>Meriana leucantha</i> *	

\* endemic



# APPENDIX 6

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## Research Prospectus

This prospectus is aimed at indicating major information gaps with respect to the Blue and John Crow Mountains, particularly with respect to the management of the area as a national park. The intention is to encourage researchers to investigate the subject areas, and to collaborate with Park management in these studies. The information will be posted on various websites, and will be updated regularly. During this Management Plan period, it will also be expanded in terms of the detail for each research project proposed.

### Invasive Plants

1. The distribution of *Pittosporum undulatum* in the Blue and John Crow Mountains National Park and Community Buffer Zone.
2. Controlling *P. viridiflorum*, *Melinis minutiflora* (molasses or Wynne grass), *Gleichenia* sp (fern), and *Polygonum chinense* (red bush) in the Blue and John Crow Mountains National Park.
3. Investigating competition between invasive plant species such as (*P. undulatum*, *P. viridiflorum*, *Melinis minutiflora*, *Gleichenia* sp, *Hedychium gardnerianum*, *Polygonum chinense*) and the native flora of the Blue and John Crow Mountains National Park.
4. Investigation of possible economic uses of invasive plant species such as Wild Ginger (*Hedychium* sp.) and Wild Coffee/Mock Orange (*Pittosporum undulatum*).

### Native Plants

5. Propagation of endemic and threatened plant species of the Blue and John Crow Mountains National Park (can use Park nurseries)

### Birds

6. Bird composition in the central and eastern regions of the Blue and John Crow Mountains National Park.
7. Bird composition in the Blue and John Crow Mountains below 1,000 meters.
8. Status of the range expanding Shiny cowbird in the Blue and John Crow Mountains National Park.

9. Population status of the Jamaican Blackbird in the Blue and John Crow Mountains National Park.
10. Population estimates of key native (particularly endemics) and migrant bird species

### **Hutia**

11. Demographic and Ecological Studies on the Jamaican Hutia (*Geocapromys browneii*) in the Blue and John Crow Mountains National Park. In particular, the status and impact of hunting on populations, and the possible use of captive breeding and release as a conservation strategy.

### **Invertebrates**

12. A taxonomic survey of the insects found in the Blue and John Crow Mountains National Park.
13. Investigation of potential bio-indicators of ecosystem health in the Blue and John Crow Mountains National Park.
14. Demographic study of the Giant Swallowtail Butterfly (*Papilio homerus*)
15. Demographic and ecological study of Land crabs in the BJCMNP
16. A taxonomic survey of the aquatic invertebrates found in the streams and rivers Blue and John Crow Mountains National Park.
17. Taxonomic and ecological study of the fauna of bromeliads in the BJCMNP

### **Ecology**

18. Ecological studies of conservation targets and other species within the Blue and John Crow Mountains National Park, with particular emphasis on specific threats and conservation management requirements.

### **Agriculture**

19. The distribution, size, growth and shrinking rate of coffee farms in and around the Blue and John Crow Mountains National Park.
20. Harvesting non timber forest resources - resource dynamics and resource users

## **Forest Ecology and Forestry**

21. Silvicultural requirements and suitability of some indigenous tree species on farmland areas around the Blue and John Crow Mountains National Park.
22. The survival and growth rates of young indigenous trees in open agricultural areas around the Blue and John Crow Mountains National Park.
23. Species composition in forest soil seed banks of the Blue and John Crow Mountains National Park.
24. Habitat assessment of the upper montane rainforest over limestone on John Crow peak
25. Habitat assessment of the Montane Summit Savanna and Riparian communities in the Blue and John Crow Mountains National Park.
26. Assessment of species on the northern slopes of the Blue Mountains, particularly bryophytes and lichens.
27. The effect of forest clearance on soil fertility and productivity and water yield.
28. Updated forest and wildlife inventory

## **Communities and Socio-economic Issues**

29. The impact of buffer zone communities on the Blue and John Crow Mountains National Park, including issues related to demographic changes.
30. Analysis of participatory approaches to natural resources management in the Blue and John Crow Mountains National Park.
31. Analysis of old enforcement and natural resource log books to establish trends and comparison with more current, geographical and electronic observation data, to identify any changes in the threats to the Park and to guide management approaches.
32. Impact of wild hog hunting on the ecological integrity of the BJCMNP.
33. Studies and pilot projects on sustainable harvesting and use of natural resources e.g. wicker, insects.
34. Studies and pilot projects on growing of native plant species e.g. orchids, and farming of animal species e.g. Giant Swallowtail Butterfly for revenue generation.

### **Maroon Cultural Heritage**

35. Clarification of Maroon communal land location in relation to the Blue and John Crow Mountains National Park. The location is believed to be outside the Park boundary but the exact location is uncertain.
36. Further archaeological research at Nanny Town in the Blue and John Crow Mountains National Park.
37. Growing of plants e.g. Cacao, Thatch Palm, medicinal herbs, relevant to Maroon heritage, to ensure their conservation and sustainable harvesting.

### **Recreation**

38. Estimate of carrying capacity and development of Limits of Acceptable Change Monitoring and Visitor Impact Management Systems particularly in the BJCMNP recreation areas – Holywell, Blue Mountain Peak Trail and Cunha Cunha Pass Trail, but possibly also for Buffer Zone Community attractions e.g. Cascade Waterfall.
39. A study on trails within the Park and its Community Buffer Zone to identify trails suitable for development, management and monitoring requirements, based on ecological, environmental and other assessments.

### **Other**

40. Analysis of hazard vulnerability within the Blue and John Crow Mountains National Park, and identification and mapping of areas for special management.
41. Climate change and its impacts on the BJCMNP, especially flora and fauna (can use data from Park monitoring) Aim to make recommendations for action.
42. Study on potential mining in the Park, and its ecological, environmental, social and economic impacts including cost/benefit analysis which considers the ecosystem services the Park provides.

## **APPENDIX 7    Research Log**

<b>Name of researcher(s)</b>	<b>Institution &amp; contact information</b>	<b>Research category</b>	<b>Title of research</b>	<b>Site</b>	<b>Period of visitation</b>	<b>Date (s) accompanied by park staff</b>	<b>Copy of findings/papers produced</b>

## APPENDIX 8

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### Conservation and Management of Sacred Natural Sites (UNESCO, 2006)

#### Challenges

- **Multiple Stakeholders:** SNS may be sacred or important areas for more than one group. In such cases, multiple stakeholders with differing perceptions, uses of a site, nomenclatures, practices and traditions must be taken into account if conflict is to be avoided. Traditional custodians, pilgrims, local residents, tourists and recreationists may all have differing demands for the site.
- **Visitor Pressures and Access:** Designation of an important SNS as a protected area at the national level, or designation as a biosphere reserve and/or World Heritage site at the international level, can popularize a site and cause increased visitor pressures for which managers and traditional custodians are unprepared. With increased visitation, rights of access and demands for infrastructure development can become significant issues that conflict with sacred values and negatively impact the site's quality and integrity. Pilgrimages and pilgrimage routes can also cause conflicts with local land use and/or property rights.
- **Culturally Sensitive Activities:** Many activities normally engaged in by visitors or local groups may be culturally inappropriate in SNS. Some examples of such activities are the climbing of sacred mountains or rock formations, entering into sacred caves or forests, bathing in sacred rivers, lakes or springs, participating in sacred ceremonies without permission of the celebrants, hunting of sacred animals, scattering of cremation ashes, leaving of 'New Age' offerings, or entering into sacred areas without permission or without culturally appropriate preparation.
- **Development Pressure:** Encroachment, agriculture, pastoralism, hunting, logging, road-building, tourism and mining are development pressures that can have significant adverse impacts on SNS. Such pressures are particularly difficult to deal with if the SNS is not officially recognized or if there is secrecy regarding the site or rituals associated with it.
- **Environmental Pressure:** Anthropogenic and natural disasters such as pollution, climate change, fires, floods, erosion, and other related factors can create stresses that negatively impact sacred values and practices, as well as the physical integrity of sites.
- **Buffering:** SNS which are not properly buffered from surrounding activities, such as population increase, residential development, agriculture, grazing, hunting or tourism, can be negatively impacted.
- **Ownership:** SNS located in areas not owned by the traditional custodians, and not within established protected areas, create extraordinary challenges for management.
- **Political Access:** SNS recognized by minority groups or the powerless in a society are often unable to marshal the political support needed to gain national recognition

or install sympathetic management regimes. This is particularly true of sites recognized by minority ethnic or religious communities.

- **Economic Considerations:** Balancing the material and non-material values of an area is always difficult, but especially so in the case of SNS.
- **Seasonal Differences:** Some SNS may be of cultural importance during limited periods, as when the area's values are associated with pilgrimages or festivals at specific times of the year. This may lead to increased demands or peak usage during specific periods that may be incompatible with uses the rest of the year.
- **Conflicting Jurisdictions and Integrated Approaches to Management:** SNS may contain cultural resources managed by traditional custodians or government agencies that differ from the natural resource management entity. This may cause conflicts between the management perspectives or philosophies of the different entities, and make integrated approaches to management an ongoing challenge. The charging and allocation of visitor use fees is often a particularly divisive issue.
- **Different Ways of 'Knowing':** Modern and traditional management entities often have conflicting views as to the means for acquiring the knowledge needed to make informed decisions on site management. While for modern management agencies science is the basis for acquiring information, traditional custodians may have greater confidence in knowledge and understandings that have been passed down through the ages, or which are acquired through spiritual revelations. Finding ways to balance these different approaches to knowledge and understanding can be extremely challenging.
- **Historically Sacred Sites No Longer Associated with Traditional Custodians:** Sites which were historically considered sacred (e.g. Machu Picchu, Peru), but which are no longer associated with traditional custodians, present a series of difficulties for management. There are no traditional stakeholders to consult or to include in participatory management schemes. The value of a historically sacred site to modern societies is often difficult to establish and defend, especially when there have been multiple custodians over the centuries.

## Opportunities

- **Conservation Value:** Many SNS have a high degree of biodiversity and are often important areas for freshwater conservation. Due to access restrictions, they are often found in a natural or near-natural state in virtually all the world's ecosystems and landscapes, thus serving as sanctuaries and gene pools for rare, endangered and endemic species. In areas suffering from excessive human impact and environmental degradation, SNS can serve as 'indicator sites' for the restoration and rehabilitation of degraded systems. Based on species inventories in SNS, strategies can be formulated for the reintroduction of native and endemic species in a wider spatial context beyond the area covered by a SNS itself.
- **Sustainable Dimension of Conservation:** As SNS are mostly community-based conservation areas, and are usually fully in line with traditional belief systems and values, their protection tends to be more sustainable than established legally

protected areas. Traditional custodians and local people often manage SNSs in ways that have proven to be effective over long periods of time.

- **Model Sites for Integrated Management:** SNSs reflect a more holistic view of human-nature interactions. They integrate cultural, natural and social values in a single management system.
- **Model Sites for Community-Based Conservation:** Many SNSs can be considered as model sites for participatory conservation strategies and practises. As local people recognize the importance of protecting *their* SNS, such culturally important sites facilitate community participation in overall resource management and conservation.
- **Traditional Knowledge:** Custodians of SNS often also perform the function of traditional healers who have intimate knowledge of local plant and animal species. With a plethora of traditional ecological knowledge on ecosystem structure, functioning and dynamics, custodians can be important resource people for overall ecosystem management. The integration of traditional ecological knowledge and modern environmental science can be beneficial for sustainable land management.
- **Cultural Identity and Diversity:** As carriers of culture-specific worldviews, traditional belief systems and languages, SNS have tremendous cultural value. Many SNS are reference areas of cultural, religious and national identity. Cultural rites and practices (including music, song, dance, poetry, folklore), which should be preserved in the context of maintaining cultural diversity, are associated with SNS. The recognition of SNS offers a possibility to support endangered and vanishing cultural systems.
- **Eco-Tourism:** SNS are both a cultural and natural heritage for local people. At the interface of culture and nature, they can provide important opportunities for eco-tourism development, assisting visitors in experiencing new cultures while also learning about nature. If practised well and managed with a guiding set of ethical principles, eco-tourism linked to SNS can benefit local people directly, but only if due respect is paid to indigenous and local peoples' value systems.
- **Intercultural Dialogue:** SNS can provide a valuable intercultural space to experience human-nature relationships from different cultural perspectives. As such, they can serve to build bridges for intercultural dialogue, understanding, tolerance and peace.
- **The Value of the Sacred:** To many people, the 'sacred nature' of a SNS has an intrinsic value, which should be respected and preserved. There are many shared, fundamental religious/spiritual/philosophical values that exist between different cultures illustrating that cultural and biological diversity are intertwined and reinforced by such unique and long established relations between people and place as embodied in SNS.



## APPENDIX 9

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### List for the School Visitation Programme

	<i>Primary &amp; Secondary Level Schools</i>	<i>Basic Schools</i>
1	Content Gap All Age	Shirley Castle
2	Clifton All Age	Mooretown
3	Craighton All Age	Free Town
4	Minto All Age	Maryland
5	Westphalia All Age	St. Joseph's
6	Woodford All Age	Westphalia
7	Woodford Prep	Charles Town
8	Mt. James All Age	Ebenezer
9	Peters Rock Christian	Cascade Pilgrim Holiness
10	Gordon Town All Age	Mount Lebanon
11	St. Martin de Porres Primary	Ginger Hall
12	Mavis Bank High	Bath
13	Grove Primary	St. Martin de Porres
14	Penlyne Castle All Age	Johnson Mountain
15	Cascade All Age	Bellevue
16	Mount Fletcher All Age	
17	Mooretown Primary & Junior High	
18	Bellevue All Age	
19	Tower Hill Primary	
20	Windsor Primary	
21	Cedar Valley Primary	
22	Buff Bay Primary	
23	Fellowship Primary	
24	Charles Town Primary	
25	Birnhamwood Primary & Junior High	
26	Trinityville Primary	
27	Bath Primary & Junior High	
28	Hayfield Primary	
29	Halls Delight Primary & Junior High	
30	Bowden Hill All Age	
31	Reach Primary & Infant	
32	Johnson Mountain All Age	
33	Comfort Castle Primary & Junior High	
34	Cooper's Hill Primary	
35	Sherwood Forest Primary	
36	Nonsuch Primary	
37	Mount Hermon Primary & Junior High	
38	Shirley Castle Primary	

# APPENDIX 10

## Holywell Signage Programme Summary

Signs	Description
<p><b>Welcome Orientation Kiosk</b></p> <p>1. Holywell Orientation Panel</p> <p>2. Watersheds Orientation Panel</p> <p>3. Tropical Mist Forest</p>	<ul style="list-style-type: none"> <li>- includes map of Holywell, and information about its history and recreational opportunities</li> <li>- interprets watersheds and makes the link to drinking a glass of water</li> <li>- interprets mist forest, making the connection with the water cycle and describing some of the species</li> </ul>
<p><b>Visitor Pavilion</b></p> <p>4. Information/Notice Panel</p>	<p>This will provide space for information on the rules of the park, and for notices e.g. for up-coming events</p>
<p><b>Campfire Circle</b></p> <p>5. Overlook Interpretive Panel</p>	<p>This will interpret the view to Kingston from this point</p>
<p><b>Recycle Exhibit</b></p> <p>6. Recycling Panel</p> <p>7. Plastics Panel</p> <p>8. Compost Panel</p>	<p>This exhibit will encourage visitors to participate in Holywell's recycling programme, and therefore help to keep the area clean and more environmentally friendly. It will provide for recycling, resulting in action-learning.</p>
<p><b>Wag Water Trail</b></p> <p>9. Trailhead Panel</p>	<p>Information on the Trail - a drawing of the trail with information on its difficulty and what to look out for.</p>
<p><b>Waterfall Trail</b></p> <p>10. Trailhead Panel</p>	<p>Information on the Trail</p>
<p><b>Blue Mahoe Interpretive Trail</b></p> <p>11. Trailhead Panel</p> <p>12. "Creepers and Hangers"</p> <p>13. "Heart of the Forest"</p> <p>14. Oatley Mountain Trailhead</p> <p>15. Orchids</p>	<ul style="list-style-type: none"> <li>- Information on the Blue Mahoe Trail</li> <li>- Interpretation of the layers of plants in the forest</li> <li>- Interpretation of reforestation</li> <li>- Information on the Trail</li> <li>- Information on orchids especially endemic species</li> </ul>
<p><b>New Stairway</b></p> <p>16. Overlook Interpretive Panel</p>	<p>This will interpret the view to Kingston from this point</p>
<p><b>Trail Orientation Kiosk</b></p> <p>17. Holywell Orientation Panel</p> <p>18. Trail Network Panel</p> <p>19. Trail Natural History</p>	<ul style="list-style-type: none"> <li>- As above</li> <li>- Description of all trails</li> <li>- Interpretation of natural features likely seen on the trails</li> </ul>
<p><b>Shelter Trail</b></p> <p>20. Trailhead Panel</p>	<p>Information on the Trail</p>
<p><b>Misty Glade Kiosk</b></p> <p>21. Holywell Orientation Panel</p> <p>22. Conservation Interpretive Panel</p> <p>23. Blue Mountain Coffee Interpretive Panel</p>	<ul style="list-style-type: none"> <li>- As above</li> <li>- Interpretation of some local conservation activities</li> <li>- Interpretation of growing &amp; processing of Blue Mountain Coffee</li> </ul>

Note: Sign numbers indicate location on map in Holywell Plan.

# APPENDIX 11

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## Tourism and Recreation in Jamaica

The tourism industry is one of the most important industries in Jamaica and provides considerable direct economic contribution to the country. It comprises 7.7% of Gross Domestic Product (GDP) and 7.6% employment and the foreign exchange equivalent of up to 56% of other inflows (Res & Co, 1998). The tourism industry is recognised as a lead sector and potential catalyst for economic development.

In 2009, total stopover arrivals were 1,831,097 (an increase of 3.7% over 2008) with 147,256 of those being Non-resident Jamaicans and the remainder foreign nationals. 73.1% stated leisure, recreation or holidays as their reason for visiting, 9.6% said visiting friends and relatives, 5.9% were visiting for business and 7.7% had other reasons. Male visitors were 46.4% of the total and females, 53.6%. 64% of these arrivals were from the USA, 15.9% were from Canada, 15.1 % from Europe (mainly from the UK, Italy and Germany), 3.6% were from the Caribbean and the remaining 1.4% from Asia, Pacific and other areas. Intended Resort Area of Stay for Stop-over Arrivals was 28.3% for Montego Bay, 23.1% for Ocho Rios, 21.7% for Negril, 12.2% for Kingston, 5.8% for Mandeville and the South Coast, 7.9% Other and 1% for Port Antonio. Total Cruise Ship Passengers were 922,349 (a decrease of 15.6% over 2008) but there were only 4 cruise ships stopping in Port Antonio with 1,339 passengers and 1 stopping in Kingston with 870 passengers. (Annual Travel Statistics 2009, JTB)

Visitor Expenditure in 2009 was US\$1,848 million for stop-over visitors and US\$78 million from cruise passengers. In terms of distribution of expenditure for foreign nationals, accommodation accounted for 54.9%, entertainment 11.3%, shopping 5.4% and the remaining 28.4% on Food and Beverage, Transportation and Miscellaneous. For Cruise Passengers, 48.6% was spent on Shopping (30% in-bond), 26.2% on Attractions and the remaining amount on Food and Beverage, Transportation and Miscellaneous. (Annual Travel Statistics 2009, JTB). According to 2003 statistics, 54% of visitors were first-timers and foreign nationals spent an average of US\$95 per person per night whilst cruise passengers spent US\$80 per person (Annual Travel Statistics 2003, JTB).

Average Length of Stay for Foreign Nationals depends on nationality, with those from the USA averaging 7.9 nights, from Canada – 9.6, UK – 16, Europe – 10.8, Latin America – 8.3 and the Caribbean – 8.9 nights. Hotel stays were usually shorter on average for Foreign Nationals – averaging 7 nights whilst Non-hotel stays e.g. villas averaged 14.8 nights. Most non-resident Jamaicans stayed in private homes for an average of 17 nights (Annual Travel Statistics 2009, JTB).

Jamaica's Master Plan for Sustainable Tourism, (2002) notes that the success of the tourism industry ought not only to be measured by the amount of GDP, foreign exchange and jobs it provides, but more importantly by the extent to which the industry serves as a vehicle for providing economic and social opportunities for the Jamaican people. At

present, tourism tends to be of benefit to the large hotelier, business etc. and to a lesser extent to small, remote local communities. Tourism in Jamaica has long been synonymous with sun, sand and sea. The security of this type of tourism is being threatened however, as crime, harassment, growing price competition, and the need for alternative types of tourism and attractions are also increasing.

The need for increased environmental management, community involvement and product diversification are identified by the Tourism Master Plan and hence nature, cultural, adventure, community, heritage and ecotourism are all now being promoted at the government, private sector and community levels.

Just as international tourists view Jamaica as a “sun, sea and sand” destination, domestic tourists or Jamaicans seeking recreational opportunities tend to go to the beach during the holidays or on weekends. However, picnicking in natural areas or hiking a forest trail are recreational activities that many Jamaicans participate in, whether as groups seeking a quiet retreat e.g. church group, or light adventure e.g. youth group.

Though ecotourism is very different from the proverbial, sun, sea and sand tourism, there is still a place for it amongst the tourism opportunities being offered to visitors, both local and foreign. Eco-tourism attractions can be marketed to eco-tourists but also, as is currently the case at Holywell, to the local visitor (primarily from Kingston) and to the average tourist seeking a break from the “sun, sea and sand”. Cochrane, 2006 notes the importance of domestic and even ‘mass-market’ tourists to National Parks, and therefore the importance of good visitor management. A survey of tourists (sample size 200) to Jamaica in 1995 indicated that the Blue and John Crow Mountains region is a special site of interest. The increasing numbers of visitors to the park’s recreational areas is testament to this: the number of visitors to the BJCMNP’s recreational areas (Holywell and Portland Gap) increased from 5,880 in 2005 to 11,364 in 2009. Larger increases were anticipated over the period, as in 2003 the figures were 10,168, however, the hurricanes and severe tropical storms between 2004 and 2008 had a negative impact on numbers due to road and infrastructural damage at the sites. Globally, eco-tourism is the fastest growing sector of tourism internationally, and nationally there is a move to market the island as a nature-culture-adventure destination.

It is hoped that the nomination of the BJCMNP as UNESCO World Heritage Site, will be accepted and the site listed, as this would significantly increase promotion of the area. Park management has been preparing through improvements at the sites and the development of a Blue Mountains Sustainable Tourism Programme linking community-based and private sector ventures to the National Park’s recreational areas.

# APPENDIX 12

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## Recreational Areas in the BJCMNP

### Holywell

Holywell, one of the two main recreational sites of the BJCMNP, is a 10-hectare (25 acre) mountain retreat set within the cool, mist forests of the BJCMNP. It is located at Hardwar Gap, two miles above the Jamaica Defence Force - New Castle Training Depot and is between 3,250 ft and 4,000 ft (more than 990m) above sea-level. Holywell was initially established by the Forest Department as a plant nursery for reforestation of the forest reserve in the 1940's. Later, in the 1960's it was converted into a recreational area – Holywell park. The site is now leased by the JCDT/Green Jamaica from the Commissioner of Lands through NRCA/NEPA and the Forest Dept. for the purpose of generating income for conservation of the national park.

Facilities and services currently include:

- ▶ Nature trails – a network connecting the picnic, cabin and administrative areas (including Blue Mahoe Trail) and four longer walking trails – Oatley, Waterfall, Shelter and Dick's Pond/Wag Water,
- ▶ Accommodation,
- ▶ Three fully-furnished cabins (bed space for ten) each with its own bathroom and kitchen facilities,
- ▶ Five campsites and tents available for rent,
- ▶ Large picnic areas including ten gazebos, additional tables and benches and bathrooms,
- ▶ An educational Visitors' Centre and interpretive signs,
- ▶ Guided tours available on request,
- ▶ Concessionaire – (lunch and snacks on weekends),
- ▶ Educational packages for different age-groups and levels,
- ▶ Gift shop, and
- ▶ Facilities are available for meetings, workshops (of up to 20 persons), small and large camping retreats.

There are currently eight positions for staff at Holywell – the Station Chief and an Assistant, a Ticket Clerk, Night Watchman, one Housekeeper and three Grounds Staff. In addition, at JCDT's office in Kingston, there is a Bookings Clerk, and the Administrative Officer, Administrative Manager and Executive Director each spend between 15% - 25% of their time dealing with site development and management e.g. marketing, fund-raising and project management. Further, the Environmental Education Officer conducts tours and other educational packages (assisted by trained local youth) and is responsible for the Interpretive Programme for the area. Currently, the Ticket Clerk position is shared by two persons working alternate weeks, and the housekeeper and grounds staff work three days

per week. This casual labour is supported by two additional persons twice per week, paid for by Peak Bottlers Ltd. (Catherine’s Peak Spring Water). Daily activities of the site staff in addition to site maintenance are monitoring and assisting visitors and giving guided tours.

The number of visitors is steadily increasing each year, and there were 9,603 visitors in 2009 (up from the 7,299 visitors in 2003 reported in the previous Management Plan). Visitors come to picnic, hike, camp, relax outdoors or in the cabins, or to bird-watch or carry out research. The majority are local visitors and there are few if any tour buses, despite attempts to interest tour operators. There are a wide variety of visitors e.g. school groups, church groups, youth clubs, families, couples, tourists etc.

#### **Holywell Visitor Numbers (2005-2009)**

Year	Number of Visitors
2005	4,533
2006	6,952
2007	6,894
2008	6,046
2009	9,603

*Figures do not include visitor numbers of between 1,000 – 2,000 for the annual cultural event (Misty Bliss)*

The income generated from Holywell is derived from user (entry) fees (30%), rental of cabins (45%), special packages e.g. educational or other tours (9%) etc. In addition, annual events (Misty Bliss) held at Holywell, also help to raise funds for the Park. Annual operational costs for Holywell are approximately \$1.8 million (excluding supervision), with average annual income amounting to approximately \$1.8 million.

Developing and managing Holywell as an ecotourism attraction will contribute to better management of the BJCMNP by:

- ▶ the provision of recreational and educational opportunities for Jamaicans and visitors that will raise awareness and knowledge about the area, and hence motivate concern and support for conservation of the area,
- ▶ the generation of income for park conservation through user fees, merchandise etc.,
- ▶ ensuring environmental management of the site such that least negative environmental impact occurs, and
- ▶ the provision of income-generating opportunities and other benefits for the communities around the site, hence increasing the level of support for park/natural resources conservation from the local community.

The site has an Ecotourism Development and Management Plan prepared in 2004 inclusive of a Business Plan, and efforts to implement the Plan are ongoing, though thwarted by hurricane damage and limited funding.

## **Blue Mountain Peak Trail/Portland Gap**

The Blue Mountain Peak Trail and Portland Gap area is one of the two main recreational facilities found in the BJCMNP. The Peak Trail, (the final ascent) is a 3-mile walk, approximately a 2 to 3 hours (from Portland Gap), which ends at the famous Blue Mountain Peak, the highest point on the island (2256m). Portland Gap is the last rest stop and overnight point for the hiker looking to conquer Jamaica's highest point. It is a recreational area, which offers very rustic accommodation in beautiful natural surroundings for the nature lover. Hikers begin their ascent from various points and the time taken to reach the peak can take any time above 2 hours. The climb to the peak may also consist of a variety of transport methods, varying from walking to 4-wheel-drive vehicles.

The table below gives figures which indicate the relative importance of the Blue Mountain Peak Trail and Portland Gap. The figures only indicate the numbers of people who visit Portland Gap, however they provide a fair indication of the number of people who visit the Peak, as most of them pass through Portland Gap (the numbers are a count of tickets, and there is an issue with regards to paying the user fee). On the other hand, not everyone who arrives at Portland Gap goes on to the Peak, although the majority do.

**Portland Gap Visitor Numbers (2005-2009)**

<b>Year</b>	<b>No. of Visitors</b>
2005	1,347
2006	1,466
2007	1,242
2008	1,683
2009	1,761

The Peak Trail is in need of some repairs and the Peak itself needs attention with respect to the derelict building there. The trails used to access the Peak Trail are in very poor condition, particularly at specific sections, and there are issues with untrained local guides and unwillingness to pay the user fee. There is need for a project to be designed and implemented to address these issues. Funding has been sought during the previous Management Plan period but without success.

## **Clydesdale and Cinchona**

Clydesdale is an old coffee farm and processing factory. The site was used by the Forestry Department as a nursery, however with insufficient resources, the buildings and grounds have become run-down. There is a river with a large pool suitable for swimming, and the site is a favourite with youth groups such as cadets. The road from the community of Section/Silver Hill (just below Holywell on the Portland side) is very rough. Despite the condition of the site, there are still visitors, mainly school groups – particularly Cadets. The Forestry Department has some plans for re-developing the site however, the road will require significant attention.

Cinchona is a botanical garden established about a century ago by the Ministry of Agriculture's Garden Division. The Cinchona trees grown there were used for the production of quinine which was used to treat malaria. There is a caretaker who maintains the grounds but the infrastructure is in very poor condition. The road from Clydesdale to Cinchona can only be accessed with 4WD and even then requires very skillful driving. The Ministry of Agriculture has some plans for re-developing this site, however the road and its maintenance will be a critical issue.

### **Upper Rio Grande Valley**

The communities of the Rio Grande Valley are nestled between the Blue and the John Crow Mountain ranges. Further up the valley (above Fellowship) where the mountain ranges are closer together, the area is particularly lush and beautiful with numerous streams and waterfalls. The biological diversity here is very high as the ecosystems of the two mountain ranges are quite different – the former being tropical montane rainforest on shale and the latter being based on limestone rock. Further, this area is the main habitat for the endemic giant swallowtail butterfly (*Pterourus homerus*) – the largest butterfly in the Western Hemisphere.

This area could be considered the cultural center of the national park as these communities include Moore Town, the major village of the Windward Maroons, and many people within the Upper Rio Grande Valley are of Maroon descent. Millbank is the last in a chain of villages running up the Rio Grande Valley, and the location of one of the BJCMNP Ranger Stations was established in an old Forestry Department building. The Park and managers, JCDT/Green Jamaica have a long-standing relationship with these communities, particularly in Millbank where one of the Local Advisory Committees (LAC) was established. That committee no longer exists but a community-based organization – the Bowden Pen Farmers' Association (BPFA) was formed by many of the community members who had participated in the LAC. The CBO is called Bowden Pen because this was the village beyond Millbank, however no-one lives there any more although many people farm in the area, and the BPFA have an eco-tourism accommodation there called Ambassabeth.

### **Cunha Cunha Pass Trail**

The Cunha Cunha Pass is a Maroon trail across the north-eastern Blue Mountains. It is an access route through the hillside districts of northern St. Thomas, from Hayfield to Bowden Pen and on to other districts in the Upper Rio Grande Valley, Portland. The trail is one of the most famous trails across the Blue Mountain and is widely used by residents and visitors alike. After the Peace Treaty was signed between the Maroons and the English, the trail was used by community members to go to market in Port Antonio, and the close relationships developed between the two communities resulted in families with relatives at either end.

The Bowden Pen Farmers' Association restored this Trail (with funding from the Environmental Foundation of Jamaica and assistance from the National Park Rangers and



JCDT/Green Jamaica). It is a component of the community-based ecotourism opportunities managed by the BPFA. A case study regarding the development of this project indicated that members acknowledged the work of the BJCMNP staff in educating them about conservation and the need to find more environmentally sustainable income generating activities (Bedasse, 2004).

There have been some challenges including marketing the trail, and limiting access to the trail in order to ensure fees can be collected to maintain the trail and provide income for both the local community group and park management. This will need to be addressed under the Blue Mountains Sustainable Tourism Programme.

### **White River Falls Trail**

This trail follows the White River (a tributary of the Rio Grande) up the John Crow Mountains, down which the river cascades in a series of beautiful waterfalls. Access to the trail is across a swinging bridge, rebuilt by the JCDT with the assistance of the British DFID, Jamaica Defence Force, Jamaica Public Service Co. Ltd. and the local community in 1995. Visitors can relax in the pool and shallow falls just before the river enters the Rio Grande, or can hike as far as they wish to access the other falls and pools. Currently the bridge is in need of repairs, the trail requires bushing, infrastructural improvements and maintenance. This is an example of the challenges of marketing and maintaining a trail.

### **Other Sites**

Most other recreational sites associated with the Blue and John Crow Mountains are actually outside the National Park, and in fact most of the two trails mentioned above are actually within the Park's Community Buffer Zone. In light of the challenges associated with trails and management (maintenance) of recreation areas, the policy of Park management is to improve existing facilities, avoid re-opening of existing but over-grown trails, and focus on the Blue Mountains Sustainable Tourism Programme as a way of generating income from sites outside the Park as well as inside.

## APPENDIX 13

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### Blue Mountains Sustainable Tourism Programme

Funding for management of the BJCMNP and opportunities for sustainable development for communities living around the National Park are limited. Jamaica Conservation and Development Trust (JCDT) a non-government organisation which manages the BJCMNP under delegation from the Natural Resources Conservation Authority has been seeking creative and sustainable income generation tools for the National Park and its Buffer Zone communities. One such tool is sustainable tourism, and through the Holywell and Rio Grande Valley Commercial Development Project (2006 – 2009) funded by the Inter-American Development Bank (IDB), the JCDT has prepared a manual for implementation of the **Blue Mountains Sustainable Tourism Programme**.

**Goal:** To establish and operate a programme of sustainable tourism in the Blue Mountains region, that supports conservation of the natural and cultural heritage of the Blue and John Crow Mountains National Park (BJCMNP) and sustainable community development in the Park's Buffer Zone.

The Programme developed is described in detail in a Manual produced under the IDB funded project, and is comprised of three main components:-

- (i) Governance – through establishment of cluster groups (community-based and private sector ventures) and an Advisory Committee, with JCDT as the secretariat,
- (ii) Operations of the Blue Mountains Sustainable Tourism Coordination and Marketing Office (within JCDT) which will provide packaging of tours and marketing of the Blue Mountains Sustainable Tourism product and specific tours – locally and internationally and,
- (iii) Product development (detailed planning through consultancies, infrastructural improvements, training, maintenance of standards) within the National Park (Holywell, Peak Trail), at Newcastle and in targeted communities around these sites, and the Upper Rio Grande Valley and Maroon communities at Moore Town and Charles Town.

The hub of the Product will be the Blue and John Crow Mountains National Park and the proposed Newcastle Heritage Village and Gateway to the National Park. The National Park and the support it derives from packages sold, will help ensure the environmental sustainability of the Product and makes this a true ecotourism product. Further, with the anticipated UNESCO World Heritage Site award, the National Park will be recognised and promoted internationally for its natural and cultural heritage significance and as a site well worth the time and expenditure of an international visitor interested in eco-, heritage, adventure and/or community tourism. The 'rim' of the product will be the community-based and private sector owned attractions, festivals, accommodation etc. in the clusters of communities around the National Park.

# **APPENDIX 14**

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## **BJCMNP Delegation Agreement**

**JAMAICA CONSERVATION  
&  
DEVELOPMENT TRUST**

**AND**

**NATURAL RESOURCES  
CONSERVATION AUTHORITY**

**DELEGATION INSTRUMENT**

**SEPTEMBER 19, 2002**

**THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT (1991)**

**DELEGATION INSTRUMENT**

**PARTIES**

**THE NATURAL RESOURCES CONSERVATION AUTHORITY** whose address for service within the jurisdiction of the courts of Jamaica is 10 Caledonia Avenue, Kingston 5, in the parish of St. Andrew (hereinafter referred to as the "Authority").

**THE JAMAICA CONSERVATION AND DEVELOPMENT TRUST**, a company limited by guarantee not having a share capital, with registered office at 22B Old Hope Road, Kingston, in the parish of St. Andrew (hereinafter referred to as "JCDT").

**DEFINITIONS**

"**Authority**" means the Natural Resources Conservation Authority established pursuant to Section 3 of the Natural Resources Conservation Authority Act (1991) and its successors and assigns.

"**Commencement Date**" means the 1<sup>st</sup> of October 2002.

"**Expiry Date**" means the 31<sup>st</sup> October 2012.

"**Management Plan**" is the last revision of the plan governing the management of the National Park as approved by the Authority.

"**Term**" means a period of ten years between the first day of October 2002 and the Expiry Date subject to the provisions relating to the renewal as set out in clause 10 of this agreement.

"**The Act**" means the Natural Resources Conservation Authority Act (1991)

"**Operational Expenses for the Park**" means expenses of the Park, including park management, costs associated with maintenance, salary of park personnel, insurance, equipment and other related costs and costs associated with scientific research, conservation and management programs.

"**Protected Area**" means the National Park as declared in the Natural Resources (National Park) Regulations 1993.

"**User fees**" means any fees that may be collected in accordance with any Regulations governing user fees prescribed for the National Park and any user fees collected from the Hollywell Park.

**PREAMBLE**

WHEREAS Section 6 of the Natural Resources Conservation Authority Act 1991 (hereinafter referred to as "the Act") provides that the Authority may delegate any of its functions under the Act (other than the power to make regulations) to any member, officer or agent of the Authority;



**AND WHEREAS** the JCDT has indicated its intention to manage, protect, and preserve the National Park in the Blue and John Crow Mountains;

**AND WHEREAS** the JCDT, the NRCA and the Forestry Department have signed a Co-Management Agreement for the Blue and John Crow Mountain National Park dated March 17, 2000.

**AND WHEREAS** the Authority is desirous of delegating to JCDT as its agent the functions and obligations set out herein on the terms and conditions so specified;

**NOW THEREFORE IT IS HEREBY AGREED AS FOLLOWS:-**

**GRANT**

- 1.0 The Authority hereby appoints JCDT as an agent of the Authority in accordance with this agreement and pursuant to section 6 of the Act delegates to JCDT the functions and obligations specified herein subject to the terms and conditions so specified.
- 2.0 The instrument of delegation shall be for a term of ten (10) years and may be renewed at the option of the Authority by notice in writing with the consent of JCDT in accordance with clause 10.3.

**3.0 THE OBLIGATIONS OF THE AUTHORITY**

The Authority shall:

- 3.1 Assist JCDT in performing its obligations and functions described herein by providing a requisite sum as a management fee to be determined by the Parties to this agreement.
- 3.2 Put in place such user fee regulations as may be necessary to assist in the costs associated with management of the National Park, and to revise such fees from time to time as is needed to achieve the goals of the Park .
- 3.3 As far as is practicable to do so co-operate with JCDT in its efforts to perform the functions and obligations stated herein including but not limited to providing technical, enforcement and legal assistance except where it is not practicable to do so.
- 3.4 Use its best efforts to provide JCDT with research assistance and information of which the Authority is possessed, which it may require in its efforts to carry out the functions and obligations described herein.
- 3.5 Monitor the progress of the implementation of the National Park Management Plan and assist in achieving the objectives of such plan and its revisions.
- 3.6 Along with JCDT enter into necessary co-operative agreements with persons and organisations and individuals for the effective management of the National Park according to the provisions of the National Park Management Plan.
- 3.7 Assist JCDT in training its staff with the skills necessary to achieve the goals of the National Park Management Plan as agreed between the parties.

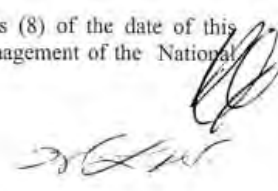


- 3.8 Authorize JCDT to collect on its behalf as its agent, in a manner to be agreed upon user fees payable by users of the National Park and any such other fees as the Authority and JCDT may agree should be collected.
- 3.9 Remit to JCDT as its agent user fees and such other fees collected by the Authority, as the parties may agree. The User fees generated shall be used to cover the operational expenses of the Park.
- 3.10 All user-fees collected and such other fees remitted to JCDT shall be retained by the JCDT in a special account, to be specially reported on, and shall be used to manage the National Park in accordance with the National Park Management Plan and this agreement.
- 3.11 Use its best efforts to obtain duty-free status and GCT-free status for any equipment or service imported or purchased in connection with the management of the National Park, provided that the procurement of such equipment or service is first approved by the Authority.
- 3.12 Identify and assign a senior member of staff who shall be the official liaison between the Authority and JCDT, who will monitor the performance of JCDT within the National Park and who will co-ordinate the fulfillment of the obligations of the Authority under this delegation instrument and the co-management agreement with the Forestry Department.
- 3.13 Consult the JCDT on approvals for permits and development applications, including analysis of environmental impact assessments, and allow representations to be made to the Authority by JCDT before finally approving or determining such matter if the activity for which the permit or approval is sought falls within the National Park or will significantly impact the National Park.
- 3.14 Assist in the appointment of the National Park Rangers and the Protected Area Manager selected by JCDT to become Special District Constables.
- 3.15 Provide guidelines on the standards for management of the National Park including safety, disaster preparedness, preparation of management and operation plans.

#### **4. THE OBLIGATIONS AND FUNCTIONS OF JCDT**

**JCDT shall:**

- 4.1 Develop an annual operation plan prior to the month of October of each year that details all the activities that JCDT plans to carry out in the Park each year. This operation plan shall contain a budget for such activities to be conducted by JCDT, which shall be reviewed by the Authority to assess a management fee to be paid yearly. The Operation plan shall include information on activities that will be carried out in relation to staffing, financing, maintenance and improvement of facilities, infrastructure, programs and projects on the following areas, protection and conservation, enforcement, traditional and concurrent uses, recreation and tourism, education, public relations development and administration. The Plan shall be submitted three months from the date of signature of this agreement.
- 4.2 Prepare and submit a National Park Management Plan within eight months (8) of the date of this delegation agreement and take such steps as are necessary for the effective management of the National



Park in keeping with the provisions of the National Park Management Plan and any other legislation so as to ensure the conservation, protection and sustainable use of its natural resources.

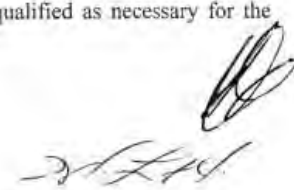
- 4.3 Develop, implement and monitor plans and programmes relating to the management of the National Park according to the National Park Management Plan.
- 4.4 In consultation with the Authority revise the National Park Management Plan where so required and where the parties intend to renew the delegation instrument in accordance with section 10.
- 4.5 Promote public awareness of the ecological systems and natural resources of the National Park and the importance of their sustainable use to the social and economic life of Jamaica.
- 4.6 Consult and advise the Authority on matters of general policy relating to the management, development, conservation and care of the environment within the National Park.
- 4.7 Provide all relevant information to the Authority in good time when it is consulted concerning applications for permits and development permission.
- 4.8 Permit the Authority to conduct financial and operational audits of its activities within the National Park after giving seven days (7) notice.
- 4.9 Perform such other functions in the National Park as may be assigned to it by the Authority from time to time by mutual consent.
- 4.10 Maintain in good order and repair all buildings and other facilities for which it has responsibility.
- 4.11 Put in place insurance, employee, property and public liability policies as approved by the Authority to cover equipment, buildings, employees, agents and visitors within the recreational areas of the Protected Area and submit relevant policies to the Authority on an annual basis. Where any claim or suit is made against JCDT it shall report such to the Authority immediately.
- 4.12 Manage the Hollywell Park in accordance with a lease agreement which may be subject to termination in accordance with the termination clause in the said agreement.
- 4.13 Submit to the Authority, bi-annual reports specifying the progress or setbacks in accomplishing the goals of the National Park Management Plan.

## **5. IMPLEMENTATION**

- 5.1 In performing the obligations and functions specified in clause 4, JCDT may with the written consent of the Authority:
  - 5.1.1 Construct buildings and other facilities for administration, education, enforcement and recreation, according to the National Park Management Plan.



- 5.1.2 Monitor compliance with the National Park Regulations and any other laws governing the protection of the environment and report on infractions, record official complaints and conduct such enforcement action where authorized.
- 5.1.3 Investigate the effect on the environment of the National Park of any activity that causes or might cause pollution or might involve waste management or disposal or damage to flora or fauna or might involve dangers to public health.
- 5.1.4 Report to the Authority all environmental incidents and breaches within the National Park of the NRCA Act and its Regulations, the Wild Life Protection Act and its Regulations, and the Watershed Protection Act and its Regulations and any other Act under which the Authority exercises jurisdiction, within twenty-four hours (24) of such breaches coming to the attention of JCDT, its employees, servants or agents, unless it is not practicable to do so.
- 5.1.5 Make recommendations to the Authority on the zoning of areas within the National Park in order to provide for the effective management of the area, and to advise on regulations or rules with respect to the purposes for which the resources in each zone may be used.
- 5.2 In performing the obligations and functions specified in clause 4, JCDT shall:
  - 5.2.1 Procure the requisite facilities and equipment to carry out the functions herein described.
  - 5.2.2 Undertake studies in relation to the National Park and in collaboration with the Authority to encourage and promote research into the use of techniques for the management of pollution and the conservation of natural resources and sustainable development.
  - 5.2.3 Recommend that an Environmental Impact Assessment be undertaken for any activity or undertaking or development to be carried out or that is being carried out within or nearby the National Park, if it is in the opinion of JCDT that such activity is or is likely to have an adverse effect on the environment and public health.
  - 5.2.4 Conduct seminars and training programs, gather and disseminate information relating to environmental matters.
  - 5.2.5 Formulate and design projects aimed at ensuring the sustainable use of the natural resources within the National Park and the environment in general with 30 days notice to the Authority, and to operate and publicize such projects pursuant to the agreed operation plan.
  - 5.2.6 Provide pertinent information to and to inform the public in respect of all aspects of the quality of the environment generally and specifically of the quality of the environment within the National Park.
  - 5.2.7 Perform the functions listed in Section 4 of this agreement in accordance with the National Park Management Plan, in accordance with the Act and the Regulations made thereunder.
  - 5.2.8 Employ and supervise adequately trained staff who are competent and qualified as necessary for the proper carrying out of the functions for which they were hired.





## **6. SUB-DELEGATION**

- 6.1 The Authority shall not assign or delegate any of the specified functions or obligations contained herein within the National Park without the prior consent in writing of JCDT. This consent shall not unreasonably be withheld. Where a delegation is made by the Authority such delegation agreement shall be negotiated in association with JCDT.
- 6.2 JCDT shall not delegate any of its obligations contained within this delegation instrument without the written consent of the Authority. This consent shall not be unreasonably withheld. Where a delegation is made by JCDT such delegation agreement shall be negotiated in association with Authority.

## **7. INDEMNIFICATION**

- 7.1 The Authority shall indemnify and shall keep indemnified JCDT against any loss, damage or liability whether criminal or civil suffered, arising out of or relating to the Authority's default in the carrying out of its obligations under this agreement.
- 7.2 JCDT shall indemnify and shall keep indemnified the Authority against any and all costs, claims and expenses, loss, damage or liability whether criminal or civil suffered, which may be incurred by the Authority arising out of, or relating to the carrying out of any one or more or all of the functions described herein due to the negligence of JCDT, its employees and agents, or to a breach of this agreement.

## **8. REPORTING**

JCDT shall:

- 8.1 As soon as may be practicable before the 1<sup>st</sup> day of October in each year, submit to the Authority for consideration, its estimates of revenue and expenditure in respect of the period commencing on the 1st day of April in the following year and ending on the 31st day of March of the subsequent year, and shall during that year, submit to the Authority for approval any estimate for further expenditure as may become necessary.
- 8.2 Keep accounts and other records in relation to its business, receipts, expenditure and investments and shall prepare annually a statement of accounts in a form satisfactory to the Authority.
- 8.3 Provide annual audited financial statements to the Authority within three (3) months of the end of each financial year of the activities within the National Park.

## **9. TERMINATION**

- 9.1 This agreement shall terminate at the end of the term.
- 9.2 Either party may terminate this agreement by six (6) months notice in writing to the registered office of the other party for a fundamental breach of this agreement.

- 9.3 JCDT may, after consultation with the Authority, terminate this agreement provided a minimum of six (6) months notice is given to the Authority and public notice is given by placing such notice in a daily newspaper widely circulating in the island.

## **10. RENEWAL**

- 10.1 Should for any reason either party does not wish to renew the instrument of delegation, this should be conveyed in writing to the other party not less than twelve (12) months before the expiry of the current agreement.
- 10.2 At the end of three years, the two parties shall begin discussions towards the renewal of the National Park Management Plan. JCDT is to submit to the Authority for its approval a draft of a new Plan for a period of five-years. This plan should be reviewed by the Authority and comments submitted in writing within six months of the review of the management plan..
- 10.3 At the end of nine years after the commencement of this agreement, the two parties shall begin discussions towards the renewal of the instrument of delegation. The Authority is to submit to JCDT in writing at that time any wishes it may have concerning the delegation agreement. All negotiations should be complete at least six (6) months before the expiry of this instrument of delegation.

## **11. MISCELLANEOUS**

- 11.1 In the event that any provision of this agreement is declared by any judicial or other competent authority to be void, voidable, illegal or otherwise unenforceable the parties shall amend that provision in such reasonable manner as achieves the intention of the parties without illegality.
- 11.2 This agreement is capable of amendment by both Parties in writing at any time during its term.

## **12. SUPERCEDES PRIOR AGREEMENT**

This agreement supercedes any prior agreement between the parties whether written or oral and any such prior agreements are cancelled at the commencement date but without prejudice to any rights that have already accrued to either of the parties. However if any rights are accrued prior to this agreement which are in conflict to this agreement then the agreement prevails.

## **13. NOTICES**

Any notice to be served shall be sent by registered post, or by facsimile or electronic mail supported by the original document, to the registered office or address for service of the addressee and shall be deemed to be received by the addressee within five (5) working days of posting or twenty-four hours if sent by facsimile or electronic mail to the correct fax number or electronic mail address of the party



**14. ARBITRATION**

All disputes and differences which shall at any time arise between the parties whether during the term or afterward constituting a fundamental breach of this agreement, or touching or concerning this delegation instrument or its construction or effect of the rights, duties or liabilities of the parties under or by virtue of it or otherwise or any other matter in any way connected with or arising out of the subject matter of this agreement shall be referred to panel of three arbitrators, one proposed by the Authority, one proposed by JCDT and the third to be agreed upon by both parties, the majority decision of those arbitrators being binding upon both parties.

Dated this 19<sup>th</sup> day of September 2002.

Signed for and on behalf of the  
Natural Resources Conservation Authority

in the presence of

Carlo Exall  
Witness

[Signature]  
Chairman

Signed for and on behalf of the  
Jamaica Conservation and Development Trust

in the presence of

[Signature]  
Witness

[Signature]  
Chairman



[Signature]

# APPENDIX 15

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## BJCMNP Declaration Order



THE  
**JAMAICA GAZETTE**  
SUPPLEMENT

PROCLAMATIONS, RULES AND REGULATIONS

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Vol. CXVI

FRIDAY, FEBRUARY 26, 1993

No. 8F

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No. 9F

**THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT**

**THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW MOUNTAINS  
NATIONAL PARK) (DECLARATION) ORDER, 1993**

In exercise of the powers conferred upon the Minister by section 38 of the Natural Resources Conservation Authority Act and upon the recommendations of the Natural Resources Conservation Authority, the following Order is hereby made:—

1. This Order may be cited as the Natural Resources Conservation (Blue and John Crow Mountains National Park) (Declaration) Order, 1993 and commences on the 26th day of February, 1993.
2. The boundaries of the Blue and John Crow Mountains National Park shall be as set out in the Schedule hereto:

**SCHEDULE**

All the piece or parcel of Crown Land known as Silver Hill and Chestervale Plantation situated in the parishes of St. Andrew and Portland containing by survey 206.88 hectares and butting:

- NORTHERLY:** On Silver Hill in possession of the Chief Secretary;
- EASTERLY:** On part of Chestervale in possession of the Chief Secretary and Clydesdale Forest Reserve;
- SOUTHERLY:** On part of Clifton Mount in possession of the Commissioner of Lands and part of Chestervale in possession of Yallahs Valley Land Authority;
- WESTERLY:** On part of Silver Hill in possession of the Chief Secretary, Wallenford in possession of Ina Benn, main road from Buff Bay to St. Peters;

or however, otherwise the same may be butted, bounded, known, distinguished or described.

All that piece or parcel of Crown Land part of the Tom's Hope Land Settlement in the parish of Portland containing by survey 29.67 hectares and butting:

- NORTHERLY:** On parts of the Tom's Hope Land Settlement allotted to small settlers east on a portion of the property known as Mt. Lebanon in the possession of Valdin Morrison and on Crown Lands known as Adam Brandon's patent south on a portion of Adam Prandon's patent in the possession of Charles Moresby west on a parochial road leading from Windsor to Park Mount and on a reserved road save and except:
- (a) that portion of the parochial road 149.8 metres wide leading from Windsor to Park Mount and passing through the area above described; and
  - (b) that portion of a road reserved 62.42 metres wide leading from lot 156 of the Tom's Hope Land Settlement to Mt. Lebanon and passing through the area above described.

All those parcels of Crown Lands in the parishes of St. Mary, St. Andrew, Portland, and St. Thomas known as the Blue Mountain Forest Reserve and containing by estimation 41,939.87 hectares more or less and including the following blocks:

*Ginger River Block (District 17)*

Comprising the following patents or parts thereof—

Cottage, Andover, Joppa, Keith Hall, Mullet Hall and Killi-Krankie part of Knowsley, Westminster Cottage, remainder of Westminster Cottage, Unpatented Land, Fair Hill, Shooter's Hill, Osbourne Mountain part of Samuel Hyde, J. Gordon and Edward McGeachy, Warminster, Daniel D'Luskie, part of Dry River Retreat, part of Juniper Grove and butting:

*SCHEDULE, contd.*

- NORTHERLY:** From Good Hope, Hermitage, Dumfries and Port George Pen
- EASTERLY:** On Mount Joseph, Lovely Grove and Alexander Gordon Plantation, Dry River Retreat in the possession of small settlers, Shantamee and Birnamwood Plantations and part of the Blue Mountain Forest Reserve, District 18
- SOUTHERLY:** On Wm. Whitfield and Mt. Cressy, Mt. Olive, New Garden, Mt. Prospect
- WESTERLY:** On Mt. Horeb, Mt. Sinai and Belle Air, Prospect Hill or however otherwise the same may be butted, bounded, known, distinguished or described save and except those parcels of land in the possession of small settlers.

*Juniper Block (District 17)*

All that portion of Crown Land forming part of the Blue Mountain Forest Reserve and butting:

- NORTHERLY:** On part of the Blue Mountain Forest Reserve, District 18
- WESTERLY:** On Mt. Moses, Tweedside and Wm. Whitfield in the possession of the Water Commission;

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Springfield Block (District 17)*

Comprising the following patents or parts thereof—

Springfield, Heirs of Bains and butting:

- NORTHERLY:** On Summer Hill;
- EASTERLY:** On part of the Blue Mountain Forest Reserve, District 18 and Hermitage in the possession of the Water Commission;
- SOUTHERLY:** On Norwich Castle and part of Campbell's Mount in the possession of the Water Commission;
- WESTERLY:** On Moresham and Muff Castle in the possession of the Water Commission;

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Newcastle Block, Western (District 18)*

Comprising the following patents or parts thereof:

Juniper Grove, Old England, Heirs of Dodd, Oathley, Castle Dawson, Green Hills, Hollywell, Mt. Horeb and West Vale, Cold Spring, Clifton Mt., Limerick Mtn., Silver Hill, Jamaica Spa, Pleasant Hill, Middleton, Greenwich Hill, Caledonia, part of Lancaster, Southfield, part of Smithfield, Copper Castle, Newcastle and butting:

SCHEDULE, *contd.*

- NORTHERLY: On part of the Blue Mtn. Forest Reserve, Shantamee and Birnamwood Plantations;
- EASTERLY: On Shantamee and Birnamwood Plantations, part of Smithfield, part of Lancaster in possession of small settlers, Wakefield Plantation in possession of H. H. Burgher, Cedar Valley Plantation in possession of Miss V. Benn *et al* part of Middleton, Eldersie, part of Castle Dawson, Green Hills, Marlborough Castle, Wallenford, Jamaica Spa, part of Silver Hill, Clifton Mount, part of Pleasant Hill, and Mt. Lebanon;
- SOUTHERLY: On Charlottenburgh, Little Pleasant Hill, part of Middleton, part of New Castle and Hopewell Plantation;
- WESTERLY: On Maryland Plantation, Mt. Dorothy and part of the Blue Mountain Forest Reserve District 17,

or however otherwise the same may be butted, bounded, known, distinguished or described, save and except those parcels of land in the possession of small settlers.

*Silver Hill Block, Eastern (District 18)*

Comprising the following patents or parts thereof —

John Ferguson's patent, part of Chestervale Plantations, Ross Patent, part of Silver Hill, part of Cedar Valley Plantation, part of Spring Hill, and Clydesdale and butting:

- NORTHERLY: On part of the Blue Mountain Forest Reserve, District 19;
- EASTERLY: On part of the Blue Mountain Forest Reserve, Districts 19 and 26;
- SOUTHERLY: On Pleasant Hill and part of Chestervale Plantation;
- WESTERLY: On part of Wallenford, part of Cedar Valley Plantation, Spring Hill and Chestervale

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Trafalgar Block (District 19)*

Comprising the following patents or parts thereof —

Part of Geo. Wright, part of Sportsman's Hall, Patality, part of Atkinson and Hanbury, Colthirst's Run, Trafalgar Plantation, part of Leighfield, part of Pleasant, Mount John Buck's Patent, Westphalia, Edward McGeachy, Samuel Linwood, and Wm. Linwood, Robert B. Hugh, New Haven part of Wood and Plummer, part of Geo. Burrell, Richard Faith part of Hall's Delight and un-reserved Crown land — part of Geo. Wright and part of Sportsman's Hall, and butting:

- NORTHERLY: On Retreat, M. Biggs, part of Hall's Delight, part of Atkinson and Hanbury, Resource and Trouble Hill;

SCHEDULE, *contd.*

- EASTERLY:** On part of the Blue Mountain Forest Reserve, Districts 20 and 26
- SOUTHERLY:** On part of Blue Mtn. Forest Reserve, District 26
- WESTERLY:** On part of Blue Mountain Forest Reserve, District 18 Breman Valley, part of Leighfield in the possession of small settlers, and the Brook Plantation

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Swift River Block (District 20)*

Comprising the following patents or parts thereof —

Part of Friendship Hall, part of Thomas Cockburn, Sartoga, part of Wm. Pearce, Geo. McKeand, part of Geo. Burrell part of Wood and Plummer, part of Wm. Collard, unpatented bound part on Colthirsts Run, John Reader, part of Scotland, part of Bengal, Holland. Wm. Lee. John Anguin, Boston, part of John Sanderson, Batavia, John Symes, unreserved Crown Land — Richard Ivy Mann, Robert McKay, part of Fruitful Vale, Davis Sherrif, James Jenkins, Geo. Brooks, part of Friendship Hall part of Wm. Pearee, part of Wm. Collard, part of Scotland, part of Bengal and butting

- NORTHERLY:** On Allany, Pippingford, Shirley Castle, Liberty Hill, Rev. Geo. Hall, Pigeon Hill, Ashcott, Jno. Lowe, Twickenham Plantation, part of Fruitful Vale, Dunbar, Burton Hill, Manchester, part of unpatented Land
- EASTERLY:** On part of the Blue Mtn. Forest Reserve, District 21
- SOUTHERLY:** On part of the Blue Mountain Reserve, District 21
- WESTERLY:** On part of the Blue Mountain Forest Reserve Districts 26 and 19 or however otherwise the same may be butted, bounded, known, distinguished or described.

*John's Hall Block (District 21)*

Comprising the following patents or parts thereof —

Part of Charles Stewart, part of John Sanderson John Neilson, Thomas Reece, John Swarbeck, Paul Phipps, Jno. P. Barker, Wm. Smellie, James Farrier, James Campbell, Wm. Lane, Colin McKenzie I and II, Anne Lane, Charles Phipps I and II, Abigail Phipps, Edward P. Wallen I and II, Thomas Gray, Thomas Cushnie, Mark Howard, Elizabeth Ann Adams and unreserved Crown Lands, that is part of John Sanderson, Tuscany, Madrid, part of John Swarbeck, part of Friendship Hall, part of Geo. Christie, and butting

- NORTHERLY:** On unpatented Land, Brook Dale and Golden Vale Estate
- EASTERLY:** On Rose Hill, Garland, Grove, Kensington Plantation, Experiment Hill, Brownsfield and part of the Blue Mountain Forest Reserve, District 22



SCHEDULE, *contd.*

SOUTHERLY: On part of the Blue Mountain Forest Reserve, District 25

WESTERLY: On part of the Blue Mountain Forest Reserve District 20

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Rio Grande Block, Western (District 22)*

Comprising the following patents or parts thereof —

Part of Geo. Christie, Patk. Johnson Natty, Fraser and Kinneard Wm. Smellie I and II, Edward Barry I and II part of Marshall Hall, Alex. Cumming I, II and III, part of Daniel Moore, Edward West, part of Robert McDermott, Kings Land, Edward Bernard, Geo. French I, II and III, part of Thomas Cockburn, Francis Moore, part of John Moore I and II, and part of Edgar's Rio Grande Pen, and butting

NORTHERLY: On Kent

EASTERLY: On Claremont, Marshall's Hall, Altimont Township Mill Bank, Bowden Pen, part of Edgar's Rio Grande

SOUTHERLY: On part of the Blue Mountain Forest Reserve, District 24

WESTERLY: On part of the Blue Mountain Forest Reserve, Districts 21 and 25

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Rio Grande Block, Eastern (District 22)*

Comprising the following patents or parts thereof —

Part of Holland Mountain, part of Silvera's Run, part of Joe Hill, part of Adam Brandon, James Barton and Gardner, Wm. Fullerton I and II, Robert Graham, Thos. Wainsborough, part of James Lindsay, Mt. Gambier, John Proctor, The Alurement, part of Mt. Rodney, Come-and-see-me, part of Holland Rio Grande Pen, part of Alex. Bell Patrick Grant, John McLean, Allan and John McLean, Charles Grant, and unreserved Crown Land, that is Mt. Lebanon and butting

NORTHERLY: On Caledonia and Cambridge Back Lands

EASTERLY: On part of the Blue Mountain Forest Reserve, District 23

WESTERLY: On part of Alex Bell, part of Holland Rio Grande part of Holland Mtn., part of Silvera's Run, Fish Brook, Rio Grande River, Corowall Pen, Nottingham Pen, Moore Town Maroon Land, part of Joe Hill, Windsor Estate, Small Settlers' Lots, Tom's Hope Estate

or however otherwise the same may be butted, bounded, known, distinguished or described.

SCHEDULE, *contd.**John Crow Block (District 25)*

Comprising the following patents or parts thereof —

Part of John McRoberts, Sm. Baillie, part of James Baillie, Elizabeth Baillie, part of John Salmon, John Moodie I and II, Allan McLean I, II and III, part of Wm. Ross, part of Thomas Weir, part of Hodgson, and Malgred, unclaimed Land South of Cambridge Back Lands, H. Littlejohn, Wm. Fulton III, Thomas Wainsborough, Hospitality, part of John Scarlett, part of Windsor Castle Mtn., Thomas Davidson I and II, Robert Locke, Geo. Ball, Geo. French IV, part of Edward Stanton, Lawrence Arglesworth and unreserved Crown Lands, that is, part of Jno. Salmon, part of John Scarlett, part of Windsor Castle Mountain part of Edward Stanton, Greenfield, Bellevue and butting

- NORTHERLY: On Cambridge Back Lands, part of John McRoberts
- EASTERLY: On part of John McRoberts, part of Thos. Weir, Hodgson and Malgren, part of Wm. Ross, Vineyard Hill, Ecclesdown Penn, Spring Valley, part of James Baillie in possession of small settlers, Muriton Back Lands, Eddingham Plantation, Haining Estate
- SOUTHERLY: On Rowlandsfield, part of the Blue Mountain Forest Reserve, District 24
- WESTERLY: On part of the Blue Mountain Forest Reserve District 24

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Plantain Garden Block (District 24)*

Comprising the following patents or parts thereof —

Wind Hill, Duart Castle and Farm, Craighead, Nathaniel Beckford, Donald Taylor Henry Lumsden, Alex Sheriff I, II and III, Wm. Craigie, part of John McKinley, Cave, Bottom Pound Hill, Wm. Probart, Aeneas Grant, John Nimmo, Lots Mt. Donald, Edward East, part of Cedar Grove and butting

- NORTHERLY: On part of the Blue Mountain Forest Reserve, Districts 22 and 23
- EASTERLY: On part of the Blue Mountain Forest Reserve, District 23
- SOUTHERLY: On Kent, Lebanon, part of Cedar Grove, Dr. Alex. McLean, Wm. Forbes, part of Mt. Donald, Murray's Plantation Walk, part of John McKinley, House Hill, Greenwood Castle and Golden Valley, White Hall
- WESTERLY: On part of the Blue Mountain Forest Reserve, District 25

or however otherwise the same may be butted, bounded, known, distinguished or described.

SCHEDULE, *contd.**Trinityville Block (District 25)*

Comprising the following patents or parts thereof —

Francis Rigley Broadbelt, David Henriques, Dunrobin, Duncan McGlashan, Newington, part of Union Hill, Parket Bennett Franklin, James Gardner, Nicholas Bourke, Geo. Hall, Robert Sutherland, Daniel Moore, Thos. Fearon, Robert Aredeckne, Wm. Hall Willeys I, II and III, Wm. Willeys IV and V, John H. Cudgar, Elizabeth Willeys, H. Andrew Franklin, Geo. Munroe, Wm. Logan, Wm. Pollack, Geo. Campbell I, II and III, James Farrier, James Campbell, Edward P. Wallen I and II, Alex. Brown, Augustus Vallett, Mark Howard, Chas. Mais I and II, John Mais, Geo. Parker, Elizabeth Ann Adams, Moy Hall, Garerand Hall and butting

- NORTHERLY: On part of the Blue Mountain Forest Reserve, District 21
- EASTERLY: On part of the Blue Mountain Forest Reserve, Districts 22 and 24
- SOUTHERLY: On property known as Spring, Hillside, Mullet Hall and Garbrand Hall, part of Union Hill in the possession of small settlers, Island Head, Benn Lomond, Newfield, Newington, Moy Hall and Windsor
- WESTERLY: On part of the Blue Mountain Forest Reserve, District 26

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Cinchona Block (District 26)*

Comprising the following patents or parts thereof —

Part of Pleasant Hill, Bellevue, remainder of Crichton Run, Dulce Domum, **Markham Hill**, part of Woodland, part of Strawberry Hill, Helen Whair, Thos. Rurpin, unpatented land (north of Hibernia), Old England, part of Mt. Teviot, J. Fowles I and II, Wm. Cowan, Alex. Robertson, Alex. Stephenson, S. J. Dallas, Portland Gap I, II and III, part of Abbey Green, part of Whitfield Hall, part of Radnor, Ector's Patent, Wm. Gordon, unpatented land (North of Portland Gap), Anthony Davis, Henry Stanley, Iron River, Henry Turpin, W. H. Hall, John Hall and Sheldon Back Land, Maria French and butting

- NORTHERLY: On part of the Blue Mountain Forest Reserve, Districts 19 and 20
- EASTERLY: On part of the Blue Mountain Forest Reserve, Districts 20, 21 and 25
- SOUTHERLY: On Arntully, Sherwood Forest, remaining portions of Radnor, Abbey Green and Whitfield Hall, Sheldon, remaining portions of Mt. Teviot, Old England, Strawberry Hill and Woodlands and Mount Hybla
- WESTERLY: On Resource, Pleasant Hill and part of the Blue Mountain Forest Reserve, District 18

or however otherwise the same may be butted, bounded, known, distinguished or described.

Dated this 26th day of February, 1993.

**JOHN A. JUNOR,**  
Minister of Tourism and the Environment.

# APPENDIX 16

## National Park Regulations (1993)

No. 9G

### THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

#### THE NATURAL RESOURCES (NATIONAL PARKS) REGULATIONS, 1993

In exercise of the powers conferred upon the Minister by section 38 of the Natural Resources Conservation Authority Act, the following Regulations are hereby made:—

#### PRELIMINARY

**Citation.** 1. These Regulations may be cited as the Natural Resources (National Parks) Regulations, 1993.

**Interpretation.** 2. In these Regulations—  
"authorized officer" means any officer employed to the Customs Department, any member or officer of the Jamaica Constabulary Force, any member or officer of the Jamaica Defence Force, any public officer designated a Fishery Inspector under the Fishing Industry Act, a person appointed a forest officer under the Forest Act, any person appointed a park manager or designated a national park ranger;

"national park ranger" means a person so designated pursuant to regulation 30;

"park manager" means a person appointed under regulation 29;

"sell" includes any attempt or offer to sell, barter, cause or permit to be sold or offered for sale, have in possession for sale or send or receive for sale;

"service" includes any accommodation or transportation.

#### OFFENCES

**Animals.** 3.—(1) A person shall not, except with the written permission of a park manager, cause or allow an animal to enter a national park.

(2) Notwithstanding paragraph (1)—

- (a) a person in need of the assistance of a guide dog may bring such dog into a national park if such dog is securely held or fastened to a leash which does not exceed 4 feet in length; or
- (b) a person may ride or lead a horse or donkey in a national park in any area set aside for that purpose by the park manager.

- Litter.** 4.—(1) A person shall not, in a national park—
- (a) deposit or leave any litter, bottle, broken glass, china, pottery, plastic article, rubbish, refuse or other waste material, except in an area or receptacle provided for that purpose;
  - (b) deposit, discharge or leave any noxious, noisome, offensive or polluting substance, matter or thing;
  - (c) deposit or leave any offal, dead animal, dung or other filth;
  - (d) deposit in any receptacle provided for litter any domestic garbage;
  - (e) wilfully break any article of glass, china, pottery, plastic or other brittle material;
  - (f) deposit, discharge or leave any mineral, mineral waste or other industrial waste or by-product thereof, oily liquids, acids or other deleterious, toxic or polluting substance.
- (2) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.
- Pollution of waters.** 5.—(1) A person shall not pollute or cause to be polluted any water in a lake, stream, river, well, dam, reservoir or in any container.
- (2) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding ten thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine and imprisonment.
- Abandoned property.** 6. A person shall not, except with the written permission of a park manager, abandon or leave unattended for more than 24 hours, any personal property, in a national park.
- Disorderly behaviour.** 7.—(1) A person shall not behave in a disorderly, offensive or indecent manner or use any offensive or indecent language or create any disturbance in a national park.
- (2) A person shall not, obstruct, disturb, interrupt or annoy any other person engaged in the proper use of a national park nor behave in a manner likely to create any disturbance.
- (3) A person shall not in a national park throw, roll or discharge any stone, substance or missile to the danger of any person, animal or thing.
- (4) A person shall not deface, paint, write, cut names or letters or otherwise make marks or affix bills on trees, rocks, gates, fences, buildings, signs or other property in a national park.
- (5) A person shall not, within a national park, play or operate a radio, tape recorder, gramophone or other musical instrument in a manner which disturbs or is likely to disturb other users of the park.

(6) A person who contravenes a provision of this Regulation commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

Refusal to  
comply  
with  
orders.

8. A person who—

- (a) refuses, neglects or fails to comply with any direction given to him by an authorized officer;
- (b) refuses or fails to produce any licence or permit that he is required to produce by an authorized officer;
- (c) assaults, resists or obstructs an authorized officer in the execution of his duty;
- (d) uses threatening language or behaves in a threatening manner towards an authorized officer in the execution of his duty;
- (e) refuses to leave a national park when ordered to do so by an authorized officer;
- (f) removes, alters or interferes with any article seized under these Regulations without the authority of an authorized officer; or
- (g) impersonates an authorized officer,

commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

Camping.

9.—(1) A park manager may establish designated camping areas in a national park.

(2) A park manager may display signs or notices in any national park prohibiting or restricting the use of any site for camping or prohibiting or restricting the use of a caravan or similar vehicle.

(3) A person using a site for camping, or using a caravan or other vehicle, in any national park who fails to comply with a prohibition or restriction contained in a sign or notice displayed pursuant to paragraph (2) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

Use of  
vehicles.

10.—(1) A person shall not take, drive, use or leave a vehicle in a national park in contravention of a prohibition or restriction contained in a sign or notice.

(2) A person shall not, except with the written permission of a park manager, take, drive, or use a vehicle on a road or track on any land that has been closed by a barrier erected by or under the authority of the Authority.

(3) A person shall not, except with the permission of a park manager, take, drive, or use any vehicle in a national park except on a road designated for that purpose.

(4) An authorized person, may, for the purpose of regulating the use of any road within a national park or for the purpose of avoiding inconvenience or risk of danger to persons using a national park, give directions to any person driving or in charge of a vehicle prohibiting its being taken or being allowed to remain on any road, or any part of a road in a national park, or requiring its removal from any such road or part thereof.

(5) A person driving, using, or in charge of a vehicle in a national park who contravenes or fails to comply with—

- (a) a prohibition or restriction contained in a sign or notice displayed pursuant to paragraph (1);
- (b) any directions contained in a sign or notice so displayed; or
- (c) any directions given by an authorized person pursuant to paragraph (4).

commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

**General provisions as to preservation of national parks.**

11.—(1) A person shall not, except with the written permission of the park manager, in a national park —

- (a) erect any building or structure; or
- (b) make or mark out any track or route.

(2) A person who contravenes the provisions of paragraph (1), commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding ten thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine and imprisonment.

**Fires.**

12.—(1) A person shall not, in a national park, light, maintain or use a fire other than a domestic fire in an area designated for that purpose.

(2) A person who contravenes the provisions of paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding ten thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine and imprisonment.

**Other offences.**

13.—(1) A person commits an offence who, except with the written permission of the park manager—

- (a) plants any plant, or sows or scatters the seed of any plant, or introduces any substances that he knows or ought to have known is injurious to plant or animal life, in any national park; or
- (b) occupies or uses any land in a national park for cultivation or any other purpose; or
- (c) wilfully damages or defaces any fence, building or equipment in any national park; or



(d) takes or destroys or wilfully injures or in any manner disturbs or interferes with any protected animal or the nest or eggs of any protected bird as specified in the Wildlife Protection Act in any national park; or

(e) wilfully cuts or destroys any plant in a national park.

(2) A person shall not—

(a) when required by notice from the park manager to remove from a national park any animal owned by him or under his control, fail to do so within the period specified in the notice; or

(b) being the driver of any vehicle that is illegally in a national park or part thereof, fail or refuse to remove it from such national park or part thereof when required to do so by any national park ranger; or

(c) do or cause to be done any act, matter, or thing for which such written permission is required under these Regulations; or

(d) unlawfully alter, obliterate, deface, pull up, remove, interfere with, or destroy any boundary marks, stamp, mark, licence, lease, permit or other right or authority issued by the Authority;

(3) A person shall not use, receive, sell, or otherwise dispose of any property knowing it to have been unlawfully removed from any national park.

(4) A person shall not, except with the written permission of the park manager have in his possession in a national park any chain-saw or any trap, net or other like object.

(5) A person who contravenes the provisions of paragraph (1), (2), (3) or (4) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

(6) A person convicted of an offence under this Regulation shall, in addition to any penalty for which he may be liable for the offence, be liable to pay the cost of repairing or restoring any damage done to a national park, or to any plant growing therein or property of a national park affected by the commission of such an offence.

**Commercial activities.** 14.—(1) A person shall not, except with the written permission of the park manager in a national park—

(a) hire or sell anything;

(b) produce anything for hire or sale;

(c) provide any service for reward; or

(d) carry on any other commercial activity.

(2) A person who contravenes the provisions of paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars, and where the offence is a continuing one to a further fine of five hundred dollars per day for each day on which the offence continues after conviction.

(3) A park manager shall not grant permission for the carrying on of commercial activities under this Regulation unless in his opinion the activity is likely to benefit persons engaged in the lawful use of the park or the wider public in general.

**Mining.**

15.—(1) A person shall not, except with the written permission of the Authority or except in accordance with the provisions of a licence granted under any other enactment, carry out any operation for the extraction or mining of minerals in a national park.

(2) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding ten thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years.

**Research and collection of objects and specimens.**

16.—(1) The Authority may, on such terms as it thinks fit, grant a permit for—

- (a) the carrying out of research; or
- (b) the collection of natural objects or specimens, animal or plant life in a national park for educational, scientific or environmental purposes.

(2) The Authority shall not grant a permit under paragraph (1) where the carrying out of any research or collection is likely to damage the national park or interfere unduly with the management of the flora or fauna.

(3) An application for a permit under paragraph (1) shall be in writing and shall—

- (a) be transmitted through the park manager; and
- (b) contain information as to—
  - (i) the type of research and the natural objects or specimens to which the application relates;
  - (ii) the methods to be employed in carrying out the research and in collecting objects or specimens;
  - (iii) the estimated cost of such research or collection.

(4) Where the Authority refuses to grant a permit under paragraph (1), it shall, in writing, inform the applicant of the reasons for the refusal and the right of appeal under section 35 of the Act.

(5) A person who carries out any form of research or collects any object, specimen, animal or plant life in a national park without a permit issued under this Regulation commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding ten thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine and imprisonment.

**Parking etc. of vehicles and mooring of vessels.**

17.—(1) A person shall not, in a national park—

- (a) park a vehicle or moor a vessel in any place other than in a parking lot mooring area or a place designated for such purpose by the Authority;

- (b) park a vehicle or moor a vessel in such manner as to obstruct or to be a danger to persons in the national park;
- (c) abandon a vehicle or vessel or leave it in a position, condition or in circumstances so that it appears to be abandoned.

(2) A vehicle or vessel shall be deemed to have been abandoned if it is left unattended for a period of forty-eight hours or more.

(3) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding two thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

**Exemptions.** 18.—(1) In granting a permit under these Regulations with respect to the carrying on of an activity, the park manager may exempt the person to whom the permit was granted, from such of the provisions of these Regulations as are necessary to enable such person to carry on the activity.

(2) An exemption under this Regulation may be in general terms or may be limited to the activities, area and period specified in the permit.

**Fishing.** 19.—(1) A person shall not fish in a national park without the written permission of the park manager; and such permission may contain any term or condition as is necessary for the management of the fishing resources of the park.

(2) The Authority may declare in writing that an area of water in a national park is an area where, at any time or for a period specified by the Authority in such declaration, fishing is prohibited.

(3) The Authority may declare in writing that an area of water in a national park is an area in which fishing is allowed subject to conditions relating to—

- (a) the kind of fish which may be caught or, as the case may be, the kind of fish in respect of which fishing is prohibited;
- (b) the number of fish that may be caught by a person in a day;
- (c) the type of fishing equipment that may be used; or
- (d) the devices which may be used for fishing.

(4) A person shall not fish in an area of water in a period during which fishing is prohibited under paragraph (2).

(5) A person shall not, in a national park, use any poisonous substance, electrical charges or any other similar device for the catching or killing of fish.

(6) A person who contravenes paragraph (1), (4) or (5) commits an offence and is liable to a fine not exceeding ten thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine and imprisonment.

(7) A person who contravenes any term or condition imposed by the Authority under paragraph (1), (2) or (3) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment for a term not exceeding two years or to both such fine and imprisonment.

**Markers.**

20.—(1) A person shall not wilfully mark, deface or injure in any way, or remove or interfere in any way with any mooring, buoy, national park sign, notice or placard, whether temporary or permanent, or with any monument, stake, post or other boundary marker in any national park.

(2) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine or imprisonment.

**Signs.**

21.—(1) A person shall not, except with the written permission of the Authority, erect, exhibit, display or cause to be erected, exhibited or displayed in a national park any notice, sign, slogan or other device containing any advertising or other kind of message.

(2) A person shall not, except with the written permission of the Authority, remove, damage, obscure or otherwise interfere with a notice, sign, slogan or other device, erected by the Authority in a national park.

(3) The park manager may authorize the erecting, placing or displaying of signs in a national park for the purpose of—

- (a) regulating, prohibiting or restricting the stopping or parking of vehicles, or defining the manner in which vehicles may be parked;
- (b) designating a part of a national park as an area within which the parking of vehicles is permitted or the mooring of vessels;
- (c) designating a part of a national park as an area within which camping is permitted;
- (d) conveying information or warning to persons using such national park.

(4) A sign erected for the purpose of designating a part of a national park as an area within which the parking of vehicles is permitted shall, in addition to the words designating that part, bear the words "PARKING AREA".

(5) A sign erected for the purpose of designating a part of a national park as an area within which camping is permitted shall, in addition to the words designating that part, bear the words "CAMPING AREA".

(6) A sign, or other device erected, placed or displayed in a national park indicating that it has been approved by the Authority shall, unless the contrary is established, be taken to have been erected, placed or displayed, as the case may be, by the Authority as the case may be.

(7) A person who contravenes paragraph (1) or (2) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine or imprisonment.

(8) Any person who wilfully defaces, destroys, damages, obliterates, pulls up, removes, obscures or otherwise interferes with any sign erected, placed or displayed pursuant to paragraph (3) commits an offence.

Court may order payment.

22. Where a person is convicted of an offence of removing any property from or causing any damage to, a national park or any plant or animal therein, the Court before which he is convicted may, in addition to any penalty for which he may be liable under these Regulations, order him to pay to the Crown the full market value or the cost of rehabilitation (whichever is the greater) as assessed by the Court, of the property removed or of the damage done to the national park or any plant or animal therein.

Presumptions re-offences.

23. If, in the vicinity of a national park, any person is found in possession of any plant, stone, mineral, nest, animal, artefact, or relic, or any part thereof which belongs in that national park and upon being required by a national park ranger that person fails or refuses to give a satisfactory account of the manner in which he came into possession of such plant, stone, mineral, nest, animal artefact or relic or part thereof, it shall be presumed that he has removed it from such national park.

Penalty for offences.

24. A person who commits an offence against these Regulations for which no penalty is provided is liable on summary conviction before a Resident Magistrate—

- (a) where the offence is committed by an individual, to imprisonment for a term not exceeding one year or to a fine not exceeding five thousand dollars and where the offence is a continuing one to a further fine not exceeding five hundred dollars per day for each day on which the offence continues after conviction;
- (b) where the offence is committed by a body corporate, to a fine not exceeding five thousand dollars and where the offence is a continuing one to a further fine not exceeding five hundred dollars per day for each day on which the offence continues after conviction.

#### ENFORCEMENT

Seizure and forfeiture.

25.—(1) If any authorized officer has reasonable cause to suspect that any vehicle, vessel, article or thing is being used or has been used in the commission of an offence against these Regulations, he may seize and detain such vehicle, vessel, article or thing and may—

- (a) without a warrant, search such vehicle, vessel, article or thing; and
- (b) if such search reveals evidence that the vehicle, vessel, article or thing is being used or has been used for the commission of any offence, seize and detain such vehicle, vessel, article or thing.

(2) Where any vehicle, vessel, article or thing is seized pursuant to paragraph (1) and—

(a) any person is convicted of an offence against these Regulations; and

(b) the Court is satisfied that—

(i) the person owns the vehicle, vessel, article or thing used in the commission of the offence; or

(ii) the owner thereof permitted it to be so used; or

(iii) the circumstances are otherwise such that it is just so to do,

the Court shall, upon the application of the Authority, order the forfeiture of the vehicle, vessel, article or thing.

(3) On the application of the Authority before a Resident Magistrate's Court having jurisdiction in the area where a vehicle, vessel, article or thing is seized pursuant to paragraph (1), the Court may, notwithstanding that the conditions mentioned in paragraph (2) have not been satisfied, order the forfeiture of the said vehicle, vessel, article or thing if the Court is satisfied that—

(a) the vehicle, vessel, article or thing has been abandoned; or

(b) the circumstances in which it was seized give reasonable cause to suspect that it was being used or has been used in the commission of an offence against these Regulations; or

(c) it is otherwise just to do so.

(4) Where the Authority proposes to apply for forfeiture of a vehicle, vessel, article or other thing under paragraph (3), it shall, subject to paragraph (5), give to any person who, to its knowledge, was at the time of the seizure the owner thereof, notice of the seizure and of the intention, after the expiration of thirty days from the date of the notice, to apply for forfeiture thereof and of the grounds therefor.

(5) Notice shall not be required under paragraph (4) if the seizure was made in the presence of the owner or any of the owners of the vehicle, vessel, article or thing seized or any servant or agent of the owner.

(6) Without prejudice to any other form of service, notice under paragraph (4) may be published in a daily newspaper circulating in the Island.

(7) Any person having a claim to any vehicle, vessel, article or thing seized under this Regulation may appear before the Court at the hearing of the application and show cause why an order for forfeiture should not be made.

(8) Where, at the hearing of an application pursuant to paragraph (3), no person appears before the Court to show cause why an order for forfeiture should not be made, the Court shall presume that the vehicle, vessel, article or thing has been abandoned.

(9) If, upon the application of any person prejudiced by an order made by the Court under paragraph (2) or (3), the Court is satisfied that it is just to revoke such order, the Court may revoke such order upon such terms and conditions as it deems appropriate, and without prejudice to the generality of the foregoing, shall require such person, to pay in respect of storage, maintenance, administrative expenses, security and insurance of the vehicle, vessel, article or thing such charges as may be charged by the person in whose custody the vehicle, article or thing is and approved by the Court, not exceeding one and one-half times the value thereof as determined by the Court.

(10) An application to the Court under paragraph (9) for the revocation of an order, shall be made within thirty days of the date of the order or within such greater time as the Court may allow, not exceeding six months from the date of the order.

Arrest with-  
out  
warrant.

26.—(1) An authorized officer may, without warrant, arrest any person, where the authorized officer reasonably believes that—

- (a) the person has committed an offence against these Regulations; and
- (b) proceedings against the person by summons would not be effective.

(2) Where an authorized officer arrests a person under paragraph (1), he shall produce his identity card for inspection by that person unless it is not reasonably practicable to do so.

(3) Where a person is arrested under paragraph (1), an authorized officer shall immediately bring the person, or cause him to be brought, to the nearest police station.

(4) Nothing in this section shall prevent the arrest of a person in accordance with any other law.

#### ZONES

Zones.

27.—(1) The Authority may, as it thinks fit, zone areas of a national park and may—

- (a) assign a name or other designation for each zone;
- (b) make provisions with respect to the purposes for which each zone may be used; and
- (c) attach terms and conditions with regard to the use of each zone.

(2) A person who uses the zone for a purpose other than which provision is made or contravenes any term or condition with regard to the use thereof commits an offence.

#### MANAGEMENT PLANS

28.—(1) As soon as is reasonably practicable after a national park has been declared, the Authority shall prepare or cause to be prepared, a plan of management in respect of such national park.

management of the national park or any user of the national park;

- (b) require any person whom he finds committing or whom he reasonably suspects of having committed any such act to state his full name and true place of residence or leave the national park immediately.

Persons  
deemed  
national  
park  
rangers.

33. For the purposes of these Regulations a member or officer of the Jamaica Constabulary Force, the Jamaica Defence Force and the Island Special Constabulary Force respectively shall be deemed to be a national park ranger.

National  
Parks  
Councils.

34.—(1) The Authority may by notice published in the *Gazette* appoint an Advisory Council (hereinafter referred to as the Council) for national parks.

(2) The Council appointed under paragraph (1) shall consist of—

- (a) the Executive Director of the Authority or his nominee;
- (b) the park manager of each national park;
- (c) a representative of the Forestry Division of the Ministry of Agriculture;
- (d) a representative of the Fisheries Division of the Ministry of Agriculture;
- (e) a representative of the Jamaica Conservation Development Trust;
- (f) a representative of the Ministry of Finance and Planning;
- (g) a representative of the Ministry of Production, Mining and Commerce;
- (h) a representative of the National Environment Societies Trust;
- (i) a representative of the Planning Institute of Jamaica;
- (j) a representative of the Jamaica National Heritage Trust;
- (k) a representative of the Town Planning Department; and
- (l) four other persons of whom one shall be qualified in geology.

(3) The members of the Council shall hold office for such period not exceeding two years as the Authority may determine and shall be eligible for reappointment.

(4) The Authority shall appoint one of the members of the Council to be chairman thereof.

(5) The Authority may appoint any person to act in place of the chairman or any other member of the Council in the case of the absence or inability to act of the chairman or other member.

(6) The meetings of the Council shall be held at such time and such places as the chairman may from time to time appoint.



(7) Five members of the Council shall form a quorum at any meeting.

(8) The decision of the Council shall be by a majority of the members, and in addition to an original vote, the chairman shall have a casting vote in any case in which the voting is equal.

(9) The functions of the Council shall be to make recommendations to the Authority on the preservation of the ecological system of each national park and, without prejudice to the generality of the foregoing, to—

- (a) advise the Authority on matters relating to the administration, control and preservation of the resources of each national park and for the development of such national park on a national basis;
- (b) advise the authority on a management plan for the proper operation and management of each national park and to review that plan annually;
- (c) advise the Authority on management strategies to ensure that such management strategies achieve their desired effect; and
- (d) institute programmes to raise revenue for each national park.

(10) In performing the functions specified in paragraph (9), the Council may—

- (a) advise on educational programmes to ensure community involvement in the preservation of each national park;
- (b) advise the Authority on zoning and the establishment of boundaries in each national park.

**Certificate.** 35. A certificate by the Executive Director that an area is within a national park shall be *prima facie* evidence of that fact.

Dated this 26th day of February, 1993.

JOHN A. JUNOR,  
Minister of Tourism and the  
Environment.

# APPENDIX 17

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## BJCMNP (User Fee) Regulations (2003) and National Park (Amendments) Regulations (2003)



THE  
**JAMAICA GAZETTE**  
SUPPLEMENT

**PROCLAMATIONS, RULES AND REGULATIONS**

18211

Vol. CXXVI

TUESDAY, JUNE 17, 2003

No. 59C

No. 7001

**THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT**

**THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK) (USER FEES) REGULATIONS, 2003**

In exercise of the power conferred upon the Minister by section 38(1)(h) of the Natural Resources Conservation Authority Act, the following Regulations are hereby made:—

1. These Regulations may be cited as the Natural Resources Conservation (Blue and John Crow Mountains National Park) (User Fees) Regulations, 2003.

2. In these Regulations:—

"annual pass" means a pass issued for a period of twelve months;

"hiking ticket" means a ticket issued by the Park Manager entitling the holder to utilize the main recreational hiking trail;

"recreational area" means that portion of the Park designated for recreational purposes and for which a pass is required for entry;

"Park" means the Blue and John Crow Mountains National Park, the boundaries of which are set out in the Natural Resources Conservation (Blue and John Crow Mountains National Park) (Declaration) Order, 1993;

"pass" means a pass issued by the Park Manager entitling the holder to utilize a recreational area in the Park.

3.—(1) Subject to paragraph (3) a person shall not enter the grounds of any recreational area unless he holds a valid pass which he has in his possession at the time of entry.

(2) The Park Manager may, in respect to the Hollywell Recreational Area issue:—

- (a) a pass for a single entry; or
- (b) an annual pass for multiple entries.

(3) An authorized officer under the Natural Resources (National Parks) Regulations, 1993 may enter the Hollywell Recreational Area without a pass.

(4) The Park Manager with the approval of the Authority may exempt any person from the provisions of paragraph (1).

Part I  
Schedule

(5) The fees specified in Part I of the Schedule shall be payable in respect to a pass issued under this regulation.

Part II  
Schedule

4. Every person who intends to utilize the main recreational hiking trail from Portland Gap to the Blue Mountain Peak shall pay the appropriate fee set out in Part II of the Schedule.

Part III  
Schedule

5.—(1) Every persons who intends to camp in a designated campground in the park shall pay the fee specified in Part III of the Schedule.

(2) A person shall not camp in any area of the Park unless such an area is a designated campground.

6.—(1) The Park Manager shall establish an account into which fees collected under regulations 3, 4 and 5 shall be deposited.

(2) The Park Manager shall within three months after the end of each calendar year present to the Authority an audited report of the account.

(3) The Authority shall within two months after receiving the report forward a copy thereof to the Minister.

SCHEDULE		(Regulations 3, 4 and 5)
PART I		
<i>Fees payable for passes issued under Regulation 3</i>		
<u>Type of Pass</u>	<u>Amount of Fee</u>	
<i>Single Entry</i>		
1. Persons ordinarily resident in Jamaica	\$100.00 for each adult and child over the age of 12 years. \$50.00 for each child 6 to 12 years of age. No fee is charged in respect of a child under the age of 6 years.	
2. Persons not ordinarily resident in Jamaica	US\$10.00 or the equivalent in Jamaican currency for each adult and child over the age of 12 years of age. US\$5.00 or the equivalent in Jamaican currency for each child 6 to 12 years of age. No fee is payable in respect of a child under 6 years of age.	
3. A group of ten or more adults ordinarily resident in Jamaica	\$70.00 for each person.	
4. A group of ten or more adults not ordinarily resident in Jamaica	US\$7.50 or the equivalent in Jamaican currency for each person.	
<i>Annual</i>		
1. A person ordinarily resident in Jamaica	\$1,000.00	
2. A person not ordinarily resident in Jamaica	US\$30.00 or the equivalent in Jamaican currency.	

SCHEDULE, *contd.*

## PART II

*Fees payable for hiking trail under Regulation 4*

Type of Pass	Amount of Fee
1. Persons over 12 years of age ordinarily resident in Jamaica	\$200.00
2. Persons over 12 years of age not ordinarily resident in Jamaica	US\$20.00 or the equivalent in Jamaican currency
3. Children 12 years of age and under	\$50.00

## PART III

*Fee payable for camping in a designated campground*

Type of Pass	Amount of Fee
Camp fee	\$100.00 per night for each adult and child over the age of 12 years of age. \$50.00 per night for each child 6 to 12 years of age

Dated the 16th day of June, 2003.

DEAN PEART,  
Minister of Land and Environment.

No. 7011

**THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT****THE NATURAL RESOURCES (NATIONAL PARKS) (AMENDMENT) REGULATIONS, 2003**

In exercise of the power conferred upon the Minister by section 38(1)(h) of the Natural Resources Conservation Authority Act, the following Regulations are hereby made:—

1. These Regulations may be cited as the Natural Resources (National Parks) (Amendment) Regulations, 2003 and shall be read and construed as one with the Natural Resources (National Parks) Regulations, 1993, hereinafter referred to as the principal Regulations.

2. Regulation 5 of the principal Regulations is hereby amended by deleting from paragraph (2) the word "ten" and substituting therefor the word "fifty".

3. Regulation 12 of the principal Regulations is hereby amended by deleting from paragraph (2) the word "ten" and substituting therefor the word "fifty".

4. Regulation 13 of the principal Regulations is hereby amended by deleting from paragraph (5) the word "five" and substituting therefor the word "twenty".

5. Regulation 14 of the principal Regulations is amended:—

(a) by deleting paragraph (1) and substituting therefor the following:—

" (1) Any person who is desirous of:—

- (a) hiring or selling anything;
- (b) producing anything for hire or sale;
- (c) providing any service for reward;
- (d) carrying on any other commercial activity,

in a national park shall apply to the Authority, in such manner as the Authority may determine, for a commercial licence or a concession permit specified in paragraph (3), as the case may require."

(b) in paragraph (2) by:—

- (i) deleting the words "five thousand" and substituting therefor the words "forty thousand";
- (ii) renumbering the paragraph as paragraph (8);

(c) in paragraph (3) by:—

- (i) deleting the words "A park manager" and "his" and substituting therefor the words "The Authority" and "its", respectively;
- (ii) renumbering the paragraph as paragraph (9);

(d) by inserting next after paragraph (1) the following as paragraphs (2), (3), (4), (5), (6) and (7):—

" (2) An application for:—

- (a) a commercial licence shall be accompanied by an application fee of five hundred dollars; and
- (b) a concession permit shall be accompanied by an application fee of one thousand dollars.

(3) On receipt of an application under paragraph (1) the Authority may grant:—

- (a) a commercial licence; or
- (b) a concession permit,

to any person who made an application under paragraph (2) having regard to the following:—

- (i) the designated space to be allocated for the activity;
- (ii) the type of commercial activity;
- (iii) the gross annual earnings of the applicant;
- (iv) the size of operation and facilities that are provided by the Authority.

(4) A person shall pay to the Authority on the grant of:—

- (a) a commercial licence:—
  - (i) an annual licence fee of ten thousand dollars; or
  - (ii) a monthly licence fee of one thousand dollars; or
  - (iii) a weekly licence fee of two hundred and fifty dollars; or
- (b) a concession permit, a permit fee of five thousand dollars.

(5) A person to whom a concession permit is granted shall, in addition to the permit fee payable under paragraph (4) (b), pay an annual franchise fee calculated:—

- (a) as a fixed sum based on an estimate of gross earnings; or
- (b) as a percentage of the estimated profits to be made by,

the holder of the concession permit.

(6) The percentage of estimated profits referred to in paragraph 5 (b) shall be determined by the Authority on an annual basis.

(7) A concession permit granted under paragraph (3) may be granted for a period not exceeding three years and a commercial licence may be granted for a period of one week, one month or one year as the authority thinks fit.”

6. The principal Regulations are amended by inserting next after regulation 14 the following as regulation 14A:—

<sup>4</sup> Exclusive commercial activity 14A. Where the carrying on of a commercial activity under Regulation 14 involves the exclusive use of any part of a National Park, the location fee in respect to that activity, specified in Part B of the Schedule, shall be payable by the person carrying on the commercial activity.”

7. Regulation 16 of the principal Regulations is hereby amended:—

- (a) in paragraph (1) (b) by inserting immediately after the word “educational,” the word “commercial.”;
- (b) by deleting paragraph (3) and substituting therefor the following as paragraph (3):—

" (3) An application for a permit under paragraph (1) shall be in the form set out as Form A in Part A of the Schedule and shall be accompanied by a fee of:—

- (a) one thousand dollars, in the case of an application to conduct research or collect specimens for purposes other than commercial purposes; or
- (b) two thousand dollars in the case of an application to conduct research or collect specimens for purposes that are commercial; "
- (c) by renumbering paragraphs (4) and (5) as paragraphs (8) and (9) respectively; and
- (d) by inserting next after paragraph (3) the following as paragraphs (4), (5), (6) and (7):—

" (4) Where the application for a permit under paragraph (1) is approved, the applicant shall pay a fee of:—

- (a) three thousand dollars where the permit is for research or collection of specimens for purposes other than commercial; and
- (b) six thousand dollars where the permit is for research or collection of specimens for purposes that are commercial.

(5) An application shall be made in respect of each natural object or species of plants or animals.

(6) The Authority shall grant a permit to carry out research in the form set out as Form B in Part A of the Schedule.

(7) The Authority shall grant a separate permit in the form set out as Form C in Part A of the Schedule for each natural object and each species of plant or animal."

8. Regulation 24 of the principal Regulations is hereby amended by deleting therefrom the words "five thousand" wherever they appear and substituting therefor in each case the words "twenty thousand".

9. The principal Regulations are hereby amended by inserting next after regulation 29 the following as regulation 29A:—

" 29A. A park manager may designate and open hiking trails for use by the public for recreational purposes and may close such trails in the interest of public safety."

10. Paragraph (2) of regulation 32 of the principal Regulations is amended:—

- (a) by deleting the full stop at the end of sub-paragraph (b) and substituting therefor a semicolon; and



(b) by inserting next after sub-paragraph (b) the following:—

- “ (c) require the holder of a permit or licence to produce his permit or licence, as the case may be, for inspection;
- (d) seize any weapon, trap or device of any kind with which an offence appears to have been committed;
- (e) search any person whom he may reasonably have cause to suspect of contravening any provision of these Regulations.”.

11. The Principal Regulations are hereby amended by inserting next after regulation 25 the following as regulation 36:—

<sup>“Recovery of civil debts”</sup> 36. The Authority shall be entitled to recover any debt due to the Authority as a civil debt in a Resident Magistrate’s Court, notwithstanding any limitations as to amount recoverable under the Judicature (Resident Magistrates) Act.”.

SCHEDULE (Regulations 14A and 16)

PART A

FORM A (Regulation 16(3))

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES (NATIONAL PARKS) REGULATIONS, 1993

*Application for Permit to Carry Out Research or for the Collection of Natural Objects or Specimen Animal or Plant Life in a National Park*

A. *General Information*

1. Name of Applicant(s) \_\_\_\_\_

2. Postal Address of Applicant(s) \_\_\_\_\_

3. Telephone No(s) \_\_\_\_\_ Facsimile No(s) \_\_\_\_\_

E-mail Address \_\_\_\_\_

B. *General Projects Information*

4. Title of Project \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PART A, *contd.*

FORM A, *contd.*

5. Agency or Institution on behalf of which the Application is being made, if any:

\_\_\_\_\_

6. Name and Institutional Address of Principal Investigator:

\_\_\_\_\_

\_\_\_\_\_

7. Qualification of Principal Investigator:

\_\_\_\_\_

\_\_\_\_\_

8. Names and qualifications of Associates who will work on the project (attach very brief C.Vs):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

9. Why was Jamaica selected as the research site?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

C. *Research Project Information*

1. Give short description of the proposed research including its objectives (a copy or separate sheet may be attached if required):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PART A. *contd.*

FORM A. *contd.*

- 
- 
- 
- 
2. State precisely the proposed location of the project and the site(s) at which research will be conducted:

- 
- 
- 
- 
3. State the duration of the project:

4. Expected output at end of the project:
- 
- 
- 

5. What kinds of materials or information are to be collected or produced?

\_\_\_\_\_ Specimen or Sample Collection

\_\_\_\_\_ Recordings (Audio/Video)

\_\_\_\_\_ Photographs

\_\_\_\_\_ Written notes

\_\_\_\_\_ Computer entries

\_\_\_\_\_ Reports

\_\_\_\_\_ Articles and Scientific Papers

\_\_\_\_\_ Other outputs (specify) \_\_\_\_\_

6. Name the slated transitional and final destinations to which all information, results, specimens and materials are to be sent.
- 
- 
- 
-

PART A, *contd.*

FORM A, *contd.*

7 (a). Is your project meant to facilitate commercial, industrial or exclusively academic purposes?

7 (b). *NOTE: Commercial purposes here include but are not limited to:*

- (i) The use of samples or specimens, photographic and audio-visual materials and illustrations, for commercial purposes.
- (ii) Chemical, pharmacological and biotechnological study.
- (iii) The use of materials or specimens for propagation or breeding purposes.

Academic purposes here refer to only taxonomic, conservation, ecological and biogeographical investigations.

8. Proposed linkage(s) with local institution(s), if any. (State whether each institution has been formally approached and indicated (very briefly its response).

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9. Indicate any training component for local counterparts:

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---

10. Do you intend to conduct research on lands legally owned or occupied by indigenous or local communities? If so, where?

---

---

---

---

11. Please state briefly how Jamaica will benefit from the research including levels of compensation be they in the short, medium or long term which will accrue to Jamaica (e.g. cash, sharing of future research, production possibilities, royalties, equipment and materials, etc.):

---

PART A, *contd.*

FORM A, *contd.*

---

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D. *Collection of Specimens*

Researchers desiring to collect specimens should provide the following information:

1. What are the scientific and common names of the organisms to be collected (if any are endemic to Jamaica or non-classified, i.e. a new species, please state):

---

---

---

2. Indicate the total number of specimens of each species which is required for collection (If animals are to be collected, state sex):

---

---

3. Number of specimens to be collected:  alive  dead

- 4a. Frequency of collection:

weekly  monthly  quarterly  semi-annually  annually

- 4b. Please indicate the collection period:  Day  Month  Year

- 5a. Method of collection to be employed:

---

---

---

---

- 5b. Experience in collection of specimen:

---

---

---

PART A, *contd.*FORM A, *contd.*

6. Method of storage/transportation of specimen: \_\_\_\_\_

7. Purpose for which specimens are to be collected: \_\_\_\_\_

8. If specimens are to be exported, indicate the institution at which they are to be deposited: \_\_\_\_\_

9. Specimens will be:

a. Deposited in a national institution:  yes  no

If yes, name and address of institution: \_\_\_\_\_

b. Used for laboratory experiments:  yes  no

If yes, name and address of institution: \_\_\_\_\_

c. Re-introduced:  yes  no

If yes, name of location: \_\_\_\_\_

*I/We hereby apply for permission to conduct this research and I/We agree to submit to the Natural Resources Conservation Authority (NRCA) two (2) copies of all publications and/or other written reports arising from this research. I/We also understand that depending on the type of research to be conducted in Jamaica a Material Transfer Agreement may need to be negotiated.*

\_\_\_\_\_  
*Signature of Applicant*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Endorsed by*

\_\_\_\_\_  
*Date*

FORM B

(Regulation 16(6))

## THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

## THE NATURAL RESOURCES (NATIONAL PARKS) REGULATIONS, 1993

*Permit to Conduct Research*

Permit No.: \_\_\_\_\_

Pursuant to an application under regulation 16 (5) of the Natural Resources (National Parks) Regulations, 1993 the Authority hereby grants a permit to:—

Name of Permittee \_\_\_\_\_

Address of Permittee \_\_\_\_\_

Type of Research \_\_\_\_\_ in \_\_\_\_\_

Name and Location of Research Site \_\_\_\_\_

\_\_\_\_\_ Parish \_\_\_\_\_

For the purpose herein mentioned \_\_\_\_\_

Objectives \_\_\_\_\_

Type of specimen \_\_\_\_\_

Valid from \_\_\_\_\_ to \_\_\_\_\_

This Permit is subject to the conditions contained in the Schedule.

Any contravention of any condition(s) may result in suspension or revocation of this Permit.

*N.B.: A person who carries out any form of research or collects any object, specimens animals or plant life in a National Park without a valid permit commits an offence under Regulation 16 (8) of the National Parks Regulations.*

## SCHEDULE

(Specify conditions)

Dated

SEAL

\_\_\_\_\_  
*Authorized Officer*

FORM C

(Regulation 16 (7))

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT  
THE NATURAL RESOURCES (NATIONAL PARKS) REGULATIONS, 1993  
*Permit to Conduct Collection of Natural Objects and Specimens  
of Plants or Animals within the National Park*

Permit No. \_\_\_\_\_

Pursuant to an application under regulation 16 (5) of the Natural Resources (National Parks) Regulations 1993, the Authority hereby grants a permit to:—

Name of Permittee \_\_\_\_\_

Address of Permittee \_\_\_\_\_

To carry out research in \_\_\_\_\_

Location of Research Site \_\_\_\_\_ Parish \_\_\_\_\_

For the purpose herein mentioned \_\_\_\_\_

To collect \_\_\_\_\_ specimens

Type of specimens/objectives \_\_\_\_\_

Valid from \_\_\_\_\_ to \_\_\_\_\_

This Permit is subject to the conditions in the Schedule.

Any contravention of any condition (s) may result in suspension or revocation of this Permit.

*N.B.: A person who carries out any form of research or collects any object, specimens of animal or plant life in a National Park without a valid permit commits an offence under regulation 16(8) of the National Parks Regulations.*

SCHEDULE

(Specify conditions)

Dated

SEAL

\_\_\_\_\_  
*Authorized Officer*



## PART B

(Regulation 14A)

*Activities and Location Fee payable in respect of Research*

The location fees referred to are:—

(a) concerts, parties and any other such activities	\$60,000.00
(b) the making of commercial films/television, documentaries or advertisements	\$75,000.00
(c) weddings and sporting events	\$30,000.00

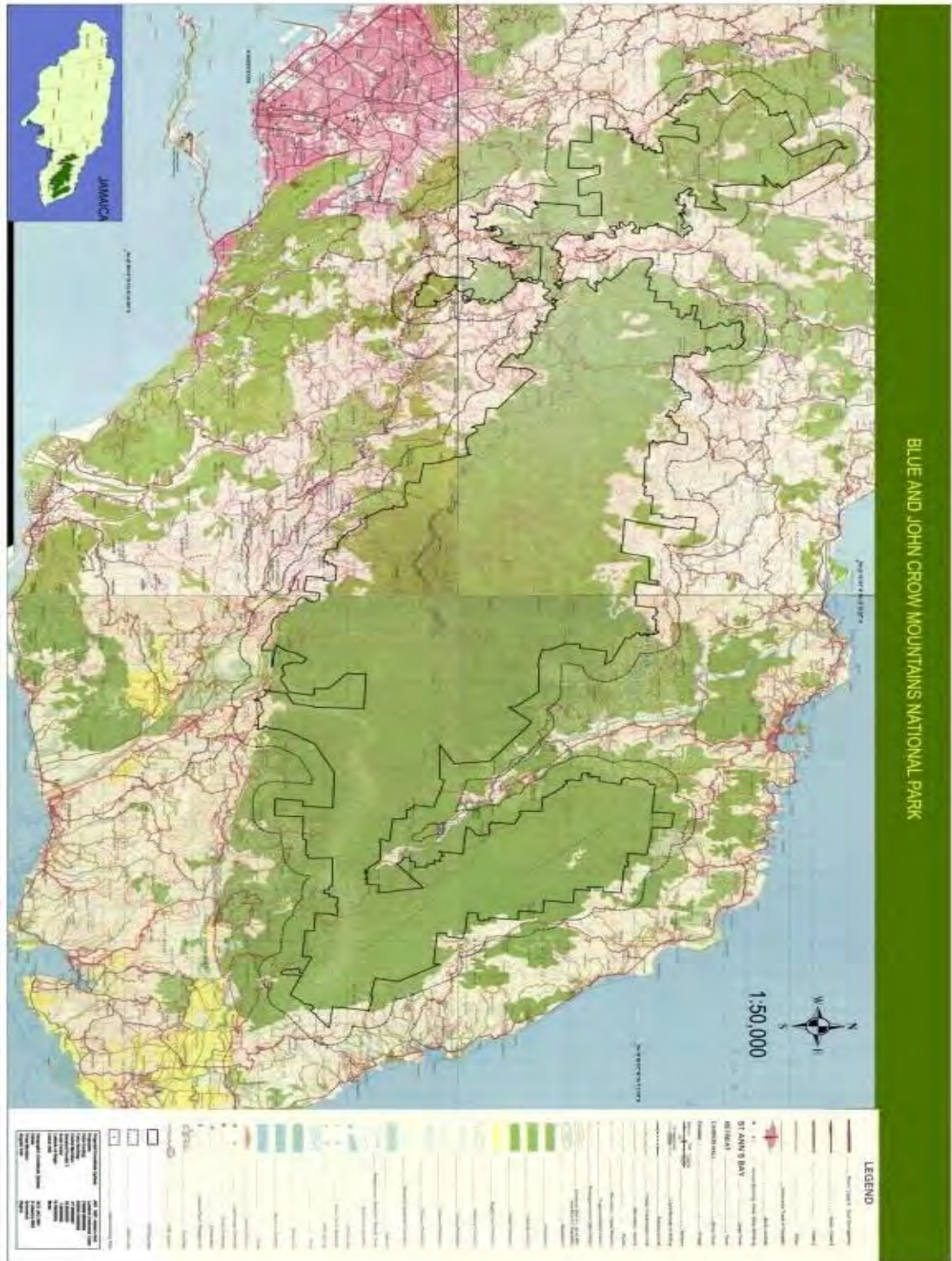
Dated this 16th day of June, 2003.

DEAN PEART,  
Minister of Land and Environment

No. 701

# APPENDIX 18

## Map of the BJCMNP



# GLOSSARY

**Protected Area** - A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values

**Buffer zone** - a one km band outside of the park along the park boundary

**Community buffer zone** - a one km band outside of the park along the park boundary

**Endemic** - the ecological state of being unique to a defined geographic location

**Rare** - seldom occurring or found

**Biodiversity** - the numbers of different species of plants and animals in an environment

**Stakeholder** - one who is involved in or affected by a course of action

**Participatory Process** - specific method(s) employed to achieve active participation by all members of a group in a decision making process

**Cultural heritage** - the things, places and practices that define who we are as individuals, as communities, as nations or civilisations and as a species. It is that which we want to keep, share and pass on

**Maroon** - a fugitive black slave of the West Indies and Guiana in the 17th and 18th centuries; *also* : a descendant of such a slave

**Closed broadleaf forest** – forest dominated by angiosperms, with a high proportion of stand covered by the crowns of live trees

**Co-management** - to manage jointly

**Ecology** – the branch of biology dealing with the relations and interactions between organisms and their environment, including other organisms

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Watershed Protection Act, 1963

Wild Life Protection Act, 1945

The Cultural and Natural Heritage  
of the  
**Blue and John Crow  
Mountains**

**JNET  
Preservation  
Scheme**



# DRAFT PRESERVATION SCHEME

## JAMAICA NATIONAL HERITAGE TRUST ACT

### BLUE & JOHN CROW MOUNTAIN CULTURAL HERITAGE SITE

#### (PROTECTED NATIONAL HERITAGE)

In exercise of the powers conferred upon the Jamaica National Heritage Trust by section 21 of the Jamaica National Heritage Trust Act, the following Preservation Scheme is hereby made:-

#### *Preliminary*

1. This Preservation Scheme may be cited as the Blue and John Crow Mountain Cultural Heritage Site Preservation Scheme, 2014.

#### **Interpretation**

- 2 (1) In this Preservation Scheme unless the context otherwise requires:-

“authority” means the co-management government agencies under whose Acts designate the site a Protected Area and as such have authority to issue permits relating to the site

“authorized officer” means a person designated as such by the Authority, any member or officer of the Jamaica National Heritage Trust, the Jamaica Constabulary Force, a person appointed a forest officer under the Forest Act, any person appointed a park manager or designated a national park ranger,

“controlled area” means the property described in the Schedule, Parts I and II, and any additions thereto made under the provisions of this scheme,

#### **Schedule**

“development “ means :-

- (a) the alteration , removal , repair, restoration or demolition of or addition to, anything or place designated protected national heritage; or

(b) the carrying out of building, engineering or other operations in, on, over, or under any protected national heritage or the making of any material change in the structure, appearance or use of any such protected national heritage.

“endangered species” means any animal or plant species threatened with extinction which are or likely to be affected by trade or whose survival is likely if any factor which threatens its extinction continues to operate

“Park” means the Blue and John Crow Mountains National Park, the boundaries of which are set out in the Natural Resources Conservation (Blue and John Crow Mountains National Park) (Declaration ) Order, 1993.

“protected national heritage” means:-

- (a) any place name;
- (b) any species of animal or plant life;
- (c) any place or object (not declared by the Trust to be a national monument), designated by the Trust to be a protected national heritage;

“the Trust” means the Jamaica National Heritage Trust established by section 3 of the Jamaica National Heritage Trust Act, 1985;

(2) Any reference in this Scheme to Core and Buffer shall be construed as reference to the inner and outer zones within the Controlled Area, respectively, and is so designed for improving efficient Management Plan implementation and monitoring

Controlled  
Area

- 3. The area set out in Part 1 of the Schedule hereto, which is delineated on the map set out in Part II thereof, being designated Protected National Heritage under the Jamaica National Heritage Trust Act (the Controlled Area) is regulated by this Scheme.
- 4. The provisions of this scheme shall be in addition to, and not in derogation of, or in substitution for –
  - (a) the Forest Act and regulations;
  - (b) the Natural Resource Conservation Act;
  - (c) the Natural Resources (National Parks) Regulations, 1993

Archaeological  
Works

5. (1) A person shall not, except with the written permission or permit of the Authority, in the Controlled Area:-

- (a) Excavate and uncover any archaeological feature
- (b) remove and transport any surficial or excavated artefacts or ecofacts
- (c) conduct extrusive or intrusive archaeological survey or study
- (d) camp on any archaeological site

(2) A person shall not deface any rock art, burial cave, or any natural feature associated with a significant historical event or personality.

(3) A person shall not receive, sell, or otherwise dispose of any artefacts or ecofacts knowing it to have been unlawfully removed from the Controlled Area.

(4) Any person who contravenes paragraphs (1) , (2) and (3) commits an offence and is liable to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues.

6. (1) The removal of fauna, flora and any other natural resources from the *Core* of the Controlled Area without a permit from the authority is prohibited

Removal of flora  
and Fauna

(2) The authority may grant a permit for the collection of natural objects or species of animal or plant from the Controlled Area for:-

- (a) the implementation of the Management Plan
- (b) Environmental purposes,
- (c) educational or scientific pursuits

7. (1) The authority may, on such terms as it thinks fit, grant a permit for the carrying out of research in the Controlled Area.

Research

(2) The authority shall not grant a permit under paragraph (1) where the research is likely to damage the biosphere or interfere with the management of the fauna and flora.

(3) A person who carries out any form of research in the Controlled Area without a permit issued by the authority contravenes paragraph (1), and is liable on summary conviction before a Resident Magistrate to a fine not



exceeding five hundred dollars for every day on which the contravention occurs or continues.

**Fishing** 8. (1) A person shall not fish in any water body located within the *Core* of the Controlled Area, except in accordance with the implementation of aspects of the management Plan.

(2) The authority may grant permission to fish in waters in the Buffer Zone; subject to conditions related to the kind of fish or other aquatic organisms which may be caught.

(3) A person shall not use any poisonous substance, electrical charge, explosive or any similar device for the catching or killing fish, crawfish, janga, busu and other aquatic creatures.

(4) A person who contravenes paragraphs (1), (2) or (3) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues.

**Hunting** 9. (1) Except with the written permission or permit of the Authority, a person shall not:-

(a) catch, collect, hunt, shoot or kill any bird or other wild life or

(b) carry or transport any weapons in the core of the Controlled Area .

(2) Any person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues.

**Quarry and Mining** 10. (1) A person shall not, except with the written permission or permit of the Authority, dig and remove any sand , gravel, rock, stone or mineral from the Controlled Area.

(2) The Authority shall not grant a permit for quarrying or mining in the buffer of the Controlled Area where such activity is likely to damage the biosphere or interfere with the management of cultural heritage of the site.

(3) If any person contravenes paragraph (1) he shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues

Forest Fires

- 11.** (1) A person shall not light or make use of any open fire or charcoal kiln in the Core or area designated under the Forestry Act and the NRCA Act, except in compliance with a burning permit issued by the Authority.
- (2) Paragraph (1) shall not apply anywhere in the Controlled Area where the fire is being used:-
- (a) for the purpose of cooking in accordance with standards established by the Authority, or
  - (b) by an authorized person for the purpose of suppressing or controlling fire.
- (3) Except for the purpose of starting a fire in accordance with this Preservation Scheme or the Management Plan, a person shall not:-
- (a) drop a burning substance in an area designated by the Forestry Act and the NRCA Act.
  - (b) in the area designated by the Forestry Act and the NRCA Act, smoke a lighted cigarette, cigar, pipe or any other matter used for smoking.
- (4) A person who contravenes paragraph (1) and (3) shall take all reasonable steps to extinguish the burning substance. Failure to carry out necessary corrective measures, the person shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues

Signs

- 12.** (1) A person shall not, except with the written permission of the Authority, erect, exhibit, display or cause to be erected, exhibited or displayed in the Controlled Area any notice, sign, slogan or other device containing any advertising or other kind of message.
- (2) A person shall not, except with the written permission of the Authority, remove, damage, obscure or otherwise interfere with a notice, sign, slogan or other device, erected by the Authority in the Controlled Area.
- (3) The Authority may authorize the erecting, placing or displaying of signs for the purpose of :-
- (a) regulating, prohibiting or restricting the stopping or parking of vehicles, or defining the manner in which vehicles may be parked.

- (b) designating a part of the Controlled Area as an area within which the parking of vehicles are permitted.
  - (c) designating a part of the Controlled Area as an area within which camping is permitted.
- (4) A sign erected for the purpose of designating a part of the Controlled Area as an area within which the parking of vehicles is permitted shall bear the words “PARKING AREA”
- (5) A sign erected for the purpose of designating a part of the Controlled Area as an area within which camping is permitted shall bear the words “BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK DESIGNATED CAMP SITE”
- (6) A person who contravenes paragraph (1) or (2), or willfully defaces, destroys, damages, obliterates, pulls up, removes, obscures or otherwise interferes with any signs erected, placed or displayed pursuant to paragraph (3) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding forty thousand dollars or to imprisonment, and in addition, such person may be ordered to pay the cost of replacement of any such signs, mark or notice and in default of payment of such cost, to be imprisoned with hard labour for a further term not exceeding 12 months.
- 13.** (1) A person shall not, in the core of the Controlled Area:-
- (a) deposit or leave any litter, broken glass, plastic article, rubbish or other waste material, except in an area or a receptacle provided for that purpose.
  - (b) deposit or discharge any noxious, offensive or polluting substance, matter or thing
  - (c) Deposit or dumping of garbage
- (2) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or
- 14.** (1) An authorized officer of the Trust, after giving reasonable notice in writing to the occupier of his intension so to do and production of his authority if so required by or on behalf of the occupier, may enter for

the purpose of investigation, inspection or maintenance, at all reasonable times upon any land or building which is a national monument or contains a protected national heritage.

- (2) Where any person enters any land or building for the purpose of investigation, inspection or maintenance in accordance with paragraph (1) he shall have the power to do all such things as he considers necessary for the purpose of such investigation, inspection or maintenance, and, without prejudice to the generality of the foregoing, may make excavation on the land.
- (3) Where any excavation is made on land pursuant to paragraph (2) the Trust Shall, within a reasonable time after the completion of such excavation take such steps as may be necessary to restore the land to the condition which existed immediately before the excavation was made, unless the Trust is satisfied that the excavation forms part of the national monument.
- (4) If any person willfully obstruct or hinders any person duly authorized by the Trust in the exercise of the power conferred by section 23 of JNHT Act, he shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars.

# **SCHEDULE**

## **PART 1.**

### ***Blue and John Crow Mountain Cultural Heritage Site (Controlled Area)***

All that parcel of land known as the Blue and John Crow Mountains National Park and the Rio Grande Valley and located in parts of the parishes of St. Andrew, St. Thomas, Portland and south-east St. Mary; the boundary begins at Warminster District on the Parish border of Portland and St. Mary where it travels northward along the Warminster to Belmont main road, then turns northwest through Robertsons Run, then turns south to Dumfries. At Dumfries it assumes a southwest trajectory passing north of Hermitage and Leith Hall where it continues south, then southwest along Brandon Hill to Mount Prospect main road. At Mount Prospect, it veers off the road alignment passing between Mount Crissy and Mount Airy, then proceeding in a generally southerndirection where it passes through Dick Pond, Woodford and Craigton before turning north through Redlight and then circumventing New Castle, traversing lands east of Settlement ,north of Sugar Loaf Trail and west of St. Peters, looping south of Silver Hill Gap and continuing on an eastward trajectory. It then passes south of Chestervale, circumventing Strawberry Hill to the north before passing Abbey Green, Radnor, Eccleston, and Arntully to the northeast where it traverses Neurington, Newsfield, and Shirley Castle and continues on a southeast trajectory along the Morant River (Blue Mountain Valley) to Hillside. The boundary then arches the districts of Cave Bottom and Craighead to the north and proceeds to House Hill, passing north of Mount Donald and traversing Cedar Grove Where it swings north to Big Level just north of Johnson Mountain. At this point it travels in a generally northwesterly direction through Rose Garden Mountain to Cambridge Backland then west to Windsor and north along the Rio Grande west bank to Fellowship where it travels in a westerly direction along Cooper's Hill to Durham main road. Just south of Burton Hall the boundary continues in a generally westerly direction to Trafalgar Plantation where it diverts northwards to the Cottage and Berwick Spring then turns south through Leighfield and passes east of Spring Hill, Wakefield and (Cedar Valley before swinging north again through Green Hill, Biramwood Retreat, Dry River and back to Warminster.

# SCHEDULE cont.

## PART 11.

### *Blue and John Crow Mountain Cultural Heritage Site (Controlled Area)*



# **THE JAMAICA NATIONAL HERITAGE TRUST ACT,**

**1985**

**(Act 8 of 1985)**

## **ARRANGEMENT OF SECTIONS**

### ***Preliminary***

1. Short title and commencement.
2. Interpretation.

### ***The Jamaica National Heritage Trust***

3. Establishment and constitution of Trust
4. Functions of Trust.
5. Funds of Trust.
6. Travelling expenses, etc.
7. Borrowing powers
8. Accounts and audit.
9. Annual report.
10. Appointment of officers and servants.
11. Protection of members of Trust.

### ***Protection of national monuments and national heritage***

12. Duty of Trust to declare and publish list of monuments.
13. Designation of protected national heritage.

14. Compensation.
15. Protection from disrepair.
16. Owner of national monument or protected national heritage not to alter without approval.
17. Destroying monuments, mark, etc.

### ***Control and development of national monument and protected national heritage***

18. Gifts, devise or bequest of protected national heritage or national monument to Trust.
19. Preservation notice.
20. Effect of and compensation for preservation notices.

### ***Developments of national monuments and places designated to be protected national heritage***

21. Preservation schemes.
22. Trust may grant permission for development works.
23. Power of Trust to enter on lands.

### ***Miscellaneous***

24. Service of documents.
25. Exemption from stamp duties, taxes, etc.



26. Treatment of amount spent by owner of protected national heritage for purposes of income tax.

27. Capital allowances in respect of national monument.

28. Regulations.

29. Repeal and savings.

30. Amendment of Institute of Jamaica Act.

## **SCHEDULES.**

NO. 8-1985

I assent,

F. A. GLASSPOLE,  
Governor-General.

28th day of May 1985.

AN ACT to Repeal and replace the Jamaica National Trust Act, to change the name of the Jamaica National Trust, and to make new provisions for the operation of the Trust and to provide for matters incidental thereto or connected therewith.

(The date notified by the Minister bringing the Act into operation)

BE IT ENACTED by The Queen's Most Excellent Majesty, by and with the advice and consent of the Senate and House of Representatives of Jamaica, and by the authority of the same, as follows:-

## *Preliminary*

1 - This Act may be cited as the Jamaica National Heritage Trust Act, 1985, and shall come into operation on a day to be appointed by the Minister by notice published in the *Gazette*.

2 - (1) In this Act unless the context otherwise requires-

"development" means -

- (a) the alteration, removal, repair, restoration or demolition of or addition to, any national monument; or
- (b) the carrying out of building, engineering or other operations in, on, over or under any national monument or the making of any material change in the structure, appearance or use of any such national monument;

"functions" includes powers and duties;

"local authority" means-

- (a) in relation to the parishes of Kingston and St. Andrew, the Council of the Kingston and St. Andrew Corporation; and
- (b) in relation to any other parish, the Parish Council of such parish;

"Maintenance" includes the fencing, repairing and covering of a national monument and the doing of any other act or thing which may be required, for the purpose of repairing the national monument or protecting it from decay or injury, and the expression "maintain" shall be construed accordingly;

"national monument" means -

- (a) any building, structure, object or, other " work of man or of nature or any part or remains thereof whether above or below the surface of the land or the floor of the sea within "the territorial waters of the Island or within an area declared in an order made, under subsection (2) to be within the maritime resource jurisdiction of the Island;
- (b) any site, cave or excavation, or any part or remains thereof,  
declared by the Trust to be a national monument "occupier" includes any person engaged in any development or maintenance works in, or, over or

under any national monument; "owner" means the person in whom is vested the freehold interest in the site of the protected national heritage;

"protected national heritage" means-

- (a) any place name;
  - (b) any species of animal or plant life;
  - (c) any place or object (not declared by the Trust to be a national monument), designated by the Trust to be a protected national heritage; "the Trust" means the Jamaica National Heritage Trust established under section 3.
- (2) Subject to any relevant international Convention to which Jamaica is a party the Minister may by order declare any area of the sea defined in the order, not being an area included in the territorial sea of Jamaica or its continental shelf, to be within the sovereign jurisdiction of Jamaica for the purposes of this Act.
- (3) Nothing in subsection (2) shall be construed as limiting in any way the sovereign rights of Jamaica under general international law including the United Nations Convention on the Law of the Sea.

### ***The Jamaica National Heritage Trust***

- 3--** (1) There shall be established a Trust to be known as the Jamaica National Heritage Trust which shall be a body corporate with perpetual succession and a common seal and with power to purchase, hold, deal with and dispose of land and other property whether real or personal: Provided that the Trust shall not transfer, mortgage charge or dispose of any land without the approval of the Minister.
- (2) The Trust shall consist of fifteen members of whom
- (a) three members shall be the Government Town Planner, the Commissioner of Lands and the Chief Executive Officer of the Trust who shall be *ex officio* members;
  - (b) one member shall be a representative of the Institute of Jamaica and shall be appointed by the Minister from a panel of three persons nominated by the Board of Governors of that Institute;

- (c) one member shall be a representative of the Jamaica Historical Society and shall be appointed by the Minister from a panel of three persons nominated by that Society;
  - (d) one member shall be a representative of the Jamaica Archaeological Society and shall be appointed by the Minister from a panel of three persons nominated by that Society;
  - (e) one member shall be a representative of the University of the West Indies and shall be appointed by the Minister from a panel of three persons nominated by that body;
  - (f) one member shall be a representative of the Jamaica Institute of Architect's and shall be appointed by the Minister from a panel of three persons nominated by that Institute; and
  - (g) seven members shall be appointed by the Minister from among persons appearing to the Minister to be suitably qualified for such appointment.
- (3) The appointment of every member of the Trust other than the *ex officio* members shall be evidenced by instrument in writing, and such instrument shall state the period of office of the member which shall not exceed three years.
  - (4) Every member of the Trust shall be eligible for reappointment.
  - (5) The Minister shall appoint one of the members of the Trust to be chairman, and in the case of the absence or inability to act of the chairman the Minister may appoint any other member to perform the function of the chairman.
  - (6) The seal of the Trust shall be authenticated by the signatures of the chairman and any other one member of the Trust authorized to act in that behalf and such seal shall be officially and judicially noticed.
  - (7) All documents, other than those required by law to be under seal, made by, and all decisions of, the Trust may be signified under the hand of the chairman or any other member of the Trust authorized in that behalf.
  - (8) The Trust may sue and be sued in its corporate name and may for all purposes be described by such name.
  - (9) No act or proceeding of the Trust shall be questioned on account of any vacancy in the membership there-of; and no defect in the appointment of

any member of the Trust shall vitiate any proceedings thereof.

- (10) The Trust shall have power to regulate its *own* proceedings.
- (11) The chairman shall preside at meetings of the Trust, and if the chairman and the person appointed to perform the function of chairman pursuant to subsection (5) are absent from a meeting the members of the Trust present shall elect one of their number to preside at the meeting.
- (12) The names of all members of the Trust as first constituted and every change in the membership thereof shall be published in the *Gazette*.

4-- (1) The functions of the Trust shall be-

- (a) to promote the preservation of national monuments and anything designated as protected national heritage for the benefit of the Island;
- (b) to conduct such research as it thinks necessary or desirable for the purposes of the performance of its functions under this Act;
- (b) to carry *out* such development as it considers necessary for the preservation of any national monument or anything designated as protected national heritage;
- (d) to record any precious objects or works of art to be preserved and to identify and record any species of botanical or animal life to be protected.

(2) The Trust shall, for the purposes of the discharge of its functions under subsection (1) (d), keep a register which shall be open for inspection by the public upon payment of such *fee* as may be prescribed.

(3) For the purpose of the discharge of its functions under this Act the Trust may, subject to the provisions of this Act, do anything and enter into any transaction which, in the opinion of the Trust, is necessary to ensure the proper performance of its functions and, without prejudice to the generality of the foregoing, may make such grants or loans (whether with or without security) as the Trust considers necessary.

5-- (1) The funds and resources of the Trust shall consist of---

- (a) such sums as may be provided annually for the purpose in the Estimates of Revenue and Expenditure of the Island;

- (b) all other sums or property which may in any manner become payable to or vested in the Trust in respect of any matter incidental to its powers and duties.
- (2) The expenses of the Trust (including any remuneration of the members and staff thereof) shall be paid out of the funds and resources of the Trust.
- 6--**
  - (1) Travelling expenses actually incurred by members of the Trust and a subsistence allowance when attending meetings of the Trust or when travelling on official tours of inspection approved by the Trust may be reimbursed from the funds of the Trust.
  - (2) The rates of travelling allowance and subsistence allowance shall be such rates as the Minister may approve.
  - (3) The Trust may with the approval of the Minister enter into arrangements with any member of the Trust for the payment of an allowance to such member for giving technical advice on or for supervising repairs to or preserving or treating national monuments or protected national heritage.
- 7--**
  - (1) Subject to the provisions of this section, the Trust may borrow sums required by it for meeting any of its obligations or discharging any of its functions.
  - (2) The power of the Trust to borrow shall be exercisable only with the approval of the Minister responsible for finance, as to the amount, as to the sources of the borrowing and as to the terms on which the borrowing may be effected, and an approval given in any respect for the purposes of this subsection may be either general or limited to a particular borrowing or otherwise, and may be either unconditional or subject to conditions.
- 8--**
  - (1) The Trust shall keep proper accounts and other records in relation to the business of the Trust and shall prepare annually a statement of accounts in a form satisfactory to the Minister, being a form which shall conform with best commercial standards.
  - (2) The accounts of the Trust shall be audited annually under such arrangements and in such manner as may be approved by the Auditor-General and the members, officers and servants of the Trust shall grant to the person conducting such audit access to all the books, documents, cash and securities of the Trust and shall give to him on request all such information as shall be within their knowledge in relation to the operation

of the Trust.

- (3) The auditor's fees and any expenses of the audit shall be paid by the Trust.
  - (4) Within three months after the expiration of each financial year or within such further time as may be allowed by the Minister, the Trust shall send the statement of its accounts referred to in subsection (1) to the Minister, together with a copy of any report made by the auditor on that statement and on the accounts of the Trust.
  - (5) The Auditor-General shall be entitled, on the direction of the Minister, at all reasonable times to examine the accounts and other records in relation to the business of the Trust.
- 9-** (1) The Trust shall, within three months after the expiration of each financial year or within such further time as may be allowed by the Minister, cause to be made and transmitted to the Minister a report dealing generally with the activities of the Trust during that financial year.
- (2) The Minister shall cause a copy of the report together with the annual statement of accounts and the auditor's report thereon and on the accounts to be laid on the Table of the House of Representatives and of the Senate.
- 10--** (1) The Trust may appoint and employ at such remuneration and on such terms and conditions as it thinks fit, a Chief Executive Officer, a Secretary and such officers, agents and servants as it deems necessary for the proper carrying out of the provisions of this Act:

Provided that-

- (a) no salary in excess of the prescribed rate per annum shall be assigned to any post without the prior approval of the Minister; and
  - (b) no appointment shall be made to any post to which a salary in excess of the prescribed rate is assigned without the prior approval of the Minister.
- (2) In subsection (1) the prescribed rate means a rate of fifteen thousand dollars per annum or such higher rate as the Minister may, by order, prescribe.
- (3) The Governor-General may, subject to such conditions as he may impose, approve the appointment of any officer in the service of the Government

to any office with the Trust and any officer so appointed shall, while so employed, in relation to any pension, gratuity or other allowance, and in relation to other rights as a public officer, be treated as continuing in the service of the Government.

- (4) It shall be lawful for the Trust, with the approval of the Minister-
- (a) to enter into arrangements respecting schemes whether by way of insurance policies or not;
  - (b) to make regulations, for pensions, gratuities and other retiring or disability or death benefits relating to members and employees of the Trust and such arrangements or regulations may include provisions for the grant of benefits to the dependants and the legal personal representatives of such members or employees.
- 11-- (1) No action, suit or other proceedings shall be brought or instituted personally against any member of the Trust in respect of any act done *bona fide in pursuance or* execution or intended execution of this Act.
- (2) Where any member of the Trust is exempt from liability by reason only of the provisions of this section the Trust shall be liable to the extent that they would be if the said member was a servant or agent of the Trust.

### ***Protection of national monuments and national heritage***

- 12- (1) The Trust may in accordance with the First Schedule from time to time declare to be a national monument any structure the preservation of which is, in the opinion of the Trust, a matter of public interest by reason of the historic, architectural, traditional, artistic, aesthetic, scientific or archaeological interest attaching thereto.
- (2) The Trust shall, in each year, cause to be published in the *Gazette* a list (hereinafter referred to as "the list") of all national monuments in the Island for the time being declared by the Trust pursuant to subsection (1).
- (3) The *Trust* shall cause to be placed on a conspicuous part of each national monument included in the list a mark identifying the monument.
- (4) Where any structure is declared a national monument the Trust shall notify the Registrar of Titles of any registered titles known to the Trust to be affected by the declaration and shall cause a copy of the declaration to be



served on the Registrar of Titles who shall forthwith note on those registered titles the fact of the declaration having been made.

- (5) The Trust shall notify the Deputy Keeper of the Records of any national monument the title to which is not under the Registration of Titles Act.
  - (6) In this section and in sections 19 and 20 structure includes any building, structure, object or other work of man or nature whether above or below the surface of the land or the floor of the sea within the territorial waters of the Island, or any area declared in any order made under section 2 (2) to be within the maritime resource jurisdiction, and any site, cave or excavation.
- 13--** (1) The Trust may, for the purposes of this Act, designate--
- (a) any place name, thing or any species of animal or plant life;  
or
  - (b) any place or object which has not been declared a national monument, to be a protected national heritage
- (2) The Trust shall, in relation to any thing which is designated protected national heritage pursuant to subsection (1)---
- (a) in the case of a species of animal or plant life, published annually in a daily newspaper published in the Island, a list of such animal or plant life;
  - (b) where appropriate in the case of a place or object, cause to be placed on a conspicuous part of the place or object a mark identifying the place or object as protected national heritage;
  - (c) in the case of any moveable objects-
    - (1) notify the owner thereof of the designation of the object as protected national heritage and the time and manner in which the owner may object to such designation;
    - (ii) publish annually in a daily newspaper published in the Island a list of such objects.
- (3) The provision of the first schedule shall *mutatis mutandis* apply to any objections made to the designation of any object referred to in subsection (2) (c).

- 14--** (1) Where the owner of -----
- (a) a national monument declared as such pursuant to section 12 (1);  
or
  - (b) a protected national heritage designated as such pursuant to section 13 (1), suffer, financial loss (whether actual or by diminution in value) as a result of such declaration or designation, such owner shall be entitled to receive such compensation as may be appropriate in the circumstance.
- (2) The provisions of subsection (3) of section 20 shall, *mutatis mutandis*, apply to compensation under this section.

**15-** Where the Trust is of the opinion that action should be taken to prevent a national monument or protected national heritage from falling into a state of disrepair, it shall be lawful for the Trust-

- (a) to notify the owner or person in possession that the protected national heritage or national monument is in need of repair;
- (b) to provide such assistance as may be necessary (whether financial or otherwise) to the owner or person in possession for the purpose of maintaining it; or
- (c) to maintain the protected national heritage or national monument.

**16--** (1) An owner or person in possession of-

- (a) a national monument shall not demolish, remove or alter any such monument or carry out any development thereof without the prior written approval of the Trust;
  - (b) a protected national heritage shall not demolish, remove or alter *it* without the prior written approval of the Trust.
- (2) Any owner of a national monument or protected national heritage who contravenes subsection (1) shall be guilty of an offence and shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding twenty thousand dollars or to imprisonment for a term not exceeding two years or to both such fine and imprisonment and in addition, the Court may order him to pay the costs of restoring such monument or protected national heritage and in default of payment of such costs, he may be imprisoned for a term not exceeding twelve months.

- 17- Every person who-
- (a) willfully defaces, damages or destroys any national monument or protected national heritage;
  - (b) willfully defaces, destroys, conceals or removes any mark or notice affixed thereto or connected there with;
  - (c) alters any national monument or mark without the written permission of the Trust;
  - (d) removes any national monument or protected national heritage to a place outside of Jamaica or causes it to be so removed, shall be guilty of an offence and on summary conviction before a Resident Magistrate be liable to a fine not exceeding forty thousand dollars or to imprisonment for a term not exceeding two years or to both such fine and imprisonment, and in addition, such person may be ordered to pay the cost of replacement of any such monument, mark or notice and in default of payment of such cost, to be imprisoned with hard labour for a further term not exceeding twelve months.

***Control and development of national monument and protected national heritage***

- 18- Any person may, by deed or will, give, devise, or bequeath to the Trust all such estate or interest in any protected national heritage or any national monument as he may be seized or possessed of, and the Trust may accept such gift, devise or bequest if it thinks it expedient to do so.
- 19- (1) Where the Minister is satisfied in relation to any structure-
- (a) that it is of such a nature that, although not declared a national monument the Trust has reasonable grounds for believing that it could be so declared; and
  - (b) that it is in danger of destruction or removal or damage from neglect of injudicious treatment, the Minister may, upon the advice of the Trust, serve a notice (in this Act referred to as a "preservation notice") on the owner and, if the owner is not the occupier, on the occupier of the structure, stating that it will be under the protection of the Minister under this Act while the notice

is in force.

- (2) Where the Minister serves a preservation notice he shall specify the period (not exceeding six months) during which the notice is to remain in force and shall cause a copy thereof to be fixed on some conspicuous part of the structure.
- (3) Where a notice is served under subsection (1), the Trust may, by written authorization signed on its behalf by a member of the Trust, authorize any person (including a member of the Trust) to inspect the structure, and any person so authorized may at reasonable time, on production by him of the authorization if so required, enter any premises for the purpose of inspecting the structure:

Provided that, unless the Trust considers that the inspection of the structure is a matter of urgent necessity, it shall give reasonable notice in writing of the proposed inspection to the occupier of the premises which are to be entered.

- (4) The Minister may revoke a preservation notice
  - (a) at any time by notice served on the owner and, if the owner is not the occupier, on the occupier of the structure to which the notice relates; or
  - (b) upon being satisfied on written representations made by the owner that such owner is likely to suffer financial loss if the notice is not revoked.

**20--** (1) While a preservation notice is in force with respect to any structure, that structure shall not be demolished or removed, nor shall any additions or alterations be made thereto or any work carried out in connection thereon with, except with the written consent of the Minister granted either unconditionally or subject to such conditions as the Minister may think fit.

(2) Where a person has an interest in the whole or a part of any structure and he suffers financial loss or incurs expenditure in respect of that interest in consequence of the refusal, or the granting subject to conditions, of any consent required under subsection (1), he shall be entitled to receive such compensation as may be appropriate in the circumstances.

(3) Any question as to a person's right to compensation under subsection (2), or as to the amount of any such compensation

which is appropriate in the circumstances shall in default of agreement be determined by the Resident Magistrate in the manner provided in the Lands Clauses Act for settling cases of disputed compensation, and in constructing that Act for the purpose of this Act, this Act shall be deemed to be the special Statute and the Trust shall be deemed to be the promoters of the undertaking.

- (4) Any person who contravenes the provisions of subsection (1) shall be guilty of an offence and shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding forty thousand dollars or *to* imprisonment for a term not exceeding two years or to both such fine and imprisonment and, in addition, may be ordered by the court by whom he is tried to pay such sum as the Court thinks just for the purpose of repairing or restoring the monument.
- (5) While a preservation notice is in force the Trust may with a view to the maintenance of the structure to which it relates, have access by itself, its inspectors, agents or workmen to such structure for the purpose of inspecting it and of bringing such materials and doing such acts and things as may be required for the maintenance thereof.

### ***Development of national monuments and places designated to be protected national heritage***

- 21--** (1) For the purpose of preserving the amenities of any national monument, or any place designated to be a protected national heritage, the Trust may, subject to the provisions of this section, prepare and confirm a scheme (hereafter in this Act referred to as a "preservation scheme") for any area comprising or adjacent to the site of the monument or the place aforesaid, being an area to which, in the opinion of the Trust, it is necessary or expedient for that purpose that the scheme should apply.
- (2) Every preservation scheme shall define by reference to a map annexed thereto the area to which the scheme is applicable (hereafter in this Act referred to as "the controlled area") and may provide for all or any of the following matters, that is to say-
- a. for prohibiting or restricting the construction, erection or execution of buildings, structures and other works above ground within the controlled area, or the alteration or extension of any such buildings, structures or works in such manner as materially to affect their external appearance;

- b. for prescribing the position, height, size, design, materials, colour and screening and otherwise regulating the external appearance, of buildings, structures and -other works above ground within the controlled area;
  - c. for prohibiting or restricting the felling of trees, quarrying and excavations within the controlled area;
  - d. for otherwise restricting the user of land within the controlled area to such extent as may appear to the Trust to be expedient for the purpose of preserving the amenities of the monument or place;
  - e. for such other matters as appear to the Trust to be incidental to or consequential on the foregoing provisions of this section or to be necessary for giving effect to those provisions.
- (3) The provisions of the Second Schedule shall have effect with respect to the confirmation, variation and revocation, of preservation schemes.
- (4) Nothing in any preservation schemes shall affect any building, structure or other works above ground or any alteration or extension thereof, if it was constructed, erected or executed before the date when the notice of intention to confirm the scheme was published in the *Gazette* under the Second Schedule, and for the purpose of this provision a building, structure or other work and any alteration or extension thereof shall be deemed to have been constructed, erected or executed before that date-
- (a) if its construction, erection or execution was begun before that date; or
  - (b) if and so far as its construction, erection or execution was necessary for the purpose of performing a contract made before that date.
- (5) Any person whose property is injuriously affected by the coming into force of a preservation scheme shall be entitled to obtain compensation in respect thereof from the Trust subject to the provisions of the Third Schedule.
- (6) If any person contravenes any provision of a preservation scheme for the time being in force, he shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars *for* every day on which the contravention occurs or continues.

- (7) If, after any person has been convicted of a contravention of a preservation scheme by reason that any building, structure or other work is not in conformity with the scheme, the contravention continues after the expiration of such period as the Court before whom he was convicted may determine, the Trust shall have power to do all such acts as, in its opinion, are necessary for removing so much of the building, structure or work as is not in conformity with the scheme, or for making it conform with the scheme, and any expenses incurred by the Trust in so doing shall be recoverable in a Resident Magistrate's Court as a civil debt from the person convicted.
- 22--** (1) The owner of any national monument who intends to carry out any development works in relation to that monument shall, before commencing such work, apply to the Trust for permission, giving details of the proposed works.
- (2) The Trust may, upon receipt of such application as aforesaid, grant permission for the works specified therein to be carried out under the supervision of the Trust.
- (3) For the purposes of this Act the expression "development works" includes the restoring, altering, repairing or excavating of a monument or demolishing of any part thereof and the doing of any act or thing which may be required for the purpose "of restoring, altering, repairing or excavating the monument.
- 23--** (1) Subject as hereinafter provided, any person specially authorized in writing in that behalf by the Trust, after giving reasonable notice in writing to the occupier of his intention so to do and on production of his authority if so required by or on behalf of the occupier, may enter for the purpose of investigation, inspection or maintenance, at all reasonable times upon any land or building-
- (a) which is a national monument or contains a protected national heritage; or
- (c) for the purpose of determining whether it should be declared a national monument.
- (2) Where any person enters any land or building for the purpose of investigation, inspection or maintenance in accordance with subsection (1) he shall have power to do all such things as he considers necessary for the purpose of such investigation, inspection or maintenance, and, without prejudice to the generality of the foregoing, may make excavations on the land.

- (3) Where any excavation is made on land pursuant to this section the Trust shall, within a reasonable time after the completion of such excavation take such steps as may be necessary to restore the land to the condition which existed immediately before the excavation was made, unless-
  - (a) the land is declared pursuant to this Act to be a national monument; and
  - (b) the Trust is satisfied that the excavation forms part of the national monument.
- (4) If any person wilfully obstructs or hinders any person duly authorized by the Trust in the exercise of the powers conferred by this section, he shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars.

### *Miscellaneous*

- 24--** (1) Every document required or authorized to be served under this Act upon the owner or occupier of a national monument may be served either by delivering it or leaving it at the usual or last-known place of abode of the person on whom it is to be served, or by sending it by post as a registered letter addressed to him at his last-known place of abode or, if that cannot, be found, by fixing *it* on some conspicuous part of the monument.
- (2) Any such document may, as the case requires, be addressed to the "owner" or "occupier" of the monument (describing it) without further name or description.
- 25--** Notwithstanding anything contained in any other enactment-
- (a) any instrument necessary for transferring or vesting any land to or in the Trust upon which or in respect of which stamp duties, registration or recording fees are payable, shall be exempt from the payment of such stamp duties, registration or recording fees;
  - (b) the Trust shall, in relation to all property whatsoever held or dealt with by them for the purpose of this Act, be exempt from the payment of property tax and income tax.
- 26--** (1) For the purposes of section 13 of the Income Tax Act, any amount expended by the owner of a national monument or protected national heritage for the maintenance or development thereof and certified by the Trust as required for the preservation of



the monument or protected national heritage shall be treated as expenses wholly and exclusively incurred in acquiring income.

- 27-- (1) Notwithstanding anything to the contrary, where the owner of a national monument incurs capital expenditure in developing that monument, an allowance (in this section referred to as an "investment allowance") equal to seventy-five *per centum* of such capital expenditure shall, in lieu of an initial allowance or any other similar allowance under the Income Tax Act, be made to that owner for the year of assessment in the basis period for which such expenditure is incurred.
- (2) Subject to the provisions of this Act, where an investment allowance is made under this section in respect of national monuments the provisions of the First Schedule to the Income Tax Act, or any other provisions of that Act applicable to initial allowances granted pursuant to paragraph 1 of Part I of that Schedule shall apply, with the necessary adaptations to the investment allowance made under this Act as they apply to initial allowances aforesaid except that-
- (a) the amount of an investment allowance shall not be treated as written off by virtue of sub-paragraph (2) of paragraph 4 of Part I of that Schedule; and
  - (b) the amount of an investment allowance shall not be written off in ascertaining the written down value of the national monument or taken into account for the purposes of sub-paragraph (4) of paragraph 3 of Part I of that Schedule.
- (4) Notwithstanding anything to the contrary, an owner of a national monument shall, in respect of any capital expenditure, be entitled to claim, as such owner thinks fit, the amount of any investment allowance or annual allowance in the year of assessment in which the expenditure is incurred or, in so far as not previously claimed, in any sub-subsequent year of assessment:

Provided that where income is derived from a national monument in any year, the investment allowance or annual allowance shall be claimed against that income in priority to any other income of the owner, and accordingly, the owner shall adopt such accounting procedures as are appropriate to identify the amount of investment allowance remaining to be written off.

- (4) Subject to the provisions of this Act, where an investment allowance is made under this section in respect of machinery, the provisions of the First Schedule aforesaid or any other provisions of the Income Tax Act

applicable to initial allowances granted pursuant to paragraph 1 of Part III of that Schedule shall apply with the necessary adaptations to the investment allowance made under this section as they apply to initial allowances aforesaid except that the amount of an investment allowance shall not be written off in ascertaining the written down value of the machinery or taken into account for the purposes of paragraph 3, paragraph 4 or paragraph 5 of Part III of that Schedule.

- (5) Notwithstanding the provisions of paragraph 6 of Part I of the Schedule aforesaid, the making of an investment allowance pursuant to this section in respect of any expenditure shall not preclude the grant of annual allowances or balancing allowances in respect of that expenditure in accordance with the provisions of Part I of the Schedule aforesaid.
- (6) In this section capital expenditure incurred in the development of a national monument means-
  - (a) sums expended on the purchase, construction, excavation, major repair or alteration of the monument; and includes, where relevant, sums expended on labour, architectural and other engineering services; and
  - (b) sums expended for materials, equipment, machinery, plans and other items used in the development of the national monument.

**28--** The Minister may make such regulations, as may be necessary or expedient-

- (a) for securing the full and effectual performance of any duty imposed land the exercise of any power conferred upon the Trust by or under this Act;
- (b) for regulating the hours during which, the means whereby, the purposes for which and the conditions subject to which members of the public may have access to any national monument or protected national heritage vested in the Trust;
- (c) for regulating inquiries under the First or Second Schedule;
- (d) for prescribing anything required to be prescribed under this Act.

**29--** (1) The Jamaica National Trust Act is hereby repealed and is hereinafter referred to as "the repealed Act":

- (2) Notwithstanding such repeal, any property-
  - (a) purchased by, belonging to or vested in the Jamaica National Trust Commission established by the repealed Act;
  - (b) which is subject to a preservation notice or preservation order made under the repealed Act;
  - (c) in relation to which the Jamaica National Trust Commission were constituted guardian pursuant to the replaced Act, and all interests, rights and easements into or out of the said property which belong to or are vested in the said Commission shall, without any conveyance, assignment or transfer, belong to and be vested in the Trust established under this Act, subject to all and any trusts and to all debts, liabilities and obligations affecting the same and of all enactments, or rules made under this Act or any enactment, regulating the management, maintenance, control, supervision and dealing with such property.

**30--** The Institute of Jamaica Act is hereby amended-

- (a) by deleting from section 2 the definition of "monument and "national monument"; and
- (b) by deleting paragraph (b) of subsection (I) of section 4.

## FIRST SCHEDULE (Section 12)

### *Procedure for declaration of National Monument*

1. Before declaring any monument to be a national monument, the Trust shall-
  - (a) cause a draft of the proposed declaration to be published in the *Gazette*;
  - (b) send a copy of the draft to each local authority in whose area the monument is;
  - (c) publish once in a daily newspaper published in Kingston a notice stating that the declaration is proposed to be made and the effect of the declaration and specifying the time (not being less than (twenty-eight days from the first publication of the notice in such a newspaper) within which and the manner in which objections to the proposed declaration can be made;
  - (d) serve on the owner of the national monument and (if the owner is not occupier) on the occupier a copy of the draft of the proposed declaration, together with a notice stating the effect thereof and specifying the time (not being less than twenty-eight days from the service of the notice) within which and the manner in which objections to the proposed declaration can be made;
  - (e) cause a copy of the draft of the proposed declaration to be fixed on some conspicuous part of the national monument,

2. -- (1) The Trust, after considering any representation and objections duly made to the declaration by the owner or occupier of the monument or by any person appearing to the Trust to have an interest in the national monument, may make the declaration either in terms of the draft or with modifications thereof:

Provided that where an objection has been duly made as aforesaid and has been withdrawn, the Trust, unless it considers the objection to be frivolous or has modified the declaration as required by the objection, shall, before making the declaration, direct a public inquiry to be held as hereinafter provided and consider the report of the persons who held the enquiry.

- (2) An inquiry under this Schedule shall be held in accordance with

regulations made by the Minister for the purpose, and such regulations may contain provisions as to the cost of the inquiry.

3. -- (1) A copy of the report of the person who held the inquiry referred to in paragraph 2 shall be sent to any person who made an objection.
  - (2) Any person, being a person who has made an objection pursuant to paragraph 1 (d), who is aggrieved by the report referred to in subparagraph (1) or by the failure of the Trust to direct an inquiry to be held in accordance with paragraph 2 may, within (thirty) days after the date on which the objection was made or within (thirty) days after the receipt by him of a copy of the report as aforesaid, appeal to the Minister.
    - (e) On the determination of an appeal by him the Minister may make such order as he thinks fit.
- 
4. -- (1) As soon as may be after the declaration has been made, the Trust shall publish in the Gazette and in a daily newspaper published in Kingston a notice stating that the declaration has been made and the effect thereof, and shall serve a like notice and a copy of the declaration on every person on whom a copy of the draft declaration was required to be served under paragraph 1 and on any other person appearing to the Trust to have an interest in the national monument who duly made an objection which has not been withdrawn, and the declaration shall come into operation on the date on which the notice is published as aforesaid in the Gazette.
  - (2) The Trust shall also, as soon as may be after the declaration has been made, cause a copy of the declaration to be fixed on some conspicuous part of the national monument.

## SECOND SCHEDULE (Section 21 (3))

### *Provisions as to confirmation, Variation and Revocation of Preservation Schemes*

1. Before confirming a preservation scheme (hereinafter in this Schedule referred to as a "scheme") the Trust shall cause to be published in the Gazette, and in such other manner as it thinks best for informing persons affected, notice of its intention to confirm the scheme, of the place where copies thereof may be inspected, and of the time (which shall not be less than three months) within which and the manner in which representations with respect to the scheme may be made, and shall cause such notice as aforesaid to be given to every local authority in whose area any part of the controlled area is comprised.
2. Any person affected by the scheme may, within the time appointed under paragraph 1 for making representations, send to the Trust written objection to the scheme stating the specific grounds of objection and the specific modifications required.
3. The Trust, after considering any representation and objections duly made with respect to a scheme, may, by order, confirm the scheme either with or without modifications: Provided that -
  - (a) Where an objection has been duly made to the scheme by any person affected thereby and has not been withdrawn, the Trust, unless it considers the objection to be frivolous or has modified the scheme, as required by the objection shall, before confirming the scheme, direct a public inquiry to the person who held the inquiry; and
  - (b) a scheme as so confirmed shall not apply to any area to which it would not have applied if it had been confirmed without modification.
4. An inquiry under this Schedule shall be held in accordance with regulations made by the Minister for the purpose, and such regulations may contain provisions as to the cost of the inquiry.
5. A scheme when confirmed shall come into force on such date as may be specified in the order confirming it.
6. As soon as may be after the making of an order under this Schedule, the order shall be published in the Gazette, and in such other manner as the Trust thinks best for informing persons affected, and a copy of the order be sent to every local authority in whose area any part of the controlled area comprised.

## **THIRD SCHEDULE (Section 21 (5))**

### **Provisions as to Compensation**

1. A person shall not be entitled to compensation by reason of the fact that any act or thing done or caused to be done by him has been rendered abortive by a preservation scheme, if or so far as the act or thing done after the date on which the Trust published in the Gazette notice of its intention to confirm the scheme, or by reason of the fact that the performance of any contract made by him after that date is prohibited by the scheme.
2. Where any provision of a preservation scheme was, immediately before the scheme came into force, already in force by virtue of this or any other enactment, no compensation shall be payable by reason of any financial loss (whether actual or by diminution in value) suffered as a result of that provision of the preservation scheme if compensation has been paid, or could have been claimed, or was not payable, by reason of the financial loss (whether actual or by diminution in value) having been suffered as a result of the provision already in force.
3. Where any provision of a preservation scheme could, immediately before the scheme came into force, have been validly included in a scheme, order, regulation by law by virtue of any other enactment, then---
  - (a) if no compensation would have been payable by reason of the inclusion of that provision in that scheme, order, regulation or by law, no compensation shall be payable in respect of that provision of the preservation scheme; and
  - (b) if compensation would have been payable, the compensation payable in respect of that provision of the preservation scheme shall not be greater than the compensation which would have been payable.
4. Any dispute as to whether any person suffered financial loss (whether actual or by diminution in value) as a result of a preservation scheme, or as to the amount of the sum which is to be paid as compensation in respect of such scheme, shall be determined by the Resident Magistrate in the manner provided in the Lands Clauses Act for settling cases of disputed compensation, and in construing that the Act for the purposes of this Act, this Act shall be deemed to be the special statute and the Trust shall be deemed to be the promoters of the undertaking.

Heritage Trust (hereinafter referred to as 'the Trust'), the power to designate any place a Protected National Heritage:

AND WHEREAS the Trust is of the opinion that the preservation of Blue and John Crow Mountains Cultural Heritage Site, which is described in the Schedule hereto, is a matter of public interest by reason of its historic, archaeological and scientific significance;

NOW THEREFORE, the Trust, in exercise of the power conferred as aforesaid hereby designates, Blue and John Crow Mountains Cultural Heritage Site, more particularly described in the Schedule hereto, to be a Protected National Heritage.

*Effects of Designation*

In accordance with the Act, the designation will have the following effects:—

- (1) Any owner of land, buildings or property within the protected national heritage will be entitled to:
  - (a) appropriate compensation for any financial loss resulting from the designation;
  - (b) have treated as a deductible expense for income tax purposes, any amount spent by him on work certified by the Trust as being necessary for the preservation of such land, buildings, or property within the protected national heritage.
- (2) The owner, or where appropriate, the person in possession of land, buildings, or other property within the protected national heritage will be prohibited from carrying out any demolition, removal or alteration thereon without the prior approval of the Trust.
- (3) The Trust may, in its own discretion, maintain or assist in the maintenance of land, buildings, or other property within the protected national heritage so as to prevent its falling into a state of disrepair.
- (4) Authorized persons may enter any land or building within the protected national heritage for the purpose of investigation, inspection or maintenance.
- (5) Criminal procedures may be instituted in respect of the doing of any prohibited act pertaining to the protected national heritage.

SCHEDULE

All that parcel of land known as the Blue and John Crow Mountains National Park and the Rio Grande Valley and located in parts of the parishes of St. Andrew, St. Thomas, Portland and St. Mary; the boundary begins at Warminster District on the parish border of Portland and St. Mary where it travels northward along the Warminster to Belmont Main Road, then turns north-west through Robertsons Run, then turns south to Dumfries. At Dumfries it assumes a south-west trajectory passing north of

DESIGNATION

THE JAMAICA NATIONAL HERITAGE TRUST ACT

*Designation of a Protected National Heritage—  
BLUE AND JOHN CROW MOUNTAINS  
CULTURAL HERITAGE SITE*

WHEREAS section 13 (1) of the Jamaica National Heritage Trust Act confers on the Jamaica National





and the people residing with her their heirs and assigns forever. To the only purpose use and behoof of her the said  
 Queen and the people residing with her their heirs & assigns for evermore. Rendering thanks yearly and every year  
 unto our heirs and successors the yearly rent of five pounds and six pence current money of Jamaica  
 on the feast day of St Michael the Archangel and the annunciation of the Blessed Virgin Mary by two equal  
 portions and also rendering yearly and every year unto our heirs and successors a twentieth part of the clear  
 yearly profits of all Base mines hereby granted unto the said feast day of Saint Michael the Archangel which  
 shall hereafter be found upon the premises or any part of them. And moreover to give our heirs and  
 successors unto the said Queen and the people residing with her their heirs and assigns that the Surrender  
 of these our letters patent in our Chief Court of administration of Justice or our Courts Office shall be as good  
 from hence and effectual in the Law for transferring the premises according to the true intent and meaning  
 of these presents as if the same premises had been granted aliened or transferred either present or future by us after  
 any other manner or way whatsoever always as these our letters patent be enrolled within the space of two  
 months after the date hereof and not otherwise any Law Custom or usage to the contrary thereof notwithstanding  
 nevertheless our further will and pleasure as that the said Queen and the people residing with her their heirs  
 and assigns do or shall upon any insurrection mutiny rebellion or invasion which may hereafter in our said  
 island during her or their residence on the same be ready to show us and shall actually show us our heirs and  
 successors in Arms upon the Command of our Governor or Commander in Chief for the time being Parole  
 that the said Queen and the people residing with her their heirs and assigns shall be subject nevertheless to the  
 several Limitations restrictions provisions penalties and forfeitures mentioned contained and expressed in the  
 said several acts before mentioned. And also to the restrictions provisions conditions mentioned in an act  
 intitled An Act for effectually settling the parish of Portland by Vesting all unsworn lands within said parish  
 unto her we passed the 1<sup>st</sup> day of March 1737. Provided also that the said Queen and the people residing with her  
 their heirs & assigns do keep and maintain fire whiteries on the said lands pursuant to an instruction of the  
 1<sup>st</sup> July 1735. Witness his Excellency Edward Trelawny Esq. Captain General Governor and Commander in Chief  
 in and over this our said Island of Jamaica and the Territories thereunto depending in America Chancellor and  
 Vice Admiral of the same at St Jago de la Vega the fifth day of August in the fourteenth year of our Reign  
 Annoq Domini 1740

John Rodney Esq. Secy  
 Kings Land

Jacob Trelawny



Jamaica  
 By Virtue of an act from his  
 Excellency Edward Trelawny Esq. Capt. Genl Gov. and  
 Commr in Chief of his Majesty's Island of Jamaica  
 and the Territories thereunto depending in America Chan-  
 celler and Vice Admiral of the same &c bearing date  
 Decr 12<sup>th</sup> 1740 have surveyed and laid out unto Henry  
 and the people residing with her five hundred acres  
 of land in the parish of Portland situate and bounding  
 north south and east in King's Land and that on Mr John  
 Stevenson performed this 22<sup>nd</sup> December 1740 from  
 Tho: Newland

Jamaica  
 Whereas by an act of this Island passed the 12<sup>th</sup> Novr 1726 and by several other acts  
 since made for the keeping up the Number of Commissioners it is amongst other things Ordaind that the Commp  
 sioners or a Duorum of them shall appoint and direct surveyors to ascertain lay out and allot to each two  
 shires the three parts the Commissioners under writen being met together Do certify that the above Thomas  
 Newland did lay an order for Henry and the people residing with her on five hundred acres of land in  
 the parish of Portland the the said Commissioners having duly examined into the said premises and find that  
 the said five hundred acres of land is lyes in the Parish of St. George's have therefore appointed and directed Thomas  
 Newland a lawful surveyor of the Island to ascertain lay out and allot to the above Henry and the  
 people residing with her the said five hundred acres of land. And the said Thomas Newland hath declared  
 unto us that the above Diagram doth justly represent the sitting abovementioned form and Rectitude of the  
 said five hundred acres of land. Therefore We Henry approved the same unto the above Henry and the people  
 residing with her with witness whereof we have hereunto set our hands and seals this 23<sup>rd</sup> Decr 1740  
 John Smith Esq. Richd Farnill Esq. Geo Ashworth Esq.



**UNESCO**  
**Nomination Dossier**

The Cultural and Natural Heritage  
of the  
**Blue and John Crow**  
**Mountains**

**Volume I - Appendices**  
**Act, Treaty, Land Patent, Reports**

# **THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT (1991)**

## **DELEGATION INSTRUMENT**

### **PARTIES**

**THE NATURAL RESOURCES CONSERVATION AUTHORITY** whose address for service within the jurisdiction of the courts of Jamaica is 10 Caledonia Avenue, Kingston 5, in the parish of St. Andrew (hereinafter referred to as the "Authority").

**THE JAMAICA CONSERVATION AND DEVELOPMENT TRUST**, a company limited by guarantee not having a share capital, with registered office at 22B Old Hope Road, Kingston, in the parish of St. Andrew (hereinafter referred to as "JCDT").

### **DEFINITIONS**

"**Authority**" means the Natural Resources Conservation Authority established pursuant to Section 3 of the Natural Resources Conservation Authority Act (1991) and its successors and assigns.

"**Commencement Date**" means the 1<sup>st</sup> of October 2002.

"**Expiry Date**" means the 31<sup>st</sup> October 2012.

"**Management Plan**" is the last revision of the plan governing the management of the National Park as approved by the Authority.

"**Term**" means a period of ten years between the first day of October 2002 and the Expiry Date subject to the provisions relating to the renewal as set out in clause 10 of this agreement.

"**The Act**" means the Natural Resources Conservation Authority Act (1991)

"**Operational Expenses for the Park**" means expenses of the Park, including park management, costs associated with maintenance, salary of park personnel, insurance, equipment and other related costs and costs associated with scientific research, conservation and management programs.

"**Protected Area**" means the National Park as declared in the Natural Resources (National Park) Regulations 1993.

"**User fees**" means any fees that may be collected in accordance with any Regulations governing user fees prescribed for the National Park and any user fees collected from the Hollywell Park.

### **PREAMBLE**

**WHEREAS** Section 6 of the Natural Resources Conservation Authority Act 1991 (hereinafter referred to as "the Act") provides that the Authority may delegate any of its functions under the Act (other than the power to make regulations) to any member, officer or agent of the Authority;

A handwritten signature in black ink, appearing to be 'M. H. W.', is written over a circular stamp or seal.

**AND WHEREAS** the JCDT has indicated its intention to manage, protect, and preserve the National Park in the Blue and John Crow Mountains;

**AND WHEREAS** the JCDT, the NRCA and the Forestry Department have signed a Co-Management Agreement for the Blue and John Crow Mountain National Park dated March 17, 2000.

**AND WHEREAS** the Authority is desirous of delegating to JCDT as its agent the functions and obligations set out herein on the terms and conditions so specified;

**NOW THEREFORE IT IS HEREBY AGREED AS FOLLOWS:-**

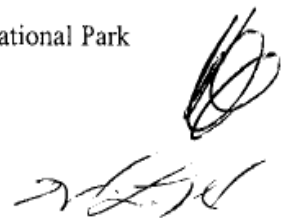
### **GRANT**

- 1.0 The Authority hereby appoints JCDT as an agent of the Authority in accordance with this agreement and pursuant to section 6 of the Act delegates to JCDT the functions and obligations specified herein subject to the terms and conditions so specified.
- 2.0 The instrument of delegation shall be for a term of ten (10) years and may be renewed at the option of the Authority by notice in writing with the consent of JCDT in accordance with clause 10.3.

### **3.0 THE OBLIGATIONS OF THE AUTHORITY**

The Authority shall:

- 3.1 Assist JCDT in performing its obligations and functions described herein by providing a requisite sum as a management fee to be determined by the Parties to this agreement.
- 3.2 Put in place such user fee regulations as may be necessary to assist in the costs associated with management of the National Park, and to revise such fees from time to time as is needed to achieve the goals of the Park .
- 3.3 As far as is practicable to do so co-operate with JCDT in its efforts to perform the functions and obligations stated herein including but not limited to providing technical, enforcement and legal assistance except where it is not practicable to do so.
- 3.4 Use its best efforts to provide JCDT with research assistance and information of which the Authority is possessed, which it may require in its efforts to carry out the functions and obligations described herein.
- 3.5 Monitor the progress of the implementation of the National Park Management Plan and assist in achieving the objectives of such plan and its revisions.
- 3.6 Along with JCDT enter into necessary co-operative agreements with persons and organisations and individuals for the effective management of the National Park according to the provisions of the National Park Management Plan.
- 3.7 Assist JCDT in training its staff with the skills necessary to achieve the goals of the National Park Management Plan as agreed between the parties.

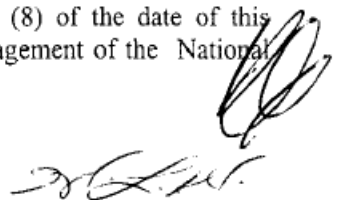


- 3.8 Authorize JCDT to collect on its behalf as its agent, in a manner to be agreed upon user fees payable by users of the National Park and any such other fees as the Authority and JCDT may agree should be collected.
- 3.9 Remit to JCDT as its agent user fees and such other fees collected by the Authority, as the parties may agree. The User fees generated shall be used to cover the operational expenses of the Park.
- 3.10 All user-fees collected and such other fees remitted to JCDT shall be retained by the JCDT in a special account, to be specially reported on, and shall be used to manage the National Park in accordance with the National Park Management Plan and this agreement.
- 3.11 Use its best efforts to obtain duty-free status and GCT-free status for any equipment or service imported or purchased in connection with the management of the National Park, provided that the procurement of such equipment or service is first approved by the Authority.
- 3.12 Identify and assign a senior member of staff who shall be the official liaison between the Authority and JCDT, who will monitor the performance of JCDT within the National Park and who will co-ordinate the fulfillment of the obligations of the Authority under this delegation instrument and the co-management agreement with the Forestry Department.
- 3.13 Consult the JCDT on approvals for permits and development applications, including analysis of environmental impact assessments, and allow representations to be made to the Authority by JCDT before finally approving or determining such matter if the activity for which the permit or approval is sought falls within the National Park or will significantly impact the National Park.
- 3.14 Assist in the appointment of the National Park Rangers and the Protected Area Manager selected by JCDT to become Special District Constables.
- 3.15 Provide guidelines on the standards for management of the National Park including safety, disaster preparedness, preparation of management and operation plans.

#### **4. THE OBLIGATIONS AND FUNCTIONS OF JCDT**

**JCDT shall:**

- 4.1 Develop an annual operation plan prior to the month of October of each year that details all the activities that JCDT plans to carry out in the Park each year. This operation plan shall contain a budget for such activities to be conducted by JCDT, which shall be reviewed by the Authority to assess a management fee to be paid yearly. The Operation plan shall include information on activities that will be carried out in relation to staffing, financing, maintenance and improvement of facilities, infrastructure, programs and projects on the following areas, protection and conservation, enforcement, traditional and concurrent uses, recreation and tourism, education, public relations development and administration. The Plan shall be submitted three months from the date of signature of this agreement.
- 4.2 Prepare and submit a National Park Management Plan within eight months (8) of the date of this delegation agreement and take such steps as are necessary for the effective management of the National



Park in keeping with the provisions of the National Park Management Plan and any other legislation so as to ensure the conservation, protection and sustainable use of its natural resources.

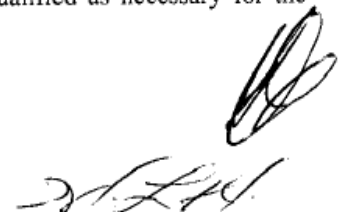
- 4.3 Develop, implement and monitor plans and programmes relating to the management of the National Park according to the National Park Management Plan.
- 4.4 In consultation with the Authority revise the National Park Management Plan where so required and where the parties intend to renew the delegation instrument in accordance with section 10.
- 4.5 Promote public awareness of the ecological systems and natural resources of the National Park and the importance of their sustainable use to the social and economic life of Jamaica.
- 4.6 Consult and advise the Authority on matters of general policy relating to the management, development, conservation and care of the environment within the National Park.
- 4.7 Provide all relevant information to the Authority in good time when it is consulted concerning applications for permits and development permission.
- 4.8 Permit the Authority to conduct financial and operational audits of its activities within the National Park after giving seven days (7) notice,
- 4.9 Perform such other functions in the National Park as may be assigned to it by the Authority from time to time by mutual consent.
- 4.10 Maintain in good order and repair all buildings and other facilities for which it has responsibility.
- 4.11 Put in place insurance, employee, property and public liability policies as approved by the Authority to cover equipment, buildings, employees, agents and visitors within the recreational areas of the Protected Area and submit relevant policies to the Authority on an annual basis. Where any claim or suit is made against JCDT it shall report such to the Authority immediately.
- 4.12 Manage the Hollywell Park in accordance with a lease agreement which may be subject to termination in accordance with the termination clause in the said agreement.
- 4.13 Submit to the Authority, bi-annual reports specifying the progress or setbacks in accomplishing the goals of the National Park Management Plan.

## **5. IMPLEMENTATION**

- 5.1 In performing the obligations and functions specified in clause 4, JCDT may with the written consent of the Authority:
  - 5.1.1 Construct buildings and other facilities for administration, education, enforcement and recreation, according to the National Park Management Plan.

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- 1.2 Monitor compliance with the National Park Regulations and any other laws governing the protection of the environment and report on infractions, record official complaints and conduct such enforcement action where authorized.
- 5.1.3 Investigate the effect on the environment of the National Park of any activity that causes or might cause pollution or might involve waste management or disposal or damage to flora or fauna or might involve dangers to public health.
- 5.1.4 Report to the Authority all environmental incidents and breaches within the National Park of the NRCA Act and its Regulations, the Wild Life Protection Act and its Regulations, and the Watershed Protection Act and its Regulations and any other Act under which the Authority exercises jurisdiction, within twenty-four hours (24) of such breaches coming to the attention of JCDT, its employees, servants or agents, unless it is not practicable to do so.
- 5.1.5 Make recommendations to the Authority on the zoning of areas within the National Park in order to provide for the effective management of the area, and to advise on regulations or rules with respect to the purposes for which the resources in each zone may be used.
- 5.2 In performing the obligations and functions specified in clause 4, JCDT shall:
  - 5.2.1 Procure the requisite facilities and equipment to carry out the functions herein described.
  - 5.2.2 Undertake studies in relation to the National Park and in collaboration with the Authority to encourage and promote research into the use of techniques for the management of pollution and the conservation of natural resources and sustainable development.
  - 5.2.3 Recommend that an Environmental Impact Assessment be undertaken for any activity or undertaking or development to be carried out or that is being carried out within or nearby the National Park, if it is in the opinion of JCDT that such activity is or is likely to have an adverse effect on the environment and public health.
  - 5.2.4 Conduct seminars and training programs, gather and disseminate information relating to environmental matters.
  - 5.2.5 Formulate and design projects aimed at ensuring the sustainable use of the natural resources within the National Park and the environment in general with 30 days notice to the Authority, and to operate and publicize such projects pursuant to the agreed operation plan.
  - 5.2.6 Provide pertinent information to and to inform the public in respect of all aspects of the quality of the environment generally and specifically of the quality of the environment within the National Park.
  - 5.2.7 Perform the functions listed in Section 4 of this agreement in accordance with the National Park Management Plan, in accordance with the Act and the Regulations made thereunder.
  - 5.2.8 Employ and supervise adequately trained staff who are competent and qualified as necessary for the proper carrying out of the functions for which they were hired.

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## **6. SUB-DELEGATION**

- 6.1 The Authority shall not assign or delegate any of the specified functions or obligations contained herein within the National Park without the prior consent in writing of JCDT. This consent shall not unreasonably be withheld. Where a delegation is made by the Authority such delegation agreement shall be negotiated in association with JCDT.
- 6.2 JCDT shall not delegate any of its obligations contained within this delegation instrument without the written consent of the Authority. This consent shall not be unreasonably withheld. Where a delegation is made by JCDT such delegation agreement shall be negotiated in association with Authority.

## **7. INDEMNIFICATION**

- 7.1 The Authority shall indemnify and shall keep indemnified JCDT against any loss, damage or liability whether criminal or civil suffered, arising out of or relating to the Authority's default in the carrying out of its obligations under this agreement.
- 7.2 JCDT shall indemnify and shall keep indemnified the Authority against any and all costs, claims and expenses, loss, damage or liability whether criminal or civil suffered, which may be incurred by the Authority arising out of, or relating to the carrying out of any one or more or all of the functions described herein due to the negligence of JCDT, its employees and agents, or to a breach of this agreement.

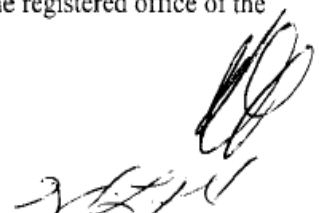
## **8. REPORTING**

JCDT shall:

- 8.1 As soon as may be practicable before the 1<sup>st</sup> day of October in each year, submit to the Authority for consideration, its estimates of revenue and expenditure in respect of the period commencing on the 1<sup>st</sup> day of April in the following year and ending on the 31<sup>st</sup> day of March of the subsequent year, and shall during that year, submit to the Authority for approval any estimate for further expenditure as may become necessary.
- 8.2 Keep accounts and other records in relation to its business, receipts, expenditure and investments and shall prepare annually a statement of accounts in a form satisfactory to the Authority.
- 8.3 Provide annual audited financial statements to the Authority within three (3) months of the end of each financial year of the activities within the National Park.

## **9. TERMINATION**

- 9.1 This agreement shall terminate at the end of the term.
- 9.2 Either party may terminate this agreement by six (6) months notice in writing to the registered office of the other party for a fundamental breach of this agreement.



10.3 JCDT may, after consultation with the Authority, terminate this agreement provided a minimum of six (6) months notice is given to the Authority and public notice is given by placing such notice in a daily newspaper widely circulating in the island.

## **10. RENEWAL**

10.1 Should for any reason either party does not wish to renew the instrument of delegation, this should be conveyed in writing to the other party not less than twelve (12) months before the expiry of the current agreement.

10.2 At the end of three years, the two parties shall begin discussions towards the renewal of the National Park Management Plan. JCDT is to submit to the Authority for its approval a draft of a new Plan for a period of five-years. This plan should be reviewed by the Authority and comments submitted in writing within six months of the review of the management plan..

10.3 At the end of nine years after the commencement of this agreement, the two parties shall begin discussions towards the renewal of the instrument of delegation. The Authority is to submit to JCDT in writing at that time any wishes it may have concerning the delegation agreement. All negotiations should be complete at least six (6) months before the expiry of this instrument of delegation.

## **11. MISCELLANEOUS**

11.1 In the event that any provision of this agreement is declared by any judicial or other competent authority to be void, voidable, illegal or otherwise unenforceable the parties shall amend that provision in such reasonable manner as achieves the intention of the parties without illegality.

11.2 This agreement is capable of amendment by both Parties in writing at any time during its term.

## **12. SUPERCEDES PRIOR AGREEMENT**

This agreement supercedes any prior agreement between the parties whether written or oral and any such prior agreements are cancelled at the commencement date but without prejudice to any rights that have already accrued to either of the parties. However if any rights are accrued prior to this agreement which are in conflict to this agreement then the agreement prevails.

## **13. NOTICES**

Any notice to be served shall be sent by registered post, or by facsimile or electronic mail supported by the original document, to the registered office or address for service of the addressee and shall be deemed to be received by the addressee within five (5) working days of posting or twenty-four hours if sent by facsimile or electronic mail to the correct fax number or electronic mail address of the party.

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**14. ARBITRATION**

All disputes and differences which shall at any time arise between the parties whether during the term or afterward constituting a fundamental breach of this agreement, or touching or concerning this delegation instrument or its construction or effect of the rights, duties or liabilities of the parties under or by virtue of it or otherwise or any other matter in any way connected with or arising out of the subject matter of this agreement shall be referred to panel of three arbitrators, one proposed by the Authority, one proposed by JCDT and the third to be agreed upon by both parties, the majority decision of those arbitrators being binding upon both parties.

Dated this 19<sup>th</sup> day of September 2002.

Signed for and on behalf of the  
Natural Resources Conservation Authority )

in the presence of )

Carlo Exell )

Witness )

Signed for and on behalf of the  
Jamaica Conservation and Development Trust )

in the presence of )

[Signature] )

Witness )

[Signature]  
Chairman



[Signature]  
Chairman

[Signature]

**CO-MANAGEMENT AGREEMENT BETWEEN THE FORESTRY  
DEPARTMENT, THE NATURAL RESOURCES CONSERVATION  
AUTHORITY AND THE JAMAICA CONSERVATION AND  
DEVELOPMENT TRUST**

This Agreement is made the 17<sup>th</sup> day of March 2000 between the Natural Resources Conservation Authority (hereinafter referred to as "the Authority"), the Forestry Department of the Government of Jamaica (hereinafter referred to as "the Department"), and the Jamaica Conservation and Development Trust (hereinafter referred to as "the Trust").

**Parties**

**The Authority** whose address for service within the jurisdiction of the Courts of Jamaica is 10 Caledonia Avenue Kingston 5 of the FIRST PART and **the Department** whose address for service within the jurisdiction of the Courts of Jamaica is 173 Constant Spring Road, Kingston 8 of the SECOND PART and **the Trust** whose address for service within the jurisdiction of the Courts of Jamaica is 95 Dumbarton Avenue, Kingston 10 of the THIRD PART.

**WHEREAS** the Government of Jamaica has declared under the authority of the Natural Resources Conservation Authority Act, the Blue and John Crow Mountains, National Park (hereinafter referred to as "the Park"), with boundaries as set out in the Natural Resources Conservation (Blue and John Crow Mountains, National Park) Declaration Order of 26<sup>th</sup> February 1993;

**AND WHEREAS** the Park, consists primarily of forested areas declared as forest reserves, including the Blue Mountain Forest Reserve

serve declared on the 1<sup>st</sup> of December,

he Conservator of Forests, is responsible  
ment of forests in Crown lands or in  
these forests;

otiating the delegation of certain of its  
ion Authority Act to the Trust;

including the Blue Mountain Forest Reserve  
1950 under the Forest Act;

**AND WHEREAS** the Department, directed by the  
under the Forest Act for the sustainable management  
forest reserves and the effective conservation of

**AND WHEREAS** the Authority is currently negotiating  
functions under the Natural Resources Conservation

AND WHEREAS the Trust is currently carrying out conservation activities, including reforestation projects within the Park;

AND WHEREAS the Authority, the Department and the Trust are desirous of entering into an Agreement in order that the parties may continue the work of co-management in the Blue and John Crow Mountains National Park declared under the Natural Resources Conservation Authority Act and the Forest Act.

NOW THEREFORE IT IS AGREED as follows:

1. The Authority, the Department, and the Trust shall jointly co-manage the Park and Buffer Zone as delineated in the attached map.
2. Such joint management shall be exercised by the parties hereto in keeping with the provisions of the Forest Act, the Natural Resources Conservation Authority Act and all Regulations made pursuant to these Acts, for a period of two years and shall be automatically renewable except as provided hereunder.
3. The Authority, the Department and the Trust shall together formulate and implement a management plan for the development and protection of the Park. Such Plan shall meet all the requirements for a management plan prescribed in Section 8 of the Forest Act 1996, and Section 28 of the Natural Resources (National Parks) Regulations 1993, and shall explicitly include goals, objectives, indicators of performance, methods of implementation, and budget and personnel requirements. The Plan shall zone areas of the Park, and attach terms and conditions with regard to the use of each zone, consistent with Section 27 of the Natural Resources (National Parks) Regulations 1993, and assessment of land-use potential as prescribed in Section 15 of the Forest Act. The Plan shall include provisions for: public safety; insurance; visitor and research usage; revenue

collection and user fees; operation and maintenance of facilities; patrolling and security; maintenance of structures, roads, trails and boundaries; management

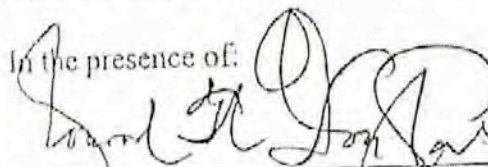
5. The Trust shall, with the support of the Authority be responsible for the functions assigned to it under the plan mentioned in clause three (3). The Department shall provide input to planning and enforcement as prescribed in clauses three (3) and four (4) above, and shall be responsible for forest resource inventory and assessment, regulation of forest produce, and boundary surveys.
6. Co-ordination of the operations of the Trust, the Department and the Authority shall be the responsibility of an Operating Committee consisting of a Park Manager recommended by the Trust and appointed by the Authority, a representative of the Authority, a representative of the Department and one representative from the Local Advisory Committee of the National Park. Individuals may be co-opted to manage as is required.
7. The Operating Committee shall prepare a written biannual report which shall include but not be limited to the activities which have taken place in the declared area, managerial decisions adopted by it, information on enforcement, preservation and conservation measures implemented within the area, and progress towards meeting the objectives of the management plan. This report is to be submitted to the Executive Director of the Authority, the Conservator of Forests and the Executive Director of the Trust.
8. The Authority, the Department or the Trust may terminate this Agreement provided that written notice of a minimum of three months is given to all Parties.
9. Each Party to this Agreement shall ensure that all applications for permits and licences are referred to the other Parties for their comments prior to the granting of such permit or licence and that all information relevant to permits and licences that have been approved and granted by it to any person, subject to all such terms and conditions contained therein to carry out an activity within the boundaries of the National Park, shall be transferred to the other Parties. Such information shall be taken to include, but not be limited to, reports on any breach of these permits and licences and all other relevant information pertaining to the grant thereof

under such relevant Acts or Regulations.

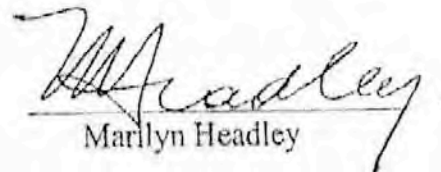
IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seals the day and year first hereinbefore written

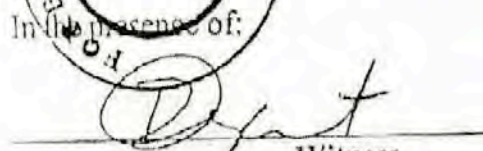
THE OFFICIAL SEAL of the NATURAL RESOURCES CONSERVATION AUTHORITY was hereunto affixed and this instrument signed by FRANKLIN McDONALD Executive Director

  
Franklin McDonald

In the presence of:  
  
Witness

THE OFFICIAL SEAL of the FORESTRY DEPARTMENT was hereunto affixed and this instrument signed by MARILYN HEADLEY Conservator of Forests

  
Marilyn Headley

In the presence of:  
  
Witness

THE OFFICIAL SEAL of the JAMAICA CONSERVATION AND DEVELOPMENT TRUST

CONSERVATION AND DEVELOPMENT TRUST was hereunto affixed and this instrument signed by BLOSSOM O'MEALLY-NELSON Chairman

  
for Blossom O'Meally-Nelson

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

**Table I**

Assignment of responsibilities under the Co-management Agreement

FUNCTION	FD	NRCA	JCDT	CL	OTHER
Management planning (incl. zoning & permitted uses)	#	*	*		
Financial sustainability planning	*	*	#		NPTF
Development Plans	*	*	#		
Operational Plans and budgeting	*	*1	#		
Resource inventory & assessment	#	*	*		
Tenure disposition (leases)	*	#		*	
Revenue collection & user fees	*	*	#	*	
Timber exploitation	#				
Facility operation (recreation)	*		#		MOA
Patrolling and Security	#		*		EWS; NWC; JCF
Public Safety/Insurance		#	*		JDF
Boundary surveys	#				
Offence response (evidence, arrest, seizure etc.)	#	*	*	*	JCF; EWS
Seed collection	#		*		
Plant production/nurseries	#		*		NWC
Tree planting and tending	#		*		NWC
Buildings (maintenance/regulation)		*	#	*	NWC
Road and trail maintenance and signage	*	*	#		Parish Council
Forestry extension	#	*	*		RADA
Public education	*	*	#		JET
Reporting monitoring and evaluation	*	#	*	*	
Research	*	*	#		
Mining	*	*			Mines & Geology
Water use					NWC/WRA

Keys

- # Lead Agency
- \* collaborating agencies
- FD Forestry Department
- CDT Jamaica Conservation and Development Trust
- NRCA Natural Resources Conservation Authority
- CL Commissioner of Lands
- MOA Ministry of Agriculture
- NWC National Water Commission
- VRA Water Resources Authority
- CF Jamaica Constabulary Force



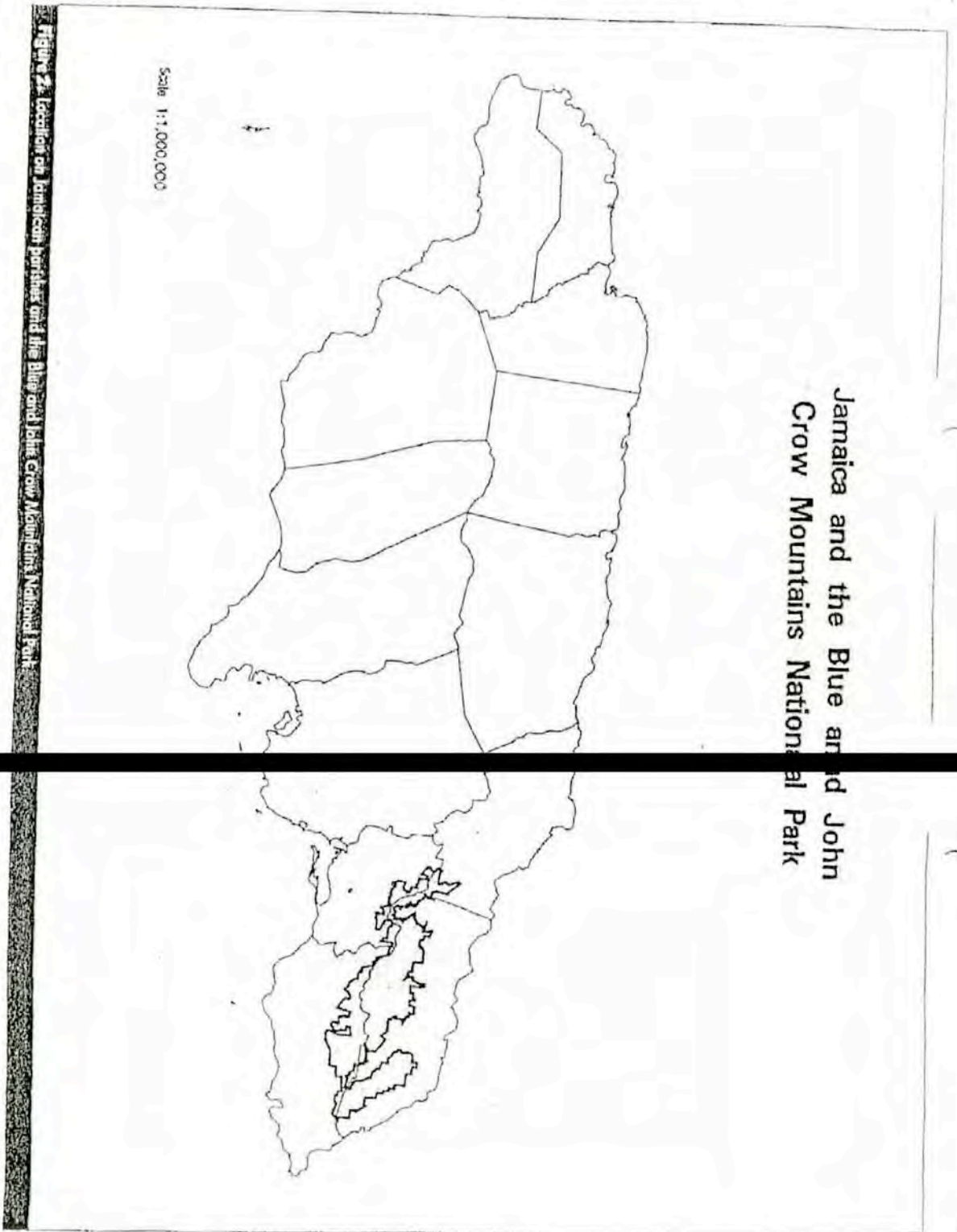


Figure 2. Location of Jamaica's parishes and the Blue and John Crow Mountains National Park

# Jamaica and the Blue and John Crow Mountains National Park

1739 TREATY

3 That Four White men shall constantly live and reside with them in their Town, in Order to keep a good Correspondence with their Inhabitants of this Island.

4 That the said Captain Quas and his People shall be ready on all Commands the Governor or the Commander in Chief for the time being shall send him to Suppress and Destroy all other party or parties of Rebelious Negroes that Run away or shall from time to time gather together or settle in any parts of this Island, and shall bring in such other Negroes as shall from time to time Run away from their respective Owners from the Date of these Articles —

5 That the said Captain Quas and his people shall also be ready to assist his Excellency the Governor for the time being in Case of any Invasion and shall put himself with all his people that are able to bear arms under the Command of the General or Commander of such forces appointed by his Excellency to defend the Island from the said Invasions —

6 That the said Captain Quas and all his people shall be in subjection to his Excellency the Governor for the time being, and the said Captain Quas shall once every year or oftner, before the Governor if thereunto required.

7 That in Case any of the Hunters belonging to the Inhabitants of this Island and the Hunters belonging to Captain Quas should admitt, in order to hinder all Disputes Captain Quas will order his People to take the said Hunters have the Hogg.

8 That in Case Captain Quas or his people shall take up any runaway Negroes that shall abscond from their respective Owners, then they shall carry them to their respective Masters or Owners, and shall be paid for so doing as the Legislature shall Appoint.

9 That in Case Captain Quas and his people should be Disturbed by a Greater Number of Rebels than he is able to Fight, that then he shall be assisted by as many White people as the Governor for the time being shall think proper.

10 That in Case if the Negroes belonging to Captain Quas shall be Guilty of any Crime or Crimes that may Deserve Death, he shall Deliver him up to the Magistrate in order to be tryed as other Negroes are, but he shall be warr'd he may punish himself.

11 That in Case any White man or other the Inhabitants of this Island shall Disturb or annoy any of the people, Hogg, Stock or whatsoever goods may belong to the said Captain Quas or any of his People when they come down to the Settlements to vend the same, upon Due Complaint made to a Magistrate he or they shall have Justice done them —

12 That Captain Quas nor any of his people shall bring any Hogg, Swine, or any other kind of Stock or provisions to sell to the Inhabitants

of our joint endeavours

Jamaica Whereas his Excellency Edward Trelawny Esq; Governor and Commander  
in Chief of the Island aforesaid hath given power and Authority to Collo: Robert  
Bennett to treat with the rebellious Negroes, This Day being the 23<sup>d</sup> Day of  
June 1739, Captain Quao and several others of them under his Command  
do Surrender under the following Terms Viz

- 1<sup>o</sup> That all Hostilities shall cease on both sides for ever AMEN
- 2<sup>do</sup> That the said Captain Quao and his people shall have a certain Quantity of  
Land given to them in order to raise provisions, Hogs, Fowls, Goats or what ever Stock  
they may think proper (Sugar Canes Excepted) saving for their Hogs) and to have  
Liberty to sell the same.

Without a Ticket from under the hand of One or more of the Whites residing in  
H. with them in their Town.

13 That Captain Duas nor any of his People shall hunt within three miles of  
any Settlements.

14 That in case Captain Duas should Die, that then the Command of his People  
shall Devolve to Captain Thamboy, and at his Death to Devolve to Captain Apoy  
and at his Death Captain Blackwell shall Succeed, and at his Death  
Captain Clash shall Succeed, and when he Dies the Governor or Commander  
in Chief for the time being shall Appoint whom he thinks proper.

In Witness to these articles the Above Named Colonel Robert Bennett  
and Captain Duas have sett their hands and Seals this Day and Yeere  
above written

Robert Bennett

The Mark of Captain Duas

Land Patent to Nanny 1740

and shall keep a number of slaves in the proportionable to the number of slaves whose employes according to the true intent and meaning of act of the former named and reformably of said laws and - entitled an act for regulation of the duties and of the act above mentioned. Provided also that the said Matthew Thomas his heirs assigns to keep and maintain two settlements in the said Towns pursuant to an instruction of the 1<sup>st</sup> July 1735. Witness his Excellency Edward Bute Esquire Captain General Governor and Commander in Chief in and over His Majesty's said Colonies of Jamaica and the Territories thereunto depending in America. Chancellor and Vice Admiral of the same at St. Jago de la Vega the twenty third day of January in the fourth year of our Majesty's said Majesty's Dominions 1740

John Patten Esq

Edw Bute Esq



Jamaica By Virtue of our order from his Excellency Edward Bute Esquire Captain General Governor and Commander in Chief of his Majesty's Colonies of Jamaica bearing date the twenty fourth day of Novr 1740 I have caused to be cut into Matthew Thomas two hundred and ten acres of land in the parish of St. Thomas in the West Indies and bounding S and E for Michael Amos Esq to and thence S and E for Thomas Robt Hart on so performed this 19<sup>th</sup> day of December 1740 Jas Tho<sup>s</sup> Newland

Edw Bute Esq

Edw

Nanny Esq  
Nov 20<sup>th</sup> April 1741

Jamaica

George the second by the Grace of God of Great Britain France and Ireland King of Jamaica Lord Protector of the Faith &c To all to whom these presents shall come Greeting Sheweth that he for and in Consideration that a certain Negro woman called Nanny with the people depending with her have transported themselves and their servants and Slaves into our said Island in pursuance of a Proclamation made with the Request of his late Majesty King Charles the second of blessed memory and for the better encouragement to encourage our planters this and for other good causes and considerations as therein is especially making of our special Grace certain Knowledge and that we have given and granted and by these presents do give our heirs and Successors Power and Grant unto the said Nanny and the people so residing with her and their heirs and assigns a certain parcel of Land containing five hundred acres in the parish of St. Thomas bounding with South and East according to the said plat and that in the said Statute as by the said plat hereunto annexed appears which said Land was bestowed on us our heirs and Successors by an act passed within the Island the 21<sup>st</sup> day of November 1722 and confirmed by us the 5<sup>th</sup> day of August 1727 entitled an act for settling the North East part of this Island and by another act passed within the Island the 12<sup>th</sup> day of November 1723 and confirmed by us the 20<sup>th</sup> day of September 1727 entitled an act to encourage White people to come over and live in the said Island and for the better settling the North East part thereof which act was directed into a town and parishes called by the names of St. Jago de la Vega and parish of St. Thomas the said land being excertained laid out and allotted unto the said Nanny and the people residing with her by Thomas Newland Surveyor appointed and directed by John Smith Richard Bond and James Brown Esqrs of the Commission and the said act last mentioned made and constituted pursuant to the power and direction of the said acts together with all rights liberties privileges and appurtenances to the same being or in any way belonging by Virtue of the said acts or either of them or by any other acts of this Island the one passed the 9<sup>th</sup> day of March 1725 entitled an explanatory act for the further encouragement of settling the parishes of St. Thomas and the other parishes the 1<sup>st</sup> day of May 1725 entitled an act for the further settling the North East part of this Island explaining some Clauses in several acts relating thereto &c Together with all Liberties Privileges immunities ways waters watercourses ports harbours Commodities Enclosures advantages customs and duties whatsoever growing arising or upon the premises or any part thereof together with all mines and Minerals whatsoever being upon the premises or any part thereof together with all mines and Minerals whatsoever being upon the premises or any part of them mines of gold and silver only excepted St. Thomas and St. John the said parishes of said Newland parishes or several parishes and singular other the premises hereby granted and the authority of these presents unto the said Nanny and

and the people residing with her then heirs and assigns forever. And the only people and inhabit of her the said  
 Nanny and the people residing with her then heirs and assigns for evermore. And the said Nanny and the people  
 shall receive their due and successors the yearly and ordinary fine and service and other things which they have  
 in the said day of St Michael the Archangel and the anniversary of the Blessed Virgin Mary by them and equal  
 portions and also rendering yearly and ordinary fine and service to the said Nanny and the people of the said  
 yearly people of the said Nanny yearly quarterly with the said first day of Saint Michael the Archangel which  
 shall happen to the same year upon the premises or any part of them and moreover the wife and grant for us our  
 heirs and successors with the said Nanny and the people residing with her then heirs and assigns that the benefit  
 of their own Letters patent in our chief Court of administration of Justice or Chancery Office shall be no good  
 from valid and effectual in the Law for transferring the premises according to the tenor intent and meaning  
 of their patents as if the same premises had been granted aliened or transferred either present or to come by any  
 any other manner or way whatsoever always within our Letters patent in our chief Court within the space of six  
 months after the date hereof and not otherwise any Law Custom or usage to the contrary thereof notwithstanding  
 what heretofore or hereafter shall be done or shall be done in pursuance of any Letters patent in our chief Court  
 or shall upon any manner of mutiny rebellion or insurrection which may happen in our said  
 Colonies during his or their residence with her then heirs and assigns and their heirs and assigns and  
 successors in cases upon the command of our Governor or Commanders in Chief for the time being Provided  
 that the said Nanny and the people residing with her then heirs and assigns shall be subject nevertheless to the  
 several limitations restrictions provisions penalties and forfeitures mentioned contained and expressed in the  
 said several acts before mentioned. And also to the restrictions provisions conditions mentioned in an act  
 intitled An act for effectually settling the parishes of Scotland by vesting all unseign'd lands in the said parishes  
 with the Crown passed the 1<sup>st</sup> day of March 1707. Provided also that the said Nanny and the people residing with her  
 then heirs and assigns do keep and maintain for whomever shall have pursuit to an execution of the  
 1<sup>st</sup> July 1700. Witness his Excellency Edward Trelawny Esq. Captain General Governor and Commander in Chief  
 in and over this our said Colonies and the Territories thereon depending in America Chancellor and  
 Vice Admiral of the same at St Jago de la Vega the 10<sup>th</sup> day of August in the fourteenth year of our said  
 Majesty Queen Anne 1714

John Rodney Esq. Del  
 Kings Land

Jedro Trelawny



Jamaica  
 By Virtue of an order from his Excellency Edward Trelawny Esq. Capt. Genl. Gov. and Commr. in Chief of his Majesty's Colonies of Jamaica and the Territories thereon depending in America Chancellor and Vice Admiral of the same for bearing date Decr 12<sup>th</sup> 1710 have surveyed and laid out unto Nanny and the people residing with her five hundred acres of land with the parish of Buller's butting and bounding north south and east in King's Land and that on Mr John Stevenson performed this 22<sup>nd</sup> December 1720 from  
 Tho: Newland

Jamaica  
 Whereas by an act of this Colonie passed the 12<sup>th</sup> Novr 1700 and by several other acts since made for the keeping up the Members of Commissions this amongst other things Ordains that the Commissions or a Quorum of them shall appoint and direct Surveyors to ascertain layout and allot to each his share the lands for the Commissions under written being met together Do certify that the above James Newland did lay an order for Nanny and the people residing with her on five hundred acres of land in the parish of Buller's the said Commissions having duly examined into the said premises desired that the said five hundred acres of land is listed in his Majesty's maps have therefore appointed and directed Thomas Newland a lawful Surveyor of the Colonie to ascertain layout and allot to the above Nanny and the people residing with her the said five hundred acres of land. And the Surveyor Thomas Newland hath returned unto us that the above Diagram doth justly represent the butting and bounding of the said five hundred acres of land. Therefore the Nanny assigned the same unto the above Nanny and the people residing with her. In Witness whereof we have hereunto set our hands and seals this 23<sup>rd</sup> Decr 1720  
 John Smith D. Richard Furze D. Geo. Atchwell D.

# JAMAICA'S FREEDOM FIGHTERS

## (A PRELIMINARY REPORT ON 1995 FIELDWORK)

### INTRODUCTION

This report summarizes some of the significant aspects of the 1995 archaeological expedition of the Maroon Heritage Research Project (MHRP), while analysis of the finds continues. The MHRP, in collaboration with the Department of History of The University of the West Indies (UWI), Mona, conducted, for the second time, an excavation at the ancient site of Seaman's Valley located on the fringes of the Blue Mountains of Jamaica. The project was directed by Kofi Agorsah, Black Studies and International Studies, Portland State University, Portland, Oregon, Sam Bandara, Head, Acquisition Department, Main Library and part-Time Lecturer, Department of History, University of the West Indies, Mona, Kingston, Jamaica and Donaldson Bernard, Principal, Port Antonio High School, Port Antonio, Portland, Jamaica. Consulting on the project was Jeanne Christensen of the University of Colorado, Denver, who was in the field this season and whose specific interest was cultural linkages between Rastafari and Maroon heritage. Jeanne also kept the field diary of the expedition. An account of the field events as were recorded by Jeanne is also included in this report.

Since 1990 the Maroon Heritage Research Project has undertaken expeditions to Maroon sites or settlements in Jamaica as follows: (Fig 1)

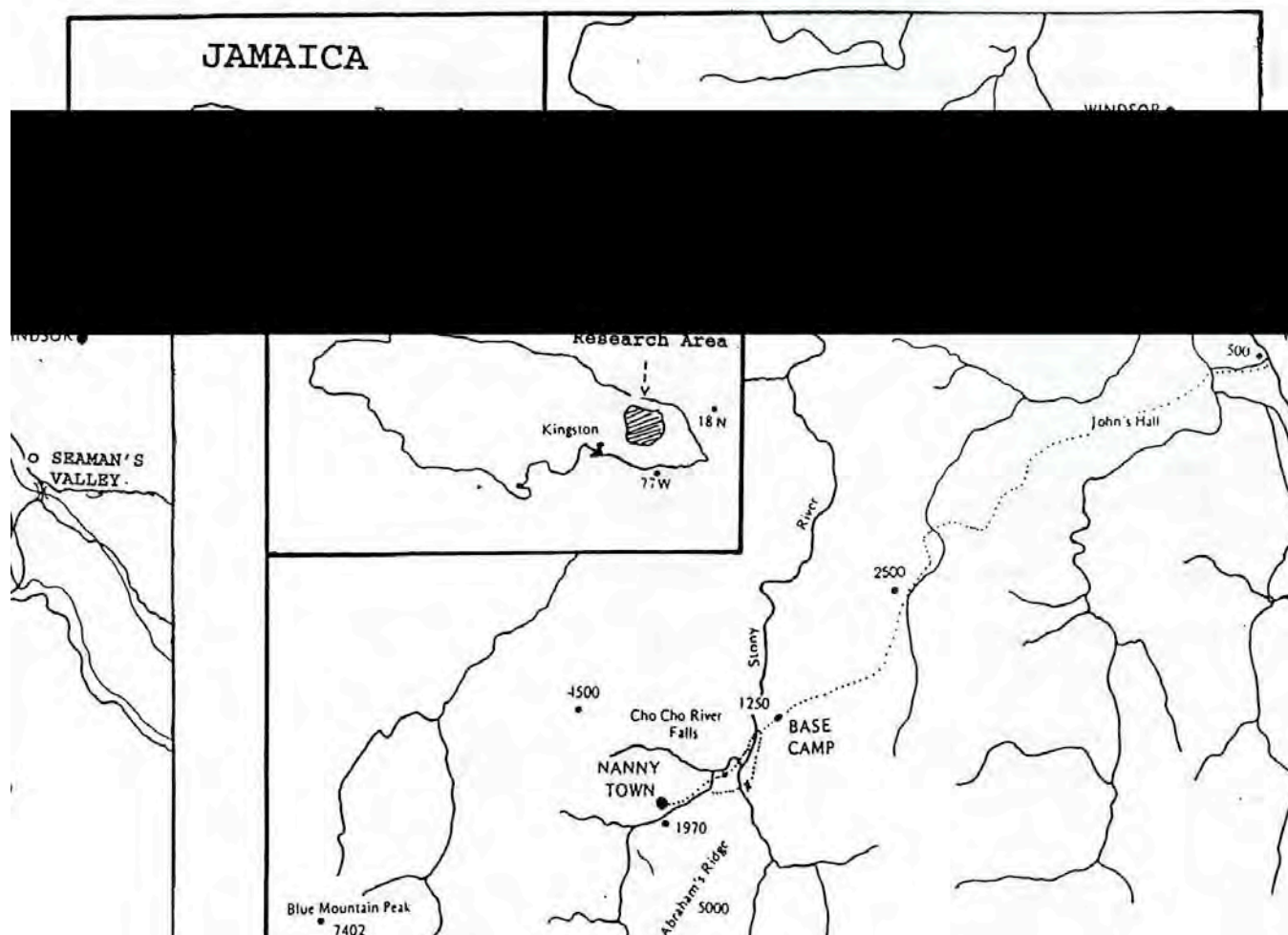


Maroon sites in the	1990	-	Nanny Town Expedition - Preliminary reconnaissance of Blue Mountains. Portland Jamaica.
	1991	-	Nanny Town Excavation, Portland, Jamaica.
aica.	1992	-	Nanny Town Excavation, Portland, Jamaica. Excavation of Accompong Old Town, St. Elizabeth, Jam
	1993	-	Nanny Town Excavation, Portland, Jamaica
	1994	-	Seaman's Valley Excavation, Portland, Jamaica.

### THE MAROONS OF JAMAICA



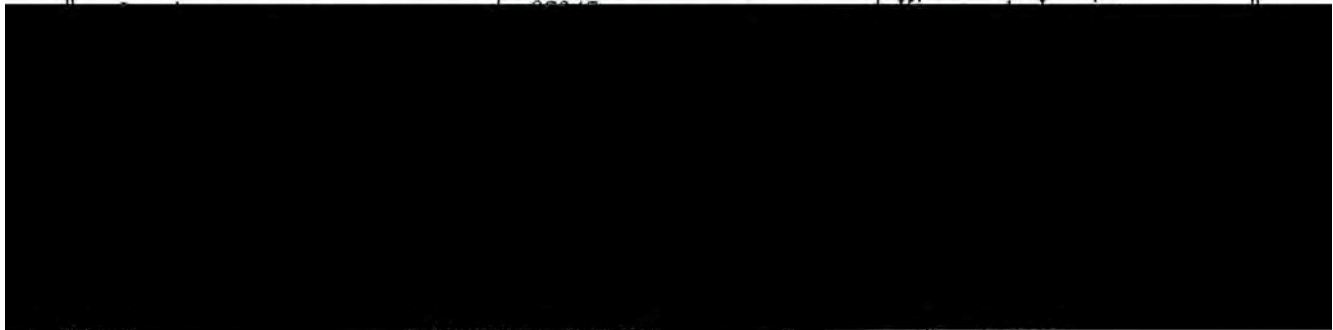
The MHRP expedition of 1994 selected the Seaman's Valley site (Fig. 2) some three kilometers north of Moore Town (New Nanny Town) because of its historical reputation as a unique battleground where the Maroons of the peace-treaty years came into an open battle against colonial forces and totally defeated them according to oral traditions as well as contemporary written accounts. As the 1994 expedition was a preliminary investigation the initial plan was to devote much of the time and energy available to surveying and identification of site features as well as environmental study. Consequently the site was differentiated into geographical zones. Details about the drainage patterns, plant life and other relevant features were examined in each zone. Later, however, it became possible to do a substantial amount of excavation than envisaged. The 1995 expedition, therefore, was to bring to completion, what had been started in 1994 much of which is described in the report of 1994 (MHRP94), and to extend the study to cover a wider area in a further attempt to identify specific locations of military activities and possibly hidden or buried arms and ammunition and pharmaceuticals abandoned during the bitter encounter. Financial resources were very limited for the 1995 expedition and could support only one team of volunteers working two weeks (August 6 - 20) rather than two teams for a total of four weeks. As usual the expedition continued to have its original international character and also cut across all ages and many disciplines. Participation of Maroons, some members of the Moore Town Maroon Council, was higher and more intense.





## 1995 MHRP EXPEDITION PARTICIPANTS

1. Kofi Agorsah (Proj. Dir) Black Studies/Intl. Studies, Portland State University Portland, OR. 97207	2. Sam. Bandara (Fld. Dir.) Main Library University of the West Indies, Mona, Kingston 7, Jamaica	3. D. Bernard (Fld Dir.) (Principal) Port Antonio Sec. School Port Antonio, Portland Jamaica. W.I.
4. Marla Bernard 4584 S. Oakenwald Chicago, Il 60653	5. Paul Byles, Paraiso, Guava Ridge St. Andrew, Jamaica. W.I.	6. Stanford Carpenter 614 Bali Ct. San Ramon, CA.94583
7. Jeanne Christensen 558 Clarkson Denver, Colorado 80218	8. Renee Motheral Clugston 14 S.W. Boundary Portland. Oregon 97201	9. Eve Dechaine 47 Eagle Cr Drive No.36 Lake Oswego, Oregon 97035
10. Elaine Grant (Proj. Cook) Language Laboratory, FAGS UWI, Mona, Kingston 7,	11. Lane Grant Justen 3814 SALMON R. Hwy Grande Rande, Oregon	12. Ann-Marie Howard Museum of Archaeology J.N.H.T. Port Royal,



97347	Kingston 1, Jamaica.	Jamaica
14. Audne Brooks Museum of Archaeology J.N.H.T., Port Royal, Kingston 1, Jamaica	15. Eric J. Pepos 2417 SW Montgomery Dr Portland, Oregon 97207, USA.	13. Jonella D. Larson 1912 S.W. 6th Avenue # 1511 Portland, Oregon 97207 or P.O. Box 61, Nome, Alaska 99762
17. Rebecca Tadesse 7055 SW 130th Avenue Beaverton, Oregon 97008 USA	18. Sara Tufvesson 1728 2nd Ave So. #105 Minneapolis, MN 55403	16. Leopold Shelton (Chief Maroon Guide) Windsor P.A. Windsor, Portland, Jamaica.
20. Ryan Murphy Museum of Archaeology J.N.H.T. Port Royal	21. Pamela Davis, A.C.I.J. 12 Oceam Blvd. Kingston Mall	19. Milton Shelton Windsor P.A. Windsor, Portland, Jamaica

25. Doswell Ireland Moore Town POost Office Moore Town, Portland, Jamaica	26. Shadrack Harris (Blood) Moore Town Post Office Moore Town, Portland Jamaica	27. Jonah Lowe Seaman's Valley, Moore Town Post Office Moore Town, Portland Jamaica
28. Joe Smith Moore Town Post Office Moore Town, Portland Jamaica	29. Kenneth Shelton Bamboo Disco, S. Valley Moore Town Post Office Moore Town, Portland Jamaica	30. Lisa Bryan Department of History University of the W. Indies Mona, Kingston 7, Jamaica
31. Nadine Grant Donoon High School c/o Elaine Grant, Language Lab. UWI, Mona Kingston 7, Jamaica	32. Claude T. Moore Town Post Office, Moore Town, Portland, Jamaica	33. Edward Coore Museum of Archaeology Jamaica Nat. Heritage Trust Port Royal, Kingston 1 Jamaica, West Indies
34. Gary West Cooper's Hill Fellowship P.A. Portland, Jamaica		

## FIELD ACTIVITIES

General field events were recorded by Jeanne Christensen and is presented in greater detail at later part of this report. It was clear from the first day of the dig that the seasons's dig was going to be rough. However, the team-work and dedication of volunteers as well as the enhanced participation of mo Maroons and local volunteers, made it appear otherwise. The local politics made it more complicated as became necessary that we make deliberate attempt not to get involved or side with any particular group persons. Project participants made it clear that unity was very desirable in the entire Maroon community. A chronicle of events (excluding the more technical notes on the excavation), gleaned from my field notes were as follows:

- |            |   |
|------------|---|
| July 30    | Advance group arrives at Seaman'Valley; clearing site; erection of tents; water tank, toilet, bamboo showers, kitchen etc .                           |
| August 2-4 | Arrival of Volunteers in Jamaica - searching for the keys at the dorms.   |
| August 5   | Orientation at the Archaeology Laboratory of the University of the West Indies, Mona Kingston. Video of previous expedition.                          |
| August 6   | Volunteers arrive at Seaman's valley - Rain - Rain - Rain. Transportati<br>provided by Jamaica National Heritage Trust, University of the West Indies |



- August 16 Excavation at Area 4 continued; Drawing of features continued.  
Drawing Feature 3 at Area 3 (feature with lots of roofing tiles and slates).  
Volunteers visit Windsor Campbell's bar; great evening.
- August 17 Environmental study of the entire valley of the Negro River from Seaman's  
Valley to Moore Town; Noticed piles of stone along banks, medicinal plants  
few artifacts identified;
- August 18 Free day - Volunteers make a trip to Port Antonio - shopping - beaches etc.  
Television team led by Carey Robinson (Broadcaster and Historian) from  
Kingston visit site to conduct interviews on the dig; volunteers interviewed at Port  
Antonio at the town square at the clock tower.
- August 19 Final drawing; backfilling of pits and trenches at Areas 3 and 4.  
Washing artifacts; final sorting of artifacts; group photograph;
- August 20 Expedition closes; Volunteers leave for Kingston.  
A farewell party for MHRP volunteers hosted by Mrs. Harriette Bryan, wife of  
Dr. Patrick Bryan, Head, Department of History, UWI, Mona.
- August 21 Volunteers begin to leave for their respective destinations.
- August 22-30 Laboratory sorting, checking field inventory and analysis of Seaman's valley 95

ing artifacts (Archaeology Lab. UWI).

artifacts; Photographi

responsibilities to each volunteer: location and mapping and  
boundaries, study of natural resources (animal and plant).  
n, site photography, excavation techniques, data recording,  
ording, labelling and stratigraphic drawing.  
and covered issues related to Maroon history in Jamaica,  
; general culture history of the Maroons, as well as the issue  
erests of participants.

Assignments were distributed giving specific re:  
plotting of features at the site, demarcating site  
study of physical features and the drainage patter  
study of physical features and the drainage patter  
sorting and inventory, artifact control, field rec  
Evening lectures and seminars were organized  
spatial relationship between Maroon sites and the  
related to individual experiences and special in

## THE SITE

ite (**Fig. 3**) spans both sides of the modern main road but  
ly 3 km north of New Nanny Town (Moore Town). The  
dispersed in the valleys in the areas where the Negro River  
's Valley bridge, and also on the hillsides overlooking the  
ivers. The site occupies much of the section of the valley  
eastward up the hillside that rises to the Seaman's Valley  
of plantation water wheel mill housing full of debris and  
lates (imported?) and widely scattered local and imported

The Seaman's Valley archaeological s  
much more on the east side of it, approximate  
modern settlement (18° 04'N and 77° 43'W) is  
enters the Rio Grande and around the Seaman  
valleys of the Rio Grande, Negro and Snake F  
around the Seaman's valley bridge and extends  
Falls. Visible features at the site consist of ruin  
wood house foundations, clusters of roofing s



Portland State Student Lane Justen at Feature 2 (Area 3)

FIG. 5

The Seaman's Valley fall which appears to have been the source of water supply for the aqueduct is very prominently located at the highest point in the general area. Today, it is the source of water supply for Seaman's Valley and surrounding areas. The fall's water enters what is locally called the Massa stream which flows into the Negro River which passes through the site emptying its waters into the Rio Grande. Seaman's Valley is in the Parish of Portland, Jamaica, about 12 km (8 miles) south of Port Antonio, the Parish capital.

## Excavation

The site had been differentiated into areas during the 1994 pre-excavation survey as Area 1, Area 2 through 5 (**Fig. 4**) mainly for logistical reasons as well as according to the distribution of artifacts and the general topography of the site. The excavation continued based on a three meter grid concentrated mainly in areas 3, 4 and 5. Also all the structural features on the entire site were identified and mapped. The stratigraphy was based on natural levels. Location of artifacts and features of the units was based on the northwest corners of individual units or pits.

The entire length of the aqueduct (approximately 124.5 meters) the main feature of Area 5, with exception of the area passing through the current property owner's house, was excavated. Still in a very solid state except the two ends and stone lined, the aqueduct appears to have been constructed along the southern ridge along the Massa river with the result that the middle portion collapsed as a result of a landslide. The thickness of the stone walls of both sides of the aqueduct was approximately 52cm. The duct (that is the gutter) itself only 41cm wide. It appears that the course of the aqueduct was changed from a higher to a lower ground, probably indicating a change in the level of the river or the source of water supply. This shift to a different level may be the reason for the presence of two ducts about twelve meters to the point of entry of the aqueduct into the wheel housing. However, the part of the aqueduct just before the slope which leads it into the water wheel housing indicates a clear base floor level

ed with stone slabs  
clear whether only  
steep slope and the  
oping surface.

washed down into  
drive shaft, bucket  
the wheel housing  
metal reinforcement.  
in pump lift would  
d into the housing  
type pump, which

vest (Feature 3) of  
also identified but  
one at Area 2 and  
feature 2 (**Fig. 5**)  
in what the house  
river which flows  
he factory boiling  
e several hundred  
appears to indicate

, basically the part  
2.3 by 1.5 meters.

the slope which leads it into the water wheel housing indicates a clear base floor level measuring between 21 x 60 cm with thicknesses varying between 8 and 10 cm. It is not one duct or both entered the wheel housing at a time, because of the break between the wheel housing which, together with the associated building structure are built into a solid

The wheel housing was full of trash of various sorts, but mainly recent material it by running water. No parts of the water wheel nor the drive mechanism, the gears, the paddles and other major structural features were observed or excavated. Although appeared to be of a sturdy construction, it does not appear to contain any metal rods or rivets. If the water changed level, as mentioned above, then it would be expected that a suction be used to bring water up to be delivered into a duct from where it would be delivered from the top as it would have been an overshot water wheel. However, such a suction was very popular in the mid-eighteenth century, was not found.

Two additional house features in Area 3, one each to the east (Feature 2) and west of the water wheel housing were exposed. A third building structure south of Area 2 was not exposed. This brings to five house features identified so far, the others being the one adjoining the water wheel housing. Inside the area demarcated by the walls of Area 3 is located a circular feature of what appears to be a fire place. It is not exactly certain what structure would have been used for being located only ten meters from the Massa river. It has been suggested that the feature may have been used for boiling in a house. Littered on and around feature 3 which is located near the modern main road are broken pieces of imported roofing tile or slates. The material associated with feature 3 suggests that a very recent building structure had been built on top of the feature.

Features which appear to be graves were identified at the eastern end of Area 4 and west of the field camp. Stones mark the features which on the outside mark approximately

# SEAMAN'S VALLEY

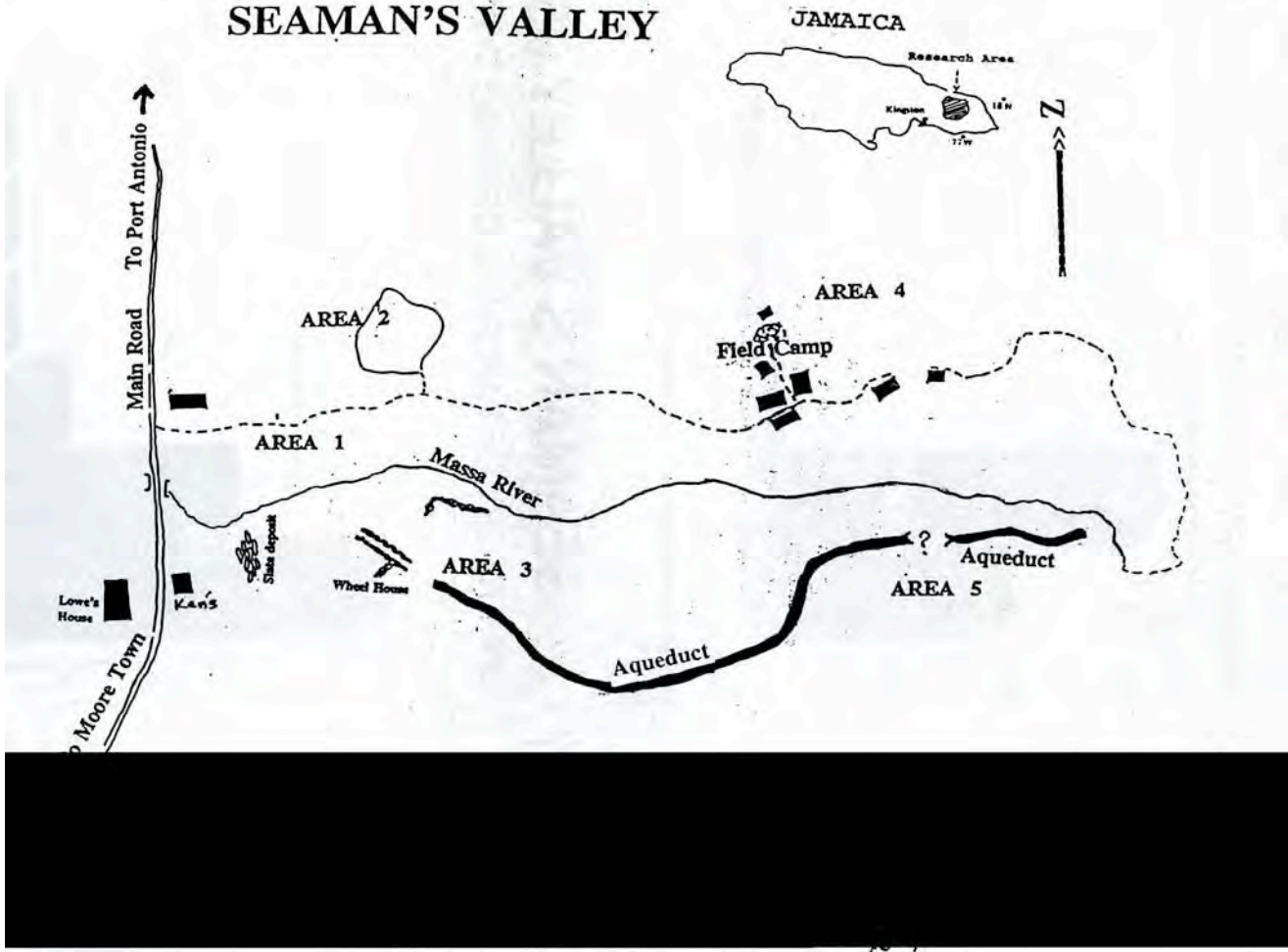


FIG. 4

ry much the same types as those recovered in the previous excavation lig (Fig. 6). Artifacts include both locally-made and imported ceramics, lass including wine, alcoholic and medicinal or pharmaceutical bottles, ents of gun barrel, musket balls of various sizes and weight, nails, and is such as knife and cast iron (three-legged) pot. Also recovered were wls and stem, glass and stone beads and metal buttons. Several graves hed

ve of finds are similar to those found at Nanny Town although much Nanny Town. The similarity in material appears to support the uly had a regular contact with Seaman's Valley in pre-treaty years, l intelligence or supply agencies in and around the plantation. This sites had access to material from the same source, which is probably aterial coming into the island were brought in by the British colonial

icularly the imported ceramics suggest that the site dates to between the 1994 excavation with maker's marks appear to suggest a range of

## Finds

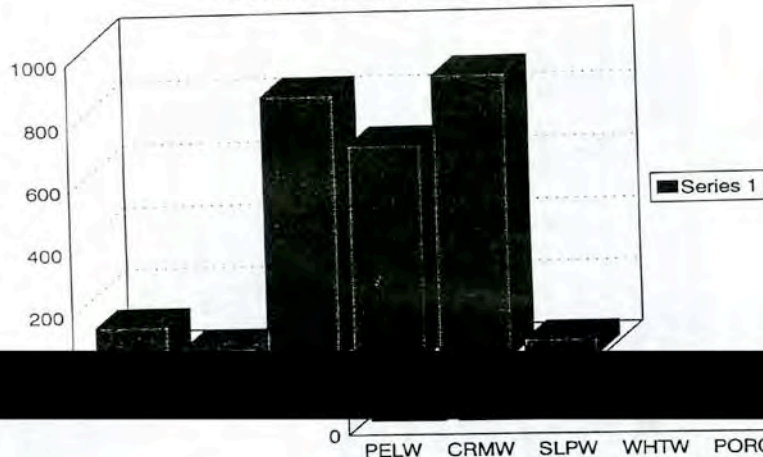
Artifacts recovered were ve but in smaller quantities in the 1995 c roofing slates, fragments of bricks, g metal scraps and implements, fragme fragments of such other metal objec: kaolin (white clay) smoking pipe boy were identified but were left untouch

Generally the range and typ more material was recovered from speculation that the Maroons possil raiding it from time to time, or hac similarity could also mean that both the case as much of the imported m traders.

The range of artifacts, part: 1700 and 1850. Smoking pipes from

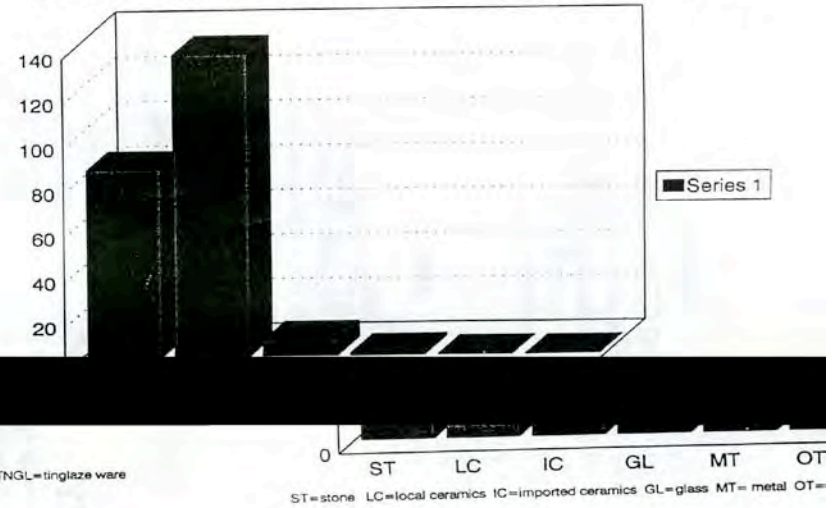
# SEAMAN'S VALLEY 95

## ARTIFACT INVENTORY



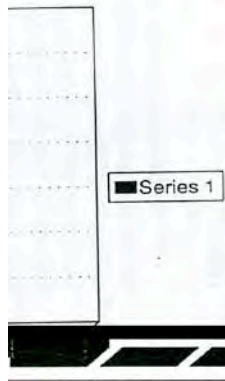
# SEAMAN'S VALLEY 95

## INVENTORY OF IMPORTED CERAMIC TYPES L1



# SEAMAN'S VALLEY 95

## GLAZED SURFACES



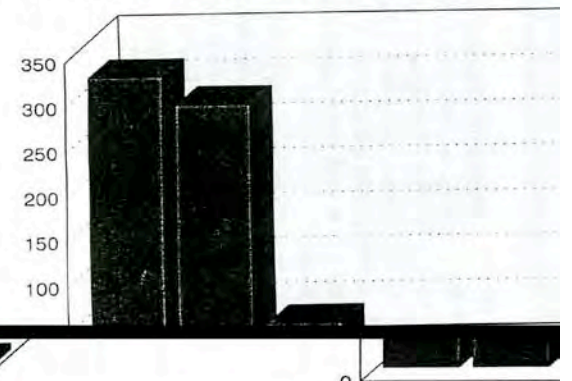
# SEAMAN'S VALLEY 95

## INVENTORY OF IMPORTED CERAMIC TYPES L2



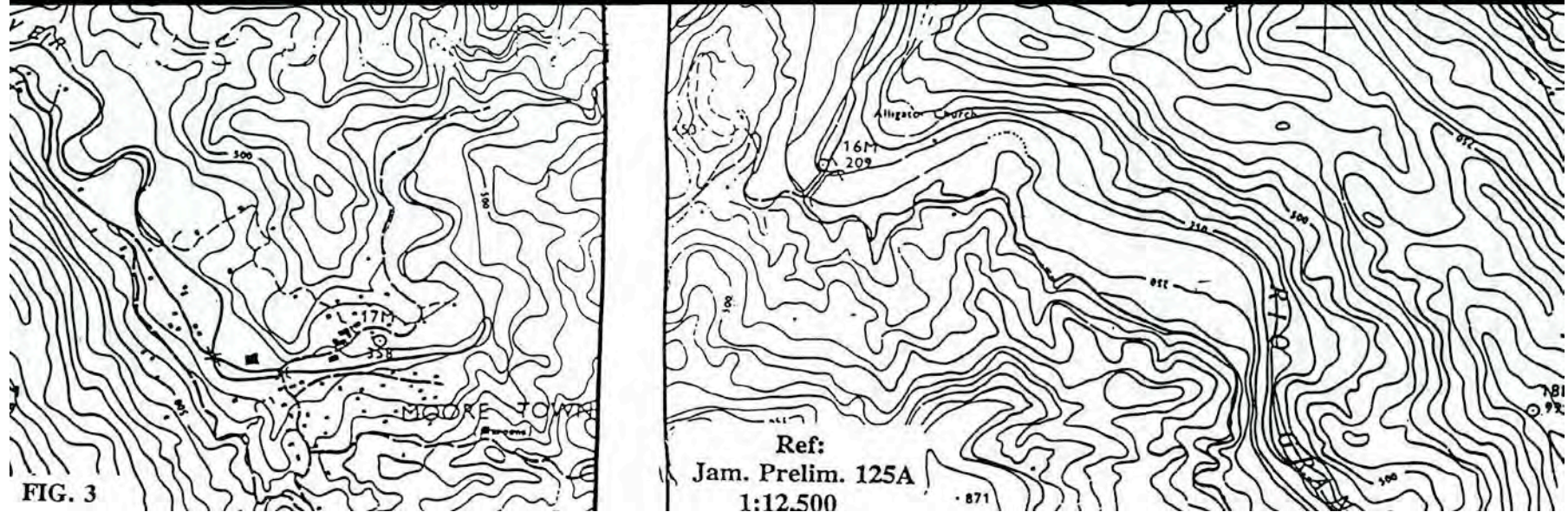
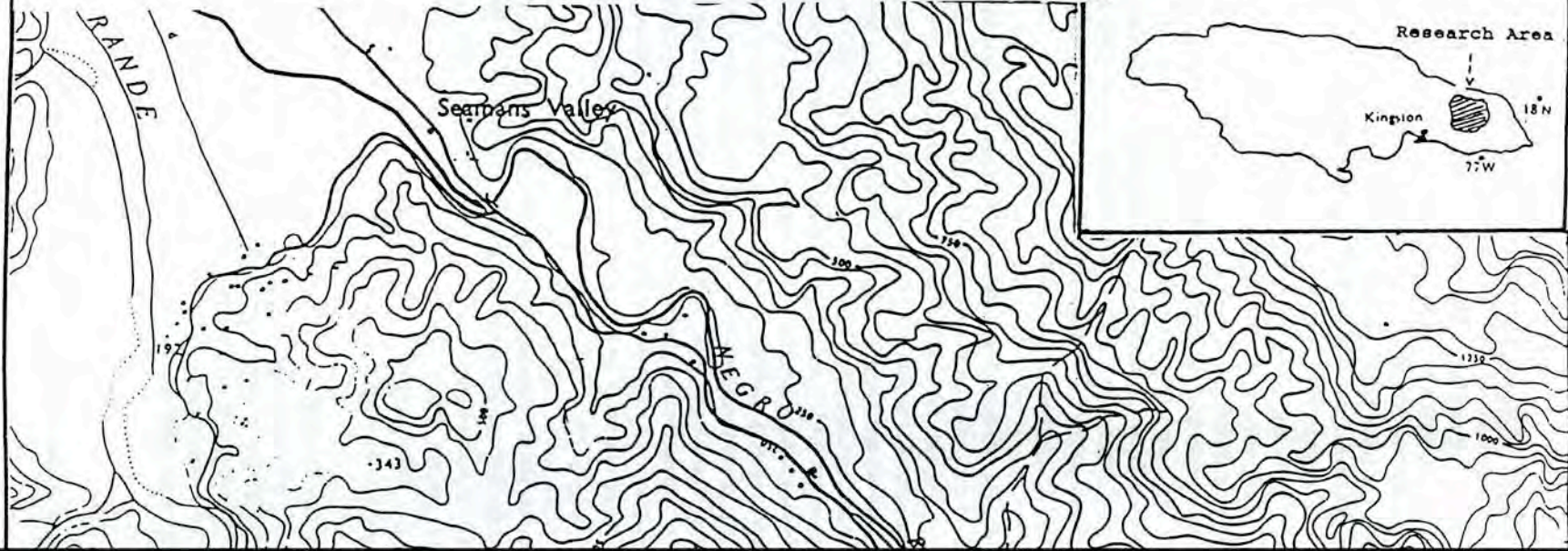
# SEAMAN'S VALLEY 95

## INVENTORY OF IMPORTED CERAMIC TYPES L3





# SEAMAN'S VALLEY



Ref:  
Jam. Prelim. 125A  
1:12,500

871

FIG. 3

flower on the bowl or a Gouda arm on both sides of the foot. This trade mark is supposed to have been owned at one time by a Solomon van de Vin, a Dutchman who became a master piper in Europe in the middle of the 18th century. Although he is the only one mentioned, there may have been others. Pipes of the same period are usually marked with crown 55, a Gouda arm and an 'S' on both sides of the foot. This mark, registered in 1685 was, however, still registered in 1869 and was still used as late as 1881. The pipe from Seaman's Valley which came from Level 2 appears to belong to this general period. The maker's marks of the smoking pipes alone do not seem sufficient for dating although one could suggest with some certainty that they belong to the same period and make as those recovered at Nanny Town.

### Some Observations

The relationship of the plantation features to the site as a battle ground remain undetermined. As indicated in the report of 1994 expedition "it is speculated that the plantations, if there existed one at that site, may not have been known. An act passed in 1726 and an order passed by Edward Trelawny, then in charge of the Island, and the accompanying map of the Seaman's Valley area, appears to be part of the five hundred acre land granted to Nanny and the Maroons". The Maroons would have raided such a location very frequently prior to the 1734 attack on Nanny Town and the signing of the 1739 treaty.

The cache of arms, ammunition and pharmaceutical and possibly some of the weapons abandoned or buried in the wake of the panic and flight of the colonial forces from the Maroons in the encounter, remained hidden some where in the Seaman's valley area. Possible burial grounds of the defeated colonial group command leaders, Maroon locally-manufactured arms and other fighting equipment as well as the main combat point in the encounter have not yet been uncovered. As already mentioned above, the impact of the Maroon successes at Seaman's Valley in 1733, on the morale and aspirations of the colonial forces, accounts for the two-pronged attack on Nanny Town in 1734 and demonstrates why the events related to

understood. Several questions about Seaman's Valley raised. Although the trend of the research appears very have to contend not only with the elusive data being intable situations. The misfortune met by the colonial nented and Hart (1985 Vol 2 :66-68) has presented data collection for re-enacting the memorable events to a better understanding and appreciation of Maroon

the site must be more fully investigated, explained and remain unanswered. Rather new questions are being r promising subsequent field seasons in the area would searched for but also with other numerous but surmoted forces at the hand of the Maroons is vividly docum excerpts. This study certainly be the basis for future of Seaman's Valley. It is our **humble contribution** heritage.

## TROUBLE IN PARADISE OR PARADISE IN TROUBLE

BY

**Jeanne Christensen, University of Colorado, Denver**

It was a special time in Jamaica when we left Kingston for Seaman's Valley in the parish of Portland: the weekend celebration commemorating Jamaica's independence from Britain achieved in 1962. I was here to participate on a archeological project which, it was hoped, would provide a clearer picture of the retention of "life-sustaining" African features which allowed the Freedom Fighting Maroons to survive in the communities they established during their long struggle to maintain their freedom from British slavery. There was irony in the fact that this project commenced on Jamaican Independence Day. The Maroon communities had existed outside of the colonial state by treaties signed with Britain in the 1730's, and their present relationship with the now independent nation remains ambiguous on both sides. History Department head Professor Patrick Bryan, who spoke to the group before leaving Kingston, expressed the hope that the Maroons would join the larger community and work toward greater unity in this newly independent nation. We would have the opportunity to observe the Maroon position as regards this relationship.

I rode in the vehicle provided for the purpose by the Jamaican Heritage Trust. The radio was playing gospel music and church sermons, as we headed for the Blue Mountains. Soon they began playing Bob Marley, each song two times. I was certain I heard the driver of the vehicle say quietly, "I wish Bob Marley wasn't dead." I thought about how many people all over the world were familiar with this small island in the Caribbean because of Bob Marley and felt a sense of unreality that I should be heading to the Jamaican hills on this Jamaican Independence week-end. When we arrived at the camp it

at it had been raining a good deal here. We unloaded our bags and equipment and packed all to the camp. Our group was very diverse: a girl from Chicago whose parents were from Ethiopia, an Eskimo girl from Alaska, an African American from New York about 100 miles from Portland, Oregon. One member of our team was engaged to a gentleman from the near-by town of Winds

Because of unusually heavy rain in the area the camp was not yet ready for us. We, thus, had the privilege of watching our camp quickly transformed from a mere skeleton to a comfortable "home" by the gentlemen who lived in the area. Ken Bilby and N'Diaye wrote of these Maroons: "they were among the first pioneers to explore and adapt to the more remote, isolated areas in both the American continent and the Caribbean. . . . With their hard-earned freedom and autonomy they have built systems that are at once meaningfully African and among the most resilient and most truly 'alive' among African-American cultures."<sup>1</sup> It was apparent that whatever we might find about our ancestor's ability to survive by utilizing what they found in their environs, it had been passed down to their descendants.

The frames for the tents were deftly constructed of bamboo which grew plentifully in the area. They were then covered with tarps in such a way that they wouldn't leak. (The first week of our stay we had ample opportunity to test the quality of these tents as we experienced the heaviest and longest thunderstorms I have ever encountered.) Each of the men had a machete which he wielded expertly. Trenches were dug to insure proper drainage. The "floor" of the tents were covered

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to provide privacy at both ends of the tent. Later in the weeks these men constructed a bamboo shower which consisted of halved pieces of bamboo jutting out horizontally from a nearby waterfall diverting the water from the falls into steady shower streams. Steps were cut wherever the trail was too steep to maneuver easily. The huge storm several days after our arrival washed away the bamboo shower, and the steps seemed to have disappeared in the mud. When we finally got some sunshine several days later, however, we discovered that the steps were still there. Even the wash basin by the latrine was made of a large hollowed-out piece of bamboo.

Our camp was located on what was believed to be the site of a face to face battle between the Maroons and the British. The Maroons usually fought the British through clever surprise attacks and guerrilla warfare tactics. The battle we hoped to find evidence of was unique because it involved the largest British force ever sent against the Maroons, and in this case the Maroons were forced to fight directly in defense of their communities. Our camp was about one and three-quarters mile from Moore Town, the main community of the Windward Maroons. The windward Maroons were the "children" of the great warrioress and priestess Nanny. Campbell describes the windwards as demonstrating "a greater aggressiveness to the slavocracy than did the leewards" because of the "aggressiveness of Nanny, who, from sketchy accounts, seems to have been uncompromising in her stand against the slave system."<sup>2</sup>

The oral traditions of this community center on the heroic Nanny. Moore Town came into existence after the Maroons abandoned nearby Nanny Town. Some people refer to it as New Nanny Town. Colonel Harris wrote that the town received its name "in anticipation of *more land* being received."<sup>3</sup>

There is historical evidence that more land was indeed granted to a person named Nanny in 1781.

When we arrived in the area this community was in a crisis. Their head, Col. L. G. Harris, had just recently retired as colonel. He had been Colonel of the Moore Town maroons since 1964. His decision apparently came as a surprise to most of the community, and not only were they faced with having to elect a new Colonel, but there was debate over whether or not it was appropriate for Col. Harris to maintain the title Colonel if he was retired. We had the opportunity to make a number of trips

aders and elders. We were interested to learn more about this and also the Maroon position on their relationship with this new ethnographic trip into town we went to see Colonel Harris (or found him at home, very cordial and willing to visit with us. He then asked if we had questions. The Alaskan Eskimo girl informed that she came on a slave ship and was of Ashanti descent. "Pseudo-historians" frequently claimed were her slaves. "Hogwash, Nanny." He described the "great lady" as having "an aura of mystery increase Maroon lands by telling Lt. General Archibald Campbell the land wasn't." This land grant is evidence that she was not was maintained because the land grant to Nanny was made in could not have been killed by a slave is that "she had power well ve been killed by a mere human." He also emphasized that it the peace treaty with the British. There was no mention of his

Harris to maintain the title Colonel into Moore Town to talk with various leadership crisis facing the community a independent Jamaican nation. On our first X-Colonel Harris) at his home. We found spoke in a mesmerizing voice for a bit a our group asked about Nanny. He explained She came with her entourage which "people should learn to 'read' oral history and great courage." She was able to indicate that the "population was growing but then killed by a slave in 1733 as is sometime 1783. But the main reason why Nanny could beyond human powers and could not have was Cudjoe and not Nanny who signed retirement.



# JAMAICA



home because he was being targeted for an ambush. He took their advice and when his home was shot up he was not there. "Jesus Christ! Why I come home to be dead?" It is the political violence which stops the Maroons from participating in politics.

Before we left Captain Smith's a former Captain came by and we were introduced to Leonard Smith who had served as Captain for 36 years. The division and variety of opinion in this community over the loss of their head and the concern over the election of a new one was apparent in the conversation between these two gentlemen. The older Captain Smith was critical of Colonel Harris while the younger one defended him. A fairly energetic argument ensued. The younger Captain Smith pointed that he had been disappointed by the manner in which Colonel Harris had resigned - at a meeting called for a completely different purpose. The Colonel had asked to be given a few minutes before the meeting started to make an announcement and the entire meeting, including the other officials

il that moment of his intention to retire. Not only were they without a  
 1 had taken a long time to organize was disrupted. "Early next month we  
 us. In a letter I received from him after my return to the States he indicated  
 e Sterling, "age forty and very intelligent" had been elected colonel.  
 he Maroons are special people, is because of their special history. The  
 aica had their origin during the disintegration of Spanish control of the  
 it to maintain their freedom when the British took over the island. The  
 between the Maroons and the British granted them independence and lands in  
 ion in preventing further flights for freedom of the British slaves. These  
 petuation as a separate group with their own identity, their own  
 m to act out their own cultural imperatives," which have carried into the  
 out that "any government of the island today that would wish to abrogate  
 a new political situation arising out of Jamaica's independence would be  
 les."<sup>5</sup> The significance of this special situation as regards the Windward  
 erent in many ways. Historians point out that the treaties were greatly to the  
 e more so as time passed. Colonel Harris challenges the perception that the  
 British control despite their apparent freedom by pointing to one example.  
 em to defer to the British courts for capital crimes, it was the leader of the

before the meeting started to  
 had been totally unaware until  
 leader, but the meeting which  
 will have a colonel," he told  
 that on September 14, Wayne

One of the reasons t  
 Maroon communities of Jam:  
 island and successfully fought  
 treaties which were signed b  
 exchange for their collaborati  
 treaties allowed for "their pe  
 government, and their freedo  
 present day. Campbell points  
 the Treat[ies] by the fact of e  
 heading toward a sea of trou  
 Maroons we visited was appa  
 British advantage and became  
 Maroons were in effect unde  
 While the treaties required th

Maroons themselves who first decided whether a not an accused Maroon was if fact deemed to be guilty of such a crime. This put them firmly in charge in the situation.

Major Aarons, who was able to find each member of our ethnographic team copies of the Windward treaty, felt that the as the victors of the war with the British they were due repayment of "war debt.", but the "British never pay anything." Nor did he feel that were ever adequately compensated when they were called upon to suppress rebellions, which they did. The issue becomes very thorny with Jamaica's independence and the creation of national heroes such as Sam Sharp and Paul Bogle which were the very persons who led the rebellions the Maroons were called upon to suppress. Captain Smith commented, "You hear about squatters. When I check out history everyone squatters, but the Maroons don't pay taxes." He told us of his attempt to deal with the Jamaican Water Board when the communities were having a problem with water pressure. He was told that "'until you realize you're no different from any other Jamaican we can't help,' which is a bluff for saying 'you don't pay taxes.'" He claims that it is not true to say the Maroons don't pay taxes. "Every Maroon pay for title for individual properties, they pay electricity, and they do a lot of free labor." The issue, of course, is the question of the land that was granted them by treaty, and it is on this issue that the Maroons stand adamant.

Major Aarons pointed out that the special situation of the Maroons in Jamaica was not mentioned in the Jamaican constitution of 1962. According to him the only help the Maroons need from the Jamaican government is road repair. Since the Maroons are not "tax payers" the government does not take responsibility for the roads there. This causes a problem in that many transport owners refuse to come into Moore Town for produce, many banana farmers are unable to get good prices for their banana crop because they get bruised in transport. Even the bus service and mail delivery have been affected, and the mail is important because "it travels the money." Captain Smith feels that it is not just the question of the Maroon relationship to the Jamaican government because more than the Maroon

f Parliament are "the worse I ever gone bad; fix road no more." He feels an government has to do with the fact is a punishment and a sabotage." ger Jamaican community is the apparent that it was applied on both uring the British struggle against the d to help "enforce" the institution of reveals the complexity of the ipping Maroons admitted that Maroon only a comparative few were caught ons had much to lose and little to tal solidarity had been destroyed. The ' conflicts with rebels, and to hide the

the Maroons and officials of the hosted an exhibition mid-way through excavations: Nanny Town excavations on in 1994. Many people from the

roads are affected. The problem is politics. The present members o witness." Aarons concurs: "Since Bustamante and Manley politics , that the problem between the Maroon communities and the Jamaic: that the Maroon collaborated with the British. "Not fixing the road

The tension which exists between the Maroons and the lar present remnant of the British policy of "divide and rule" and it is sides. The plantation slaves were used as trackers and informers du Maroons and the Maroons, once the treaties were signed, were use slavery. Recent investigation concerning the issue of collaboration question. Carey Robinson points out that "a Captain of the "Acon patrol often accepted bribes to allow runaways to escape, and that and returned to their masters."<sup>6</sup> He further points out that the Marc gain from alliance with slave rebels. "The basis for mere sentiment best the Maroons could offer was to go easy now and then in their odd runaway."<sup>7</sup>

We had the opportunity to observe the dynamics between larger community during our stay at Seaman's Valley. Our camp the excavation which featured maps and pictures of all previous e in 1991, 1992, and 1993, as well as the Seaman's Valley excavatic

University of the West Indies, the Jamaican Heritage Trust, and other interested groups had been invited to visit our camp to observe the work in process. Major Aarons and the Maroon dancers and drummers were also invited. The speakers from Kingston encouraged greater participation on the part of the Maroons. The head of the Jamaican Heritage Trust said, "the Maroons have been the freedom fighters and preservers of their communities and we hope they will become the future leaders of Jamaica" - implying incorporation. The Maroons emphasized their differences from the larger community by focusing on what has been preserved and is distinctive in their culture, the special Maroon dancing and drumming. Incorporation, unity, participation in the new independent nation seem at first glance like worthy goals, but one can understand the hesitancy on the part of this "special" people to simply be absorbed, to put their land rights in possible jeopardy, and especially to run the risk of losing their distinctive character and culture. Captain Smith said it this way: "If we don't stand on our feet and get things right we will lose; we will lose our culture."

It was interesting to me that almost every person we had the opportunity to speak with spoke of their special culture with great pride and perhaps with a bit of defensiveness given the constant pressure to be like everybody else. They spoke freely of their spiritual beliefs, for example. Colonel Harris commented to our group last year, "I hesitate to say to today's listeners what Maroons can do because it sounds too preposterous," - in a hushed voice - "we walked and communed with the spirits." Major Aarons told of the story of the young boy, Leonard, who threw stones at a beautiful bird no one had ever seen before. It was also the most beautiful bird anyone had ever seen. When the boy hit it with a rock, "immediately his arm swollen and he become very sick." The drummers and dancers revealed that that beautiful bird was the spirit of Nanny and the boy was immediately made well. "Nanny's spirit never leave Moore Town."

Captain Smith spoke of a gentleman who had been told that he was not to hunt boar. He hunted it anyway, and after he killed it he was struck dumb. Captain Smith confided that he had seen this gentleman right after he had killed the boar, "and his mouth open and nothing came out. It was obvious that he couldn't talk." While Captain Smith was very articulate and easy to understand, having worked on cruise ships in the Northwest in his youth, his language was colorful and expressive, spiced with

age was colorful and expressive, spiced with  
A gentleman we met at Nanny monument greeted  
world without shoes - rich and poor alike."  
I during excavation of the aqueduct told me the  
d then he died. I no mess with toads, mon."  
s of progress and modernity which promises and  
nts came to my mind. These wheels usually grind  
wake. The challenge facing the Jamaican nation  
and many faceted. I felt deeply down in my heart  
lot more at stake than roads and taxes. Peaceful  
rld around them. All these memories, I wish to  
and the entire Jamaica - The land we love.

on cruise ships in the Northwest in his youth, his language  
proverbs and bible quotes in the most natural fashion.  
us by saying, " everyone rich and poor come into the w  
Another gentleman who I had told about finding a toad  
story of a person who touched a toad: "He got rich, an  
Thoughts of the relentless ever moving wheel  
sometimes delivers economic and physical improve:  
forward leaving new and improved "sameness" in its v  
and the Maroon community, in particular, is complex :  
during my encounters with the Maroons that there is a  
co-existence and harmony with themselves and the wo  
share with my MHRP95 expedition, Maroons, friends

### Acknowledgements

nny (Project Directors) for the opportunity to be  
d and warm company, to Ex-Colonel Harris,  
orge Harris, Ms Christie (Mace Iv). George

I am extremely grateful to Kofi, Sam and Do:  
part of the experience and to all volunteers for the go:  
Major Charles Aaron, Captain Smith, Ms Ruth and Ge



## MAINTAINING THE ROADS AND GIVING VOICE TO THE HONORED DEAD: MAROON ARCHAEOLOGY AT SEAMAN'S VALLEY, PORTLAND, JAMAICA

**Stanford W. Carpenter, Department of Anthropology,  
Rice university, Houston Texas**

### INTRODUCTION

For the past two years The Maroon Heritage Research Project, has conducted research at Seaman's Valley in the Parish of Portland in Jamaica. The excavations have always received the support of the University of the West Indies and the Jamaica National Heritage Trust and recently the Portland State University, Oregon. This research has been ongoing and initially started as a study of the settlement behavior patterns of Jamaican Maroons using archaeological and ethnographic evidence (Agorsah 1992, 1994; Davis 1993, 1994, Carpenter 1994). Comparisons have often been made with West African evidence (Agorsah 1993) in order to explain the threads of African and Amerindian traditions that figured in the development of Maroon society. I was invited to participate as a map maker during the last two expeditions, the first one lasting from August 5, to September 2, 1994 and the second from August 5 to 20, 1995. In both cases, the excavations were conducted by a combined crew of Maroons, Jamaicans and foreigners (myself included). What follows is a contextualization of my experiences during the second expedition within the incorporation of Maroon history, as embodied in its

honored dead, into Jamaican history. This incorporation has been observed to have been ongoing and appears to occur in many contexts, including Jamaican cultural and educational institutions, historical accounts, and archaeological excavations.

The account is limited to my personal experiences and interactions as reflected in my field notes. Names of all speakers whose comments were not made in a public speech or during an interview have been omitted. The "crew" that I refer to are the volunteers and workers who resided at the campsite and actively participated in the archaeological project. One credit that must be given to this project is the fact that the Maroons were part of the research team, helping to research about their own traditions and history. Unless otherwise noted, the crew consisted of Maroons, Non-Maroon Jamaicans, and, with few exceptions, Americans of varying persuasions and nationalities. The Project Director himself, originally from Ghana, always reminded us of the African presence at the camp.

### **The Journey**

As we drove from the University of the West Indies to Moore Town my thoughts turned back to our previous season. I remember sitting in the communal tent with a native Jamaican crew member who told us about the place of Maroon history as it related to various stages of his life. He explained to us that when he was young the Maroons were hardly spoken of but that as time has passed Jamaica has come to embrace Maroon history as Jamaican history. The contemporary Maroons trace their history to the coming of the first enslaved people. They proudly recount their escape from bondage, and settlement in the rugged Jamaican interior, and waged a guerrilla war against their former captors. Under the

The Jamaican crew member spoke of this island's history as one who lived through its transition from British Colony to island nation. As American from the USA, who has left his country on few occasions, the Jamaica I experienced up until this dig existed in second hand written accounts and such American popular culture venues as music, television, and movies. Upon my arrival in Jamaica, depiction of the Maroons on murals, references to them by native Jamaicans, and the images of Nanny and Cudjoe in various places, particularly the status of Nanny as one of the national heroes of Jamaica and other honored dead, had no immediate historical context for me. I was unprepared for the Maroon distinctions between themselves and other Jamaicans.

### **The Honored Dead**

Jamaica's transition from colony to nationhood has had many repercussions, among them is the determination of the place of the Maroons, the legality of their treaties, the status of their history, and the representation of their honored dead. It appears that incorporation of both Maroon society and history into Jamaican society and history has come at some cost to the Maroon people. This became apparent to me through interviews, speeches, and anecdotal accounts. Two concerns dominated these encounters: the condition of the road leading to Moore Town and the gradual disappearance of Maroon tradition, stories (their oral history) among young Maroons. Yet these concerns come at a time in which Jamaica is actively incorporating Maroon history into Jamaican history and in which knowledge of the Maroons among non-Maroons, both in Jamaica and abroad, is increasing rapidly. As time passed, I came to realize that for many Maroons the condition of the road was regarded as symbolic of the status of Maroon history and culture in Jamaica.

During my first visit in 1994, it became apparent to me that the most powerful stories of the Maroon struggle were embodied in the life of Nanny, the leader of the Maroons, as well as other honored dead in Maroon society. Our excavation, in its attempt to uncover physical remnants of the Maroon past, had its own peculiar relationship to these stories of the honored dead. As we reconstructed Maroon life, we also played a role in the dissemination of knowledge about Maroon history. Unlike the Maroon stories that are told from person to person or to small groups, usually within the community,



Maroon stories that are told from person to person or to small groups, usually within the community, the results of our excavations are distributed through (Agorsah 1993, 1994, 1995, Stanford 1994) such intermediaries as educational institutions, academic journals, and museums that exist outside of the Maroon community. As Jamaica embraces Maroon history and incorporates images, stories and presentations of Maroon historical figures, so to does it enter into a relationship with the honored dead of Maroon society.

### **First Experiences At The Camp**

We arrived at the site on a Sunday, after a five-hour journey. The road connecting Pt. Antonio Moore Town was particularly difficult. The road was littered with potholes and many sections of it were completely washed out, revealing the dirt underneath. Even in a four wheel drive vehicle it was impossible to maintain a steady speed. We frequently stopped or slowed to a crawl so as not to damage the vehicle. This leg of the journey of eleven kilometers lasted close to an hour. When we got out of the vehicle we were stiff and sore. But our aches and pains would have to wait. Our camp was approximately three hundred meters up a hill, and it was about to rain. This being my second expedition, I already had a relationship with the road. As a runner during the first expedition I was up each morning before the sun (4:45 a.m.) jogging along this narrow stretch of dirt and concrete. I learned how to go around, through and over the potholes and the washed-out sections the hard way: slips, falls,

project director was first class. It was a miraculous feat. All of us would have fled the camp as the weather had dictated.

On Tuesday, the weather cleared enough for us to begin. Conditions were still far from ideal. The rain continued off and on during the day and we were glad to star work. It was a period of improvisation an the project director did it very successfully. Later, we divided into three groups: mapping, excavation, and clearing of the site. The duties of training and leading the mapping crew fell upon my shoulders. We began by mapping the road and worked our way over to the path leading to our land lady's (Miss Christie) house at the top of the hill. Our campsite was on the property adjoining her property. Our excavations straddled her property and those of the Lowes and Kenneth Douglas Shelton.

## MAROON LAND

In our briefings we were told that all Maroon land is owned by the Maroon Council which is responsible for apportioning it to individual Maroon families. The families who live and work on the land function as caretakers. Observations indicate that the relationship between the families and the council varied on an individual basis and is highly unclear. In interviews with some members of the community, Maroon Council ownership of land was emphasized. Maroon families, however, referred to the land as either personal property or, in a few cases, as joint property. We had permission to conduct our work from the Maroon Council but the intrusive nature of mapping, survey, and excavations was complicated by the differing relationships and communication between Maroon families with the Council.

We fielded many questions and concerns as we went about our daily tasks. During an encounter with a member of the Maroon community, concerns were expressed over whether we were showing 'proper respect' to individual 'land owners' as we took our compass and plane table alidade readings. His closing comments alluded to a particular dilemma in which our dig found itself. He did not want us to stop, but he told us that he was concerned about our work and did not want it to affect

his property rights negatively. In particular, he felt that it was important that we continue because it

brought money into the community. It was his hope that as a result of our work, the road would be fixed and a museum built on Maroon land. At the time, the expression of the desire to see the road fixed was viewed as an economic concern.

Over the course of the next week, however, I would come to see the road in both physical and symbolic terms. The desire to see a museum built was less an economic concern than a cultural consideration. As has been stated earlier, our work was connected to institutions outside of this Maroon community. A museum located within the community could serve as a venue that would allow for greater Maroon control over Maroon cultural history within an institutional framework.

Many of us on the expedition have expressed how much tourism potential Nanny Town is to the Maroons and indeed the whole of Jamaica and yet it does not appear there is any serious or visible plans to tap those resources. At least we know that the MHRP confirms this potential.

One afternoon, we took some time out to visit Major Charles Aarons who was the acting leader of the Maroons at the time. Earlier this year (between the first and second seasons of the dig) Colonel Harris, the leader of the Moore Town Maroons, resigned. We were not sure of events and thought the state of affairs would have an affect our activities in that Colonel Harris was a strong supporter of our dig although he never visited us at the site. Fortunately this did not happen as Major Aarons very strongly supportive of the activities of the project and even encouraged participation of the Maroon community. He personally visited the site a number of times, sometimes with other members of the community. During our conversation, he explained the issue of non-payment of taxes. He showed us the

his property rights negatively. In particular, he felt that it was important that we continue because it brought money into the community. It was his hope that as a result of our work, the road would be fixed and a museum built on Maroon land. At the time, the expression of the desire to see the road fixed was viewed as an economic concern.

as well as all Black people, to the United Nations. The Major also expressed concern over the bad road network in Maroon areas but we did not really follow up on this until in a later interview.

That evening the rain continued. The following morning the project director announced that if the rain did not let up we would have to close camp and change to laboratory analysis of the material from the previous dig. It was nice that we did not have to do that. We continued to work as much as the weather would permit. We debated whether or not to continue for the next three days. The weather improved and the mapping moved on but at a snail's pace. We were continually forced to stop work as the rains intensified. At times we would remark to one another about what it must have been like to live here without the road and other amenities we have today. As we continued to map the land of the living we became more aware of the "honored dead heroes" of the Maroons who once walked those areas. We worked our way up a hill to the scattered traces of an aqueduct that we followed to a long abandoned, half buried wheel housing. These traces of objects were more than they appeared. With each new object we could trace or feel the movements of those long gone people, the "honored dead". Waiting for the rain to pass, I found comfort in my imagination. What was Nanny's life like, I sometimes wondered. Did she set foot on the very spot that I sat?

### OPEN DAY AND EXHIBITION AT SEAMAN'S VALLEY SITE

By Sunday we were preparing for company. It had been a difficult week. Three of our group were replaced. One member of the crew left unexpectedly. We were visited by members of the Maroon community from Moore Town, Seaman's Valley, Windsor, Cooper's Hill, Comfort Castle, Ginger House and adjoining areas as well as the Moore Town Maroon cultural group, representatives of the Jamaican National Heritage Trust, expedition crew members from previous seasons, and the Head of Department and representatives of the University of the West Indies and other people from as far afield as Port Antonio and Kingston. It was a memorable open day of exhibition and cultural experience. We gave tours to various sections and features of the excavation and listened to the drummers, rhythms which have been passed down from generation to generation, from the honored dead to the living. And as we listened to stories told by members of the Maroon community, we participated in the recollection of

alive. king about the dig and Maroon heritage the on the speaker. Many of the non-Maroons tion of the many more people from the Maroon tory and culture. Among the Maroons discussion se, Sunday's festivities fostered a great deal of the next two evenings, debates at the site were as a peculiar dichotomy in Maroon rhetoric. On ependence and their fighting spirit. On the other ently expressed Maroon desire for a government e asking a lot considering that they did not pay American political discourse that it has to be crew members struck an interesting chord when is but is troubled by their lack of vision for the on".

had requested to have some time off to go and three American crew members. All this talk of

honored dead, Nanny and other heroes of the past came

But the conversations were troubling. In tal discussions shifted into different directions depending expressed concerned over the apparent lack of participa community in such projects, that focused on Maroon his of the road was very prevalent. More than anything el conversation among non-Maroon crew members. Over dominated by what the non-Maroon crew members saw one hand, there was the heavy emphasis on Maroon ind hand whenever the road was at issue, their was a frequ solution. There was also a sense that the Maroons wen taxes. The thrust of this argument is so reflective of viewed, to some extent, as such. One of the Jamaican he said that he respects the glorious past of the Maroo future. "They have a dream," he continued, "but no visi

### INTERVIEWS

By Wednesday we had finished the mapping. I do some interviews in the community along with other

## Traditions

Many of them lamented the decline of the traditions of drumming and language and storytelling traditions among the younger Maroons. It was argued that this was connected to a recent lack of interaction between parents and children, and that this was of particular concern because the Maroon traditions and histories of resistance were in danger of going extinct. It was thought the disappearance of the traditions would make it difficult for the younger generation to continue the struggle of the Maroons. "Who would wage the next struggle" one of them asked rhetorically. "A leader of a country cannot know who will be inspired in case of war" it was stated.

## Healing

In speaking of Maroon healing traditions, we were told that cures for the sick commonly come in dreams. In these dreams it is the dead who passed on the knowledge. Examples in which Nanny often appeared to living Maroons in their dreams was cited as the most common. It is also claimed that there is a secret between the living and the dead that can be experienced in dreams.

Another threat to Maroon culture is the absence of a good road. The road from Port Antonio to Moore Town in particular, is considered the only connection between Moore Town and the sparse highway system of Jamaica. This narrow eleven kilometer stretch of highway is more a collection of potholes or perhaps "man holes" than a road. It was explained that the poor condition of the road is the cause of the isolation of the Moore Town community. Many drivers refuse to make the journey, and in the case of the few cabs that do come the fare is sometimes triple the normal fare. The bumpy road has also been responsible for the bruising and subsequent loss of entire shipments of bananas, a major export of this community. Getting the road fixed, is the only help that the Maroons need from the government. Many promises of aid from government officials, including some of those of various institutions, according to discussions, have never materialized.

## Transportation and punishment"

The road is much more than a transportation concern to many of the Council members. The road has been linked to the period beginning with Jamaica's transition to nationhood. During the colonial times, it is argued, the road was worked on three times a year, April, August, and December. It was the responsibility of the Maroons to maintain the road. It was the government when it severed its colonial ties. But none of the responsibilities have been fulfilled. The neglect of the road is construed as a form of victimization.

The neglect of the road stretches further back than Jamaica's nationhood. In the aftermath of the war between Great Britain and the Maroons, the road was not maintained. Although the maintenance of the road was most probably regarded as normal maintenance of the island, it is obvious that the Maroons, who had come to view this labor as a spoil of war. As part of the treaty to fight with the British to suppress uprisings and repatriate slaves. It is of the conflict and adherents to the treaty in good faith, they were due reparation.

One of the accusations against the Maroons was that they were not consulted regarding the creation of the new constitution. According to the discussion, their concerns and their treaty with the British were not taken into account. Like the road, in the transition from colony to nation, the Maroons suffered great neglect. According to one elder, since the establishment of the new constitution, the Maroons have not been consulted without giving anything

## The roads, taxes and the "great

The condition of the roads is a major concern for the Maroon members. The deterioration of the roads is linked to the transition to nationhood. During the colonial times, the roads were worked on three times a year, August, and December. It is the responsibility of the Maroons to maintain the roads. The responsibilities have been fulfilled.

But the symbolic meaning of the roads is also important. According to some of the elders, the Maroons received no war reparations from the British as part of the treaty. The Maroons were called upon to fight with the British to suppress uprisings and repatriate slaves. It is further argued that, as winners of the war, the Maroons should be given further consideration and reparation for future consideration and reparation.

Another accusation by the Maroons is that the British slipped through the cracks of the new constitution. Some of the Maroons felt that the interests of the Maroons have not been taken into account in the new constitution.

But it appeared to be an important statement that probably represents the sentiment of many others that should not be ignored. Was it a reaction to neglect and isolation. This to us outsiders, was certainly a message that should be taken seriously. But what is the nature of this neglect or "great punishment" ? Like the road to Moore Town that crumbles with the passage of time so is the tradition, itself the infrastructure of this Maroon community, crumbling. It seemed to me that the stories, so rarely told, are the road upon which the honored dead travel from Maroon mouth to Maroon ear and then to that of the general Jamaican community. And as the stories lose their power, the honored dead walk different roads. For me it meant experiencing the stories of how the Maroon honored dead through history books, their remaining traditions, as the subjects of excavations, and the images of Nanny on the Five Hundred dollar Jamaican currency.

### **The "honored dead" Maroons as heroes and martyrs**

But I ask : when will Cudjoe and others also be canonized? How do all this affect the relationship between the Maroon and the Maroon honored dead? Could these other roads (history books, excavations (thanks to Kofi Agorsah) and the currency) that the honored dead travel intensify the bitter sentiments reflected in the in statements of some Maroons, such as those with whom we shared thoughts? And what about "the secret relationship between the living and the dead" ?

It is ironic, that a Maroon community can find its ancestors, its honored dead, on the currency of a nation that seems to have forgotten their needs. Early one morning I went running on the road. I jumped over the potholes, avoided the washed-out sections, and cursed every slip and every fall. To me, however, this part of my morning game of hop-scotch, was a challenge to be overcome. But I was going home in a short while. For many Maroons, the road is a daily reminder, a symbol that is (for some) intimately connected to the lives of the honored dead. And for others it is a part the everyday attempt to meet ones needs and satisfy desires.

It is also ironic that the honored dead whose spiritual connections have been invoked to heal the Maroon community cannot be used to unite the Maroons and Jamaica. It is hoped that as the images

Nanny and other national heroes inscribed on the face of currency circulate, the Maroon honored ad in the process of circulation will gather some cents that would be returned to the resting grounds ere they shed their blood to speed up the end to slavery. After all we know they stood against slavery d fought it tooth and nail, risked their lives and succeeded. We also hope that a day will come when it ll be realized that placing the image of Nanny on the currency is not enough for to satisfy the nored dead heroes and their descendants.

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### **Maroons are "special"**

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Many Maroons are very ready to give accounts of the Maroon history from their escape from ndage to the struggle against the British and the treaties. Another elder had this to say "The nation of aroons are a special people. Unfortunately, according to him, not all Jamaica is comfortable with this. e referred to some time years ago, when the water system broke down in Moore Town and he had sk of going to the government to get the water system fixed. He was told by an unnamed bureaucrat at "it would not be fixed until the Maroons realized that they were not special people".

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In this context the term "special" refers to the taxes the Maroons do not pay on their land. This ghlights a fundamental difference between Maroons and non-Maroon Jamaicans. To the Maroons, tax empt status is proof of Nanny's victory and a sign of respect. To the non-Maroon Jamaican and many n-Jamaicans, tax- exempt status is seen as a hand out, a societal burden, or an unfair "special" right. his idea that the Maroons don not pay taxes is not entirely true he told us. "We don't pay taxes on the ad that Nanny won" he said. They only pay a partial tax on the water because most of it comes from

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The elder related this tale with a great deal of nostalgia but he laments: "We gave ourselves some of the current problems; we have lost our love and manners. In the old days, manners were maintained not so much by law but by the elders. If anyone misbehaved an elder could have him or her punished. An elderly person could even overrule a parent. Respect was maintained because many believed that if we could not tell a friend the truth, the friendship would not last."

"As manners and respect were lost", inferred the elder, "so was the history and tradition." Simply put, "the people stopped listening". So what does it mean when the people stop listening? And what does this do to the "secret relationship" between the living and the dead that is so vital to Maroon life? If ones elders are not worth listening to then what of the dead? Like the first elder, this one also sees the bad road and communication system as one of the Maroons single greatest problems. For example, the telephone system at the only main post office in Moore Town has been out of order for years now, perhaps since hurricane Gilbert in Jamaica. Also, the elder sees the road as the joint responsibility of the Maroons and the Jamaican government. As long as the road is in such poor condition, said the elder, commerce and economic development are limited. The road leads to the only hospital in Moore Town. Some of the elders do blame the Jamaican government as much as the Members of Parliament for the district in which Maroons reside. "In the past", he explained, "the Maroons were very active in Jamaican politics. In fact, the recently retired Colonel Harris was a Member of Parliament. As politics has become more violent, however, Maroon participation in national politics has waned. Several years ago, in an effort reminiscent of the damaged water supply, the Maroons got together and patched the road. Although a Member of Parliament later agreed to have the road sealed it never happened. Later that year, when the rainy season came, the patches were washed away".

As we listened to this elder, another one came to join in the conversation. He was an older gentleman and a former Maroon Captain. "The politician, in general, has played a large part in destroying the Community," he said. He argued that the Maroons should have their own Member of Parliament to look out after their interests. Upon his first words, the other stopped and deferred to his elder. But we were not particularly interested in discussing this at that time.

Issues were raised questions asked. Not all of my questions were answered, but at least I had a lot to think about.

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### g Camp

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We returned to the camp, to the business of archaeology. The mapping completed, I turned my attention to on site illustrations. I had been looking forward to this. A chance to be alone with traces of people long gone. This task occupied the next three days. But the days were not lonely, as I had expected. Following these traces of times long gone, I was in the company of the honored dead. On Monday, August 19, 1995 our time came to a close. We back-filled the excavated pits and trenches, re-secured all the pegs and the plastic flagging, re-established our bench mark firmly, walked around the site to check on any equipment, took inventory, checked our field record forms, sketches and maps in a brief review session and a good last meal and shut down the site. Later toward the evening we did a final group and individual photographs and early the next morning headed back to Moore Town. We were going to miss the good company this extraordinarily friendly people.

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### Questions to answer

Many

We left with many questions. What does it mean for Jamaica to embrace Maroon culture, history, and heritage? These questions permeated the dig. As archaeologists we came to uncover the past in this case, as we unearthed the material remains of people long gone, we were, in effect, telling the story of and giving voice to the honored dead of the Maroons. In our attempts to create an objective

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form of speeches, conversations, slips of the tongue, even actions and conflicts. Much of this talk could easily have been dismissed as rhetoric. But to acknowledge a statement as rhetorical and dismiss it on those grounds denies the purpose and power of rhetoric. It also dismisses the speaker. While in the field, these rhetorical stances, if you will, served to illustrate varying aspects of Maroon culture, society, and history in people's lives. And just as this rhetoric shapes the past, so too does it contextualize the present and determines the future. For we cannot understand the future unless we know and value the past.

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# **SOME OBSERVATIONS OF THE MAROON ETHNOBOTANY AND TRADITIONAL HEALTH: NANNY TOWN (1993) AND SEAMAN'S VALLEY (1994), PORTLAND, JAMAICA**

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## **INTRODUCTION**

A remark has been made by C.L.G. Harris, former Chief of the Moore Town Maroons that " Maroons used to regard themselves as second to none as herbalists" and Maroon territory abounds "in a multiplicity of herbs with amazing curative value" (Harris 1994). As a seasoned member of the 1993 Maroon Heritage Research Project (MHRP) expedition to Nanny Town, I returned in August of 1994 to participate in the archeological excavation at the Seaman's Valley site near Moore Town, Portland, and to undertake an adjunct ethnobotany project. This qualitative, adjunct project was an offshoot of an informal survey of plants at the Nanny Town site in 1993. The 1994 Seaman's Valley project was compiled along with two other members of the team, Jill Byles of Paraiso, St. Andrew, Jamaica (Byles 1994) and Stanford Carpenter, a doctoral student in the Department of Anthropology, Rice University in Houston, Texas. Ethnobotany is the anthropological term used for the study of plants used in communities, especially in the healing rituals and for medicinal and curative purposes.

The brief ethnobotanical study discussed in this paper appears to confirm Ex-colonel Harris's statement

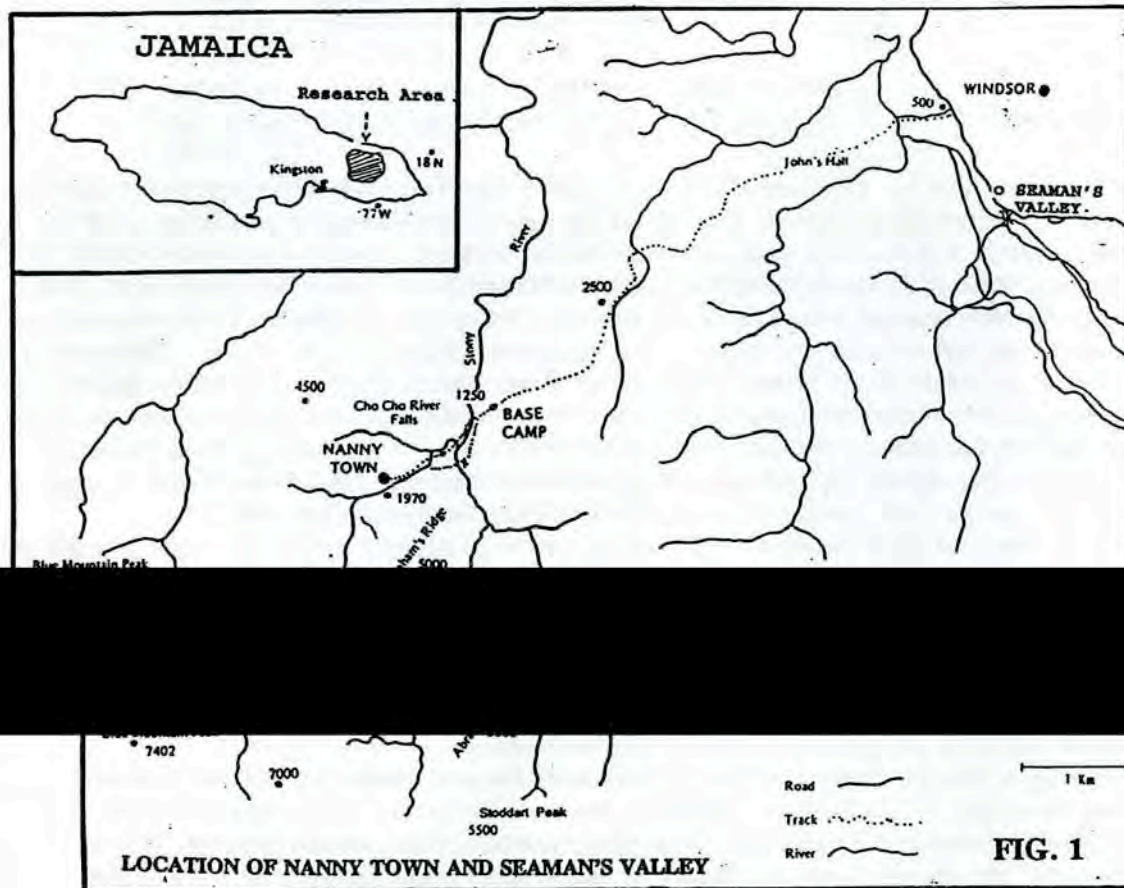
and also suggests the need for more of such studies among the Maroons.

With the help of Maroon elders, both in their seventies, Leopold Shelton of Windsor, forest ranger, and his cousin, Milton Shelton, a farmer at Seaman's Valley, our team walked arc sites of Nanny Town and Seaman's Valley (Fig.1), cataloging, photographing and talking about plants and their uses. The objective was to identify as many plants found around the sites, special attention to those that are used by the Maroons as healing agents. This was done in a document and preserve some of this valuable cultural information. As will be noted later in other members of the Moore Town community assisted with the work.

### **Research Area and Environment**

The site of Nanny Town in the parish of Portland, Jamaica (Fig. 1) is strategically within the loop of the Stony River which marks its southern and eastern boundaries in the Mountains. Blocking off the Stony River and standing steeply against its northern bank is the hill. To the north and west of the site in Nanny Hill from which Nanny Falls splashes down on level open grounds from which the spring flows into the south-eastern bend of the Stony River

Seaman's Valley (Fig. 1) is in the Parish of Portland, Jamaica, about 12 km (8 miles) from Port Antonio, the Parish capital, and approximately 3 km (2 miles) north of New Nanny Town (Moore Town). The modern settlement is dispersed in the valleys in the areas where the Negro River enters the Rio Grande and around the Seaman's Valley bridge, and also on the hillsides overlooking the valleys of the Rio Grande, Negro and Snake Rivers. It was at Seaman's Valley that the Maroons came into open or face-to-face combat with colonial military in a battle which featured the largest force ever sent



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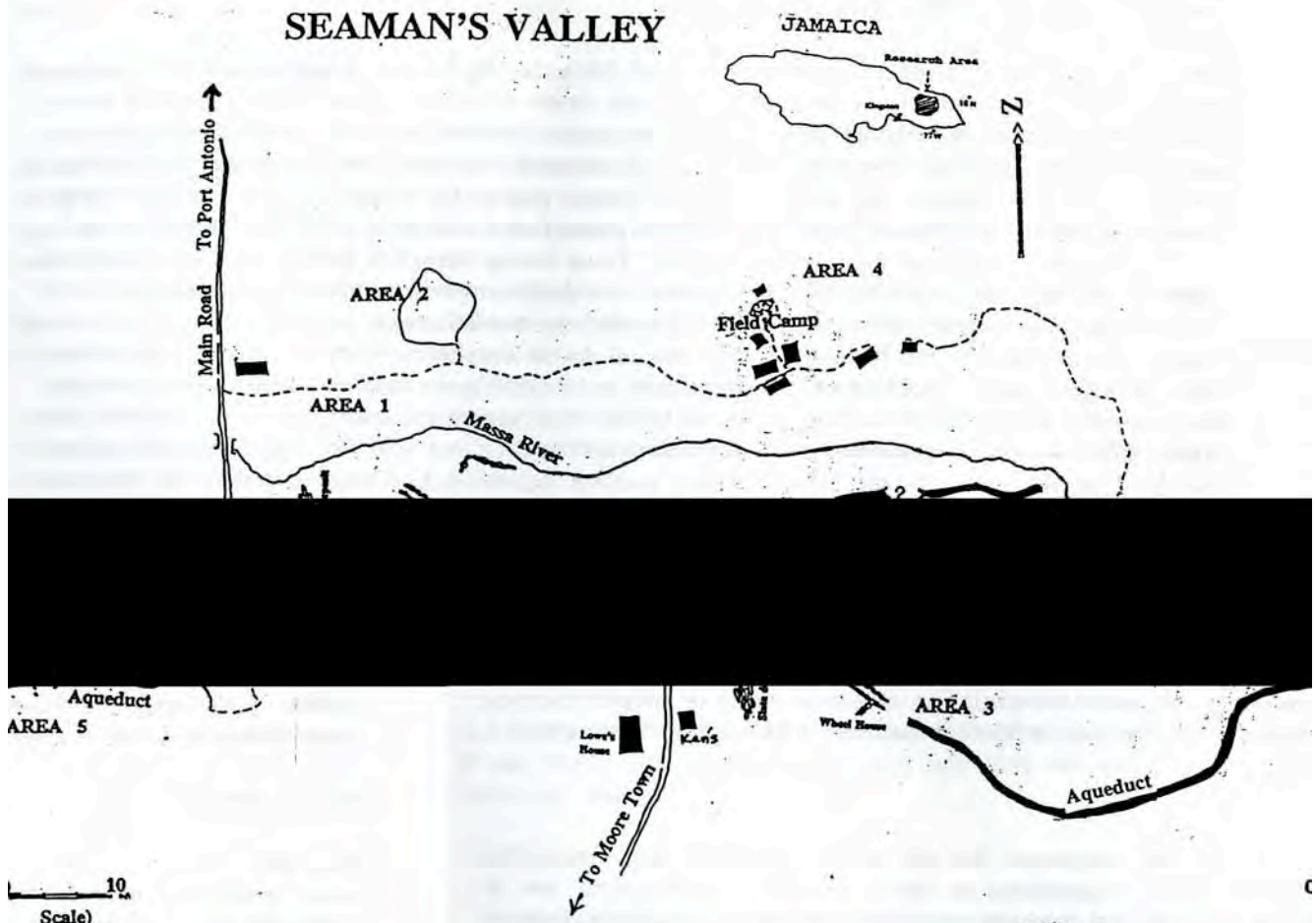
against the Maroons. In that encounter the colonial forces suffered total defeat resulting in abandonment of arms and ammunition, massacre of colonial militia and personnel. At the time of excavation much of the site was under banana plantation owned by Mr. William Lowe and Doug Kenneth Shelton.

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The Seaman's Valley archaeological site spans both sides of the modern main road but more on the east side of it, approximately 3 km north of Moore Town. It occupies much of the section of the valley around the Seaman's valley bridge and extends eastward up the hillside that rises to Seaman's Valley fall which appears to have been the source of water supply for the excavated aqueduct which is very prominently located at the highest points in the general area. Today, it is the source of water supply for Seaman's Valley and surrounding areas. The fall's water enters what is locally called the Massa river which flows into the Negro River which passes through the site and enters the

**Research Methods**

The method of gathering this information was basically informal and the information was predominately anecdotal reports. However informal, we tried to get the informant's response verbatim and not ask leading questions that might influence answers. Many of the questions were based on field record forms designed specifically for the data collection to enable us collect the data uniformly. This we thought would also help in the final synthesis of the results. We often repeated the statements made by the informant as we wrote.



**FIG. 2**

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nation would be obtained. As it

This double-checking not only helped with clarification of what was often elicited the second time the informer responded. For example, a dia between Questioner (Q) and Informant (I):

Q: "And what is this plant?"

I: "Oh, that is rat eise"

Q: "This plant is rat ace?"

I: "No, rat ears. You can boil it to make a tea for the baby grip

Q: "Oh, okay rat eise. Boil to make a tea for the baby gripe."

I: "Yes, give it when the baby bawl for "im belly."

As the discussion continued along these lines some more inform

reference books and previous studies served as resources for the scientific and common plant names and culinary uses and identification (Adams 1972, Robertson 1982, Byles 1994). In this paper, the plants studied are grouped into the different known uses, associated ailments or health treatments. These groupings are not mutually exclusive and the uses discussed are not exhaustive of all that is known. A total of ninety-seven (97) plants were identified and photographed. In addition, two other plants were recorded although they were not found on the sites. These were cola bissy (*Cola acuminata*), a stimulant and antidote for poisoning (Robertson 1982) and mamee fruit (*Mammea americana*). Plant groupings observed included ornamentals, fruits, vegetables, tubers, weeds, grasses and hard woods. Where not certainly known, the scientific botanical names are not indicated.

## ORNAMENTAL AND DECORATIVE PLANTS

Some of the ornamental plants identified included hibiscus (*Hibiscus schinopetalus*), *Diefenbachia*, commonly known as dumb cane or money plant and croton (*Croton*), whose brightly colored leaves provide a lush and pretty hedging. Tubers included dasheen (*Colocasia esculenta*), Coolie coco (*Araceae gene*), renta yam (*Dioscorea rotundata*) and badoo (*Xanthosoma sagitt.*) which is used as food for hogs. Cattle and other animals feed on guinea grass, the fibrous root of the Dutch grass, and bullhead grass (*Graminea*). Hard wood trees included teak (*Tectona grandis*) and mahogany (*Swietenia macrophylla*).

Several plants that were noted at Nanny Town during the 1993 survey were also found at Seaman's Valley. These were banana, black jointer, cowblood, cowfoot, puddin wiss, orange, wild cow itch, cerrassee (*Mormodica charantia*) and leaf of the trumpet tree (*Cecropia peltata*).

Plants of importance to the Maroons, though not all found on site in Seaman's Valley, are cacoon (*Entanda gigas*), the leaves of which were once used as "camouflage to fight the British", and its round, brown seed or kernel which can be roasted or bottled with pepper for seasoning. Also recorded was pepper elder (*Peperomia pellucida*) which is "rubbed up" on meat and used like sage for seasoning and also used as seasoning for the "jerk" cooking scaffold according to Leopold Shelton of Windsor. Another is the epiphyte, ram goat beard (*Rhipsalis baccifra*), also known as string or spaghetti cactus, which grows wild and its long green tendrils are used as Maroon costume or decoration for dancers.

## MEDICINAL PLANTS

Plant preparations included "baths", "teas" and compresses. We did not get in depth as to recipes or the exact proportions needed for creating these preparations; as stated above, our main focus was cataloging the plants and identifying those that are commonly used for medicinal and curative purposes, either in their whole form or added to compounds. Many plants were recorded as helpful for abscess relief from "cold", fever, "pressure", headaches, dandruff and abdominal complaints.

### "Pressure"

"Pressure" refers to hypertension or high blood pressure. Several plants were identified helpful for this condition. One can use the boiled leaves of the breadfruit (*Artocarpus altilis*), but on the leaves picked directly from the tree, not from those on the ground. A mixture of the water from the coconut (*Cocos nucifera*) and lime is also suggested as a good treatment for hypertension.

### Remedies for Colds and Fever

*Peperomia pellucida* is used for chest colds and coughs after boiling the plant and mixing



### Tenderizers and prevention of danger

The one plant that intrigued me the most was the papaya plant (*Carica papaya*), commonly known as pawpaw. It is commonly grown in the tropics as food, but is also utilized as meat tenderizer and medicine. For food purposes, the papaya in its green stage can be cooked and used as a vegetable. The papaya contains the enzyme, papain which is commercially manufactured as a meat tenderizer. When ripe, the fruit is eaten or juiced and used for drink. The "stain" or sap of the pawpaw can be used on an abscess for removal of skin "chiggers" according to Robertson (1982) who claims also that the seeds have been used in the South Pacific as a method of birth control.

The papaya is considered to have strong spiritual powers and vast folklore surrounds this plant's properties. Some believe that the papaya should not be planted next to the living quarters because it will draw out the virility of male inhabitants and can sap the energy of the dwellers. The Maroons think that the plant is especially "dangerous" to men. An informal survey of some informants revealed these comments about the powers of the pawpaw tree confirms that this was a generally recognized "fact". Our chief informants emphasized that a man "will become a eunuch and forget about sex". "No person should go under that tree when it rains". One of the prominent elders of Moore Town confirms that it is dangerous for "the male to lean on it for the tree produces the opposite of an aphrodisiac". It is also claimed that if one has an unruly animal that needs to be subdued one only needs to tie the animal to the papaya tree and the animal will become tame.

The papaya tree was found throughout Moore Town and the vicinity of our excavation; but of importance was the one that grew next to the small shop that Kenneth Douglas owned at Seaman's Valley (Area # 3 ). This tree served as a roof and meeting place for the shed next to the shop. This shady spot was where we rested, talked and took refuge from the sun or the rain. I asked a Maroon about what he thought of the tree next to the shop and he replied, "It is a bad tree and might fall the shop." It is strongly suggested that one should not seek refuge from the rain under a pawpaw tree for if you are a pregnant woman this will cause you to miscarry.

## MAROONS

my interest in maternal and child health, an reproduction and conception, during pregnancy, about these issues which are hardly openly confided that they "do not go much into the wn as tuna or conchaneal, has been used in mature the pregnant woman takes off or cuts with labor. Perhaps the tuna plant is thought to tents of the plant is seen as a lubricating agent. lisa Sobo similar to attributes given to okra ral Jamaican's health ethos.

important to find out about other local health own also enabled us to learn more from the

## OTHER HEALTH CARE AND HEALING AMONG

### Reproduction, Childbirth and Lactation

Because of my training in public health and attempt was made to learn about plants that are used for child birth, and lactation. The study ventured to ask discussed among Maroons. However, some informants nursery", but they knew that *Opuntia*, commonly kno childbirth. It was stated that, "when the baby is ready to the 'bark' of the plant and drinks the contents to assist v facilitate the birthing process because the slimy, slick con This same rationale is noted by the anthropologist E (*Hibiscus esculentus*) and other "slippery foods" in the ru

### Traditional Healing

In addition to the ethnobotany project, it was systems and quick three kilometer trips into Moore T

During one of the visits, at the Ministry of Health's Moore Town Health Centre discussions were held with some of the older patients who were waiting to be seen. An elderly woman in her seventies said that you could use red water grass (*Zebrina pendula*) for "pressure". This running ground cover is the same plant that the guides in this study described as being good for sprains and bruises. The leaves are to be beaten and mixed with rum for sprains in the same way as happened at the field at Nanny Town mentioned above. The leaves can also be mixed with brick dust, custard apple (*Annona reticulata*) leaf and vinegar for sprains or bruises.

Along the road into Moore Town lives a healer with a very faithful following. She invited some of us to meet with her and to tell us of her healing work. She was raised as a Baptist but received her calling to do healing work at age of sixteen. She is a faith healer and, according to her and others, with the power of prayer she is able to go into trances and search her client's body for the affliction that must be extricated. After our meeting on her veranda she took us to her backyard where she showed us some of the items that she had extracted from her clients. A bucket held an assortment of wire, money, buttons, razor blades and even a pair of women's black underwear. Glass bottles held preserved frogs and insects. The power that she had on her followers was apparent because during our meeting many people came to see her, some even came from out of town. She had to decline the requests because of a recent death in her family and she apologized to them and stated that she was "not working".

## LESSONS LEARNED FROM THE MAROONS

This project was not meant to be an exhaustive in-depth study of the uses of plant types compiled during the Nanny Town (1993) and Seaman's Valley (1994) expeditions. Plants were not removed and preserved for chemical testing. The collection of oral and photographic information and the knowledge pertaining to the use of plants along with other forms of health care delivery in a rural setting were

important aspects of a Maroon living culture. It is expected that much more interest in further documentation of the traditional knowledge of Maroons for there is a great deal there that may disappear with the few who have them. The study was limited to the immediate surroundings of both Nanny Town and Seaman's Valley. If it extended to include a wider area, a lot more information would be obtained. The study indicated how ignorant we were of plants around us that assist us in our lives. The guides gave us examples of how when we get sick, we leave our home to seek out the doctor and along the way we pass by bushes and roots that could have solved the problem. The doctor and present our chief complaint the doctor goes to the backyard, selects and uses the same plants, blends them together, puts it in a pill or bottles them and presents it to us and take our package back home, passing by very plants, stepping on the roots, that these were the same ingredients in the medication that the doctor prepared for us. The study illustrated here is that human societies are living in the middle of the very natural world and save them yet ignore their potentials. An advice from one of the guides was: "pick up the trail or foot path because you don't want to use something that has been spat on... and when you take up an item be sure to take along the root". This

was meant to document it and a great deal of knowledge will be taken toward Seaman's Valley. The study clearly indicated that the Maroons guides always act as a doctor at a hospital and when we get to the doctor picks some of those items for us. We pay for that and ignorant of the fact that the study was in a natural environment that can be used for items for use above ground or stepped on or perhaps

### ACKNOWLEDGEMENTS

It has been a great experience being part of the Maroon Heritage Research Project and to have become one of the veterans and I thank the Project Directors and the University of the West Indies, particularly the Department of History, for the opportunity. The success of this adjunct study should be attributed to the support and knowledge of the Maroons of Moore Town and Seaman's Valley, particularly Leopold Shelton, Chief Guide of the Project and Milton Shelton. I dedicate this presentation to them and urge them to continue to use their knowledge for the benefit of their children and children's children. To my co-researcher Jill Byles, Paraiso, Guava Ridge, St. Andrew, Jamaica and Stanford Carpenter and to all my fellow consultants and volunteers on the project, I wish to express my thanks for their support and for sharing in the discussions that enlightened me on what I was undertaking. I wish to also extend my appreciation to my Gary Burget MD Service Corporation, Chicago, Illinois for the time to participate in the project and, of course, to my family for suffering my absence in the field for long periods of time for the experience.

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Correction : The picture identified as "Boats" by Vivian Morrison on Page 65 of March-June '73 issue actually should have been credited as "FISHERMEN" by Leeford Capleton.

# Jack Mansong

## BLOODSHED OR BROTHERHOOD

by L. Alan Eyre

ALL nations have their folk hero-villians. A classic stereotype is the noble outlaw, a brave guerrilla who is ruthless with unjust oppressors, generous to the common people, chivalrous to women and children, and a champion of universal human rights against an entrenched system of privilege. If, like Robin Hood, Jomo Kenyatta or Che Guevara, they achieve any measure of success, a mystique soon surrounds them. Viewed as criminals by the authority in power, and as heroes by highly dissident elements, it becomes very difficult, in assessing their influence, to separate fact from folklore.

Almost two hundred years ago, Jamaica had just such a folk hero-villian in the person of Jack Mansong. It comes as something of a surprise now to realize that for more than fifty years after his horrible death in the Blue Mountains his name was held in a strange combination of fear and awe not only in Jamaica but in Britain too. It is a fact that more "biographies" of Jack have been published than of any West Indian before or since — somewhere approaching twenty in all, almost all written in Britain and almost all anonymous!

Depending on which of these "lives" of Jack Mansong we pick up, he was the "Terror of Jamaica", a "famous negro robber", "a bold and daring defender of the rights of man", a "gallant hero". To the colonial administration he was "that daring rebel" and leader of a "very desperate gang of negro slaves."

### Short career

Considering that Jamaica had many runaways and rebels in slavery times and that Jack's provable career lasted only a matter of months, during 1780 and 1781, the later effects and influence of both facts and legends are really quite astonishing. Not only did books about him become popular and one or two are known to have been best sellers in Britain, but a pantomime on his life had the rare distinction of being a sensation at Covent Garden, Haymarket and Victoria theatres in London. This musical *Obi* — or *Three Fingered Jack* had a run of at least nine years! Even in the nineteenth century Jack's hideout was still being prominently displayed on maps of Jamaica, including the first official detailed survey of the island in 1802. There are important reasons for this notoriety, which will be considered later. First, we must determine who he was and what he really did.



As with all folk hero-villains, this is easier said than done. However, an exhaustive search of sources has not only clarified many facts but illustrated some interesting aspects in the growth of folklore.

Who was Jack Mansong? Despite the library catalogues, it is virtually certain that if Jack ever had a surname in his lifetime, it was not Mansong. This name does not appear in print until nineteen years after Jack's death and was probably the brainchild of an enthusiastic theatre-goer in London who saw the pantomime. It caught on and was adopted by some subsequent "biographies". In his rebel days in the hills Jack was known and feared by the name "Three-finger Jack."

Where was Jack born and where did he spend his life prior to becoming Jamaica's most notorious guerrilla? To the forces of law and order Jack was a common felon at large and the question of his origins was immaterial. Also being a runaway slave he was property, not a person, so that again his early life was of no consequence. There grew up after his death two traditions, circulating at the same time. An anonymous biography sold by the publisher, A. Neil in 1800 claims to have "cited historians of veracity" and represents Jack Mansong as the warrior son of Onowaulie, a Moslem from Simbing in the inland delta region of the Niger — somewhere south of Timbuktoo in modern Mali.

From there he was carried to the Gambia and then sold as a slave to Jamaica. But it is almost certain from internal evidence that the only "historians" he consulted were a William Burdett and the anonymous author of a book published by Brown of London in 1800. Both of these were however, propagandists who could tell a good yarn, not historians of veracity. This tradition is also followed in accounts of Jack's life published by Catnach, Clarke, Marks, Oliver and Boyd (a best-seller) and Walker.

We may dismiss as a fairy tale this whole story that Jack was from Mali. There are two puzzling features, however. One is the extraordinary mass of detail as to Jack Mansong's exploits as a young warrior, so lengthy as to be tedious and completely irrelevant to his later activities. In fact, in some cases where this tradition is followed, details of his early life in Mali take up more space than the account of his rebellion. In some accounts Jack is betrothed to Zalwana, the daughter of a chief, and the loss of her through being enslaved was a prime motive for later revenge. Moreover, there are details about the Bambara of Mali which are strangely accurate considering that this interior area of Africa was virtually unknown to Europeans in 1800. Even if the authors were writing historical romances, where they derived their geographical and historical information is an interesting problem. It is incredible that such detailed knowledge of events in Mali half a century before should have been known in the London of 1800.

#### Different tradition

There is, however, a totally different tradition which places Jack's birthplace as the Jamaican property of a Mr. Morrison near Scott's Hall in St. Mary. In this account he is presented as the posthumous son of Makro who died on the "middle passage" and Amri who was purchased by Morrison. The birth would thus be about 1763, either two or four months after his mother's arrival in Jamaica. Jack's parents were stated to be from the banks of the Gambia. This story first appears in 1800 in pseudoepistles by a W. Earle, Jr. and is found as late as 1829 in one of the most detailed "lives" — "The Wonderful Life and Adventures of Three Finger Jack, the terror of Jamaica."

The main feature of Earle's story and others which followed is that Jack's parents were enslaved by a Captain Harrop, a white planter from St. Mary turned slave trafficker. Harrop was shipwrecked on the Gambian coast, nursed back to health by Jack's parents but then abused their hospitality. Possessed by a bigoted conviction that their future would be better in civilized Jamaica than heathen Africa, Harrop

contrived to carry them in one of his ships as slaves to Jamaica. Jack's rebellious activities are interpreted as hatred and revenge inspired in him by his widowed mother.

There are many fanciful elements in this story too, and many geographical absurdities. The geography of Gambia is naive, and it is not possible to run down for supper from Mt. Lebanon in the Blue Mountains to Scott's Hall in St. Mary! There are improbable events in improbable places, the most fantastic being described by Petrus Borel, the French Story-teller, who has Jack saving a girl called Abigail from drowning and from pirates in St. Ann's Bay. Nevertheless, whether to give verisimilitude or because there was a grain of truth somewhere, Earle gives us a biography of Harrop, who is stated to have been born in Britain in 1738, taken to Jamaica at the age of one, and to have inherited a plantation in 1760.

#### Harrop

The name Harrop is almost certainly a pseudonym, even if the man ever existed, so there is no way of verifying the details. A search has revealed neither Harrop, nor Morrison among eighteenth century Jamaican planters, and certainly no trace of the Jewish landowner at St. Ann's Bay by the name of Hatsarmaveth Abraham Westmacot who was Abigail's master!

In the eighteenth century, details of runaway slaves were regularly advertised in the Jamaica press to aid in their capture. An advertisement was run for several weeks early in 1780 reporting an escapee by the name of Jack from an estate in St. Mary. It seems that he had run away to sea, gone to Honduras, then been seen in Kingston and finally taken to the hills. This Jack was apparently not from the Gambia, but was described as a Portuguese slave. But there must have been very many slaves named Jack, so this may be mere coincidence.

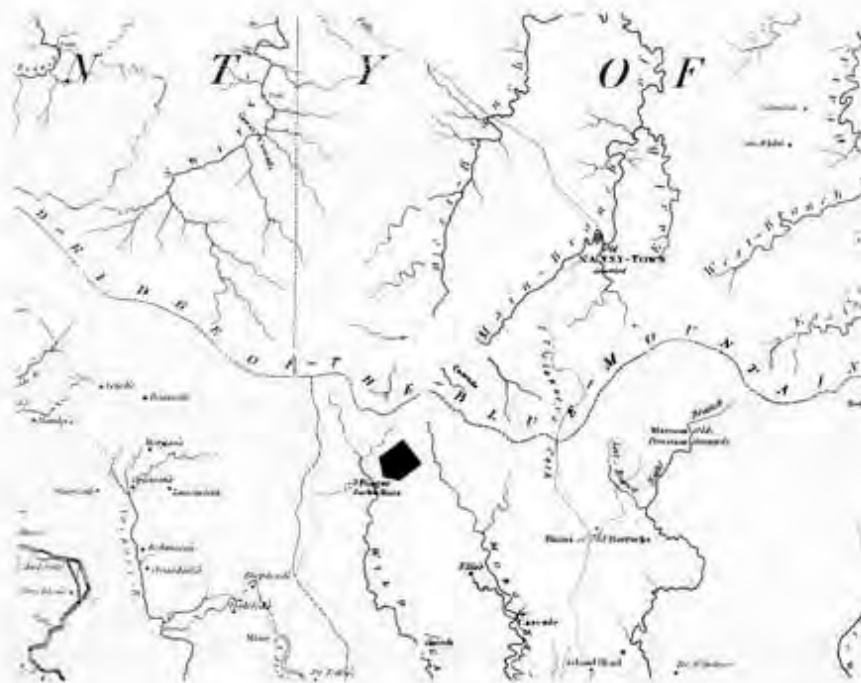
Was Jack born in Jamaica? Perhaps, but we have no certain way of knowing now. We have no idea where Earle got his information and most of it may have been simply out of his own head. He would not be the first to write fiction under the guise of sober history! One thing is certain: by early in 1780 Jack had decided that the life of a guerrilla was better than that of a slave, and he began his private war.

#### The Guerilla War

Governor Dalling's proclamation of 12 December 1780 makes it clear that Jack was no ordinary runaway slave trying to survive by crime. He is described as "a daring rebel" who had "eluded every attempt to capture him." His earliest base was near the head of the Cane River in St. Andrew from which he could observe and venture out to attack traffic on the on the Windward Road. But it was soon necessary to retreat to a more remote locality, and it was on Mt. Lebanon that he made his principal hideaway. It was with Mt. Lebanon that he became principally associated in popular repute, and many people in Britain had heard of Mt. Lebanon in this way who knew nothing else about Jamaica.

As a matter of fact, there is slight disagreement as to its exact location. One description places it "at the top end of Newington up one of the gullies to the east of the bridle path up Kenmore Ridge (of Blue Mountain Peak)". But the surveyor Robertson, who was the most careful and accurate map-maker of the early nineteenth century in Jamaica, marks "Three Finger Jack's Huts" very clearly and prominently in Queensbury Ridge at the 5,000 foot level about two miles south of the Peak.

There appear to have been several reasons why Jack chose the upper slopes of the Blue Mountain Peak besides inaccessibility. For one thing, it seems that the Mt. Lebanon property was in receivership and was being advertised for sale during most of 1780. Its backlands may thus have afforded a safer haven than neighbouring estates. But more important was the fact that a certain obeah-man lived in a cave on the



Portion of Blue Mountain showing "Three Finger Jack's Huts"

Below, The Bandit's Cave — Cundall's Three Finger Jack

slopes of the Peak. The anonymous account published by Brown, which is detailed and bravely entitles itself "a faithful narrative collected from the best authorities" (it does in fact contain some unique material) indicate that this cave provided a regular refuge for guerillas and desperadoes.

This obeah-man is named Amalkir in one account and Bashra in another: both names are undoubtedly fictional, but this transported African witch-doctor must have been real and provided powerful inspiration for Jack and his colleagues.

Jack set up headquarters near Bashra (alias Amalkir) and plotted with others various guerrilla stratagems. There are some amazingly fanciful descriptions of this mountain retreat. Most writers describe a cave of varying depths, down to a hundred feet, and there are even utterly ridiculous references to rooms in it with doors, tables and chairs! In fact, the thick fabric of fairytale hangs over this aspect of the story.

The bushy section of the Windward Road where it negotiates the hills between Bull Bay and Grant's Pen was chosen as the principal scene of banditry. At Four Mile Wood, near the present layby and viewpoint east of Eleven Miles on the St. Thomas Road, were staged many daring hold-ups, violent robberies, kidnappings and shootouts. Government officials and members of the plantocracy were priority victims. Other aims were theft of firearms and guerrilla recruitment—interpreted as freeing of slaves or carrying them off according to one's point of view! There were casualties both of direct murder and by killing of pursuers. Earle waxes eloquent: "numbers of innocents fell beneath his rapacious sword, and black men alone were spared."

In the early part of 1780 the movement showed signs of growing into a threatening revolt very similar indeed to the Mau Mau of Kenya. There was solemn oath-taking and African magical rites. The best source outside Government documents, Dr. Benjamin Moseley, surgeon-general to the Jamaica militia, assistant judge for St. Andrew and a renowned world authority on the growing of sugar, mentions a ceremony in which the contents of Jack's obeah-horn were



smear'd on the foreheads of his band to bind them to absolute secrecy.

The account published in Brown includes an episode of some significance in Jamaican history. Early in 1780, we are told,



Above, Four Mile Wood on the Kingston to Marant Bay Road, between Bull Bay and Grants Pen. Here were staged most of the daring guerilla raids on government officials and other travellers, and although the number of fatalities is not known, it is certain that shootouts were fairly frequent for some months.

Right, The Queensbury Ridge of Blue Mountain Peak. Jack's hideaway is reputed to have been close to the small peak in the rear centre. His secret track led down the centre of picture, by-passed Cedar Valley to left of foreground and eventually to Four Mile Wood.



plans were prepared for an island-wide massacre (the partly successful one of 1760, the so-called Conference Uprising, was still a vivid memory). At the firing of a signal gun at midnight on 10th February 1780 the grisly work was to begin. The location chosen to initiate the revolt was Crawford Town, a settlement situated between Silver Hill and Tranquility on the slopes of Haycock Hill in Western Portland. The attack on Crawford Town was made in the early hours of the morning and it was set afire, amidst, so the story goes, "screams of the defenceless and groans of the dying." A detachment of five hundred Maroon irregulars was quickly dispatched and they soon dispersed Jack's men. A general uprising, as usual, never materialized. A free pardon was offered to the insurgents and all accepted except Jack. From then on he fought alone.

The burning down of Crawford Town certainly did take place, but there is no other evidence that Jack took part in it. If he did, then the statements that he spared Negroes in his attack is nonsense, since there were many Maroons and few Whites in the population of Crawford Town. Free Maroons were encouraged to capture and return runaway slaves to 'justice' and thus there was little love lost between Maroons and fugitives bands living in the hills. This may explain the choice of target. Many of the maps of the late eighteenth century show that the settlement was later rebuilt on the other side of Haycock Hill and known as New Crawford Town. It does not exist today.

#### The Legend

Legends of Jack's character and prowess circulated widely. His obeh was heard as much as his musket. He was blamed for marital unhappiness, sickness and other misfortunes among both whites and blacks. On the other hand, he was "never known to hurt a child or abuse a woman."

There was a persistent story about a soldier's wife who, traveling over the hills to the garrison at Moore Town to visit her husband, was way-laid by Jack. Not knowing him, she sought his protection against the notorious bandit. She offered him money which was returned.

Another episode was that of the birthday party. Jumping suddenly from behind a tree as the revelries were proceeding in the garden. Jack shot dead the master of ceremonies and in the ensuing pandemonium retired with an ample supply of loot.

Jack is said to have lost two of his fingers after waylaying and demanding money from a Maroon of Scott's Hall called Quashee, both being wounded in the affray. This is supposed to have made Quashee determined to revenge the injury and

finally led to Jack's death.

More in realm of fancy than fact, herculean feats were ascribed to him, such as forcing apart iron bars after capture, jumping thirty feet and killing two warders to escape. As a matter of fact, he was never captured alive. But during the harrowing few months when travellers were thankful to reach Bull Bay in safety, the wildest rumours circulated. He was alleged to be a giant in stature and even able to absorb bullets into his body without harm.

Jack had a private trackway from Mt. Lebanon to Four Mile Wood. It was known to locals and for long afterwards it was shown to curious visitors. Its general course can still be traced.

Fawcett, the author of the pantomime to which we have previously referred, wove a fanciful love story around a Captain Orford of the British garrison and a coy maiden called Rosa Chapman. Orford was carried off by Jack, and Rosa, dressed as a sailor boy, gallantly went off to his lair to carry out a dramatic but comic-opera rescue operation. This became later the most popular feature of the whole cycle of legend and occurs in several varying versions, usually presented as sober truth. However, despite its popularity, it is without question pure fiction.

By the end of 1780 the colonial administration was getting tired of the pathetic failure of law enforcement to effect Jack's capture. There is no doubt he was viewed as a very serious threat to the established order. Rewards were offered by both the British government and the Jamaican House of Assembly. As these were initially ineffective, an additional motion in the House offered freedom to any slave accomplishing his apprehension, dead or alive.

Almost the only part of Jack's life in which there is near unanimity among writers is in its ending. The manner of his death

is always described—and frequently illustrated—in great and gory detail. It occurred on Saturday January 27, 1781, and a short account appears in a supplement to the *Royal Gazette* (Kingston) of February 3. It states that Jack was surprised by a Maroon negro named John Reeder and six others. Jack was alone and armed with a cutlass and two muskets. He only had time to seize the cutlass before being shot three times in the body. Mortally wounded, he threw himself down a forty foot precipice. Reeder followed and in the ensuing scuffle Reeder and another Maroon were wounded. Finally Jack's arm and head were severed and brought to Kingston.

Dr. Moseley was closely associated with the event and took something of a professional interest in the whole affair. His account is substantially similar to the official one, although more details are given. John Reeder appears as James Reeder, but this was only a name adopted at a christening ceremony before setting out on the fateful expedition. Before that he had been Quashee the unconverted Maroon. The significance especially of this will be considered later.

Moseley mentions that Quashee (alias Reeder) was accompanied in the final attempt by a small boy ("a good shot") and by Sam Davy. Described as a Maroon by the Government, Moseley more specifically identifies him as the half-caste son of a Captain Davy who shot the captain of a London ship in Old Harbour, obviously a well-known incident. Both Quashee and Davy lived at Scott's Hall in St. Mary.

The Final Struggle no doubt retold many times, was a hand to hand affair. The precipice down which the wounded Jack threw himself is forty feet in the gazette account; in others it is ninety feet. Actually there was a ledge part way down and the slippery descent was made in two stages. The final struggle was without weapons in macca bush at the bottom. Although mortally wounded, Jack got Reeder by the throat and Jack was only put out of action where

Sam bashed his head in with a rock. Then Jack's three-fingered hand was cut off and his head stuck on a bamboo pole.

The victorious party carried these gory trophies to Morant Bay where they were deposited in a bucket of rum for the triumphant journey to Spanish Town. There the reward of



Right, Jack attacked by Quashee and Sam. Photo Institute of Jamaica

Below, Four illustrations from Fairburn's edition (fly-leaf). Photo Institute of Jamaica



Jack receiving aid.



Jack escaping from Prison.



Jack captured by Quashee & Sam.



Captain Sharp stayed to death in Jack's Cave.

three hundred pounds was claimed. This was a sum large enough at the time to buy about fifty acres of agricultural land or fifteen fat steers. And neither Reeder nor Davy were slaves, the Assembly's allurements of freedom was irrelevant.

The procession to Spanish Town must have been quite an affair, considering that the distance was more than forty miles. A "vast concourse of negroes" blew shells and horns and fired off guns, while charring the pair along the way. Dr. Moseley shrewdly comments that it was Jack's obeah that they were happy to get rid of rather than Jack himself.

Borel's romance describes the Spanish Town procession in colourful detail and with poetic justice has Reeder stabbed to the heart by Abigail the girl Jack once had saved from pirates. In actual fact, there is evidence that Reeder and Davy not only lived to enjoy their gains but used them in typical Jamaican fashion to celebrate annually.

As for the trophies of victory, twenty years later the head and three-fingered hand were still preserved in spirit "for the satisfaction of the curious" in Spanish Town.

Actual descriptions of Jack are mostly special pleading. It is remarkable that a British writer of a hundred and seventy years ago should call him "the bravest, strongest man in the world!" Another lauds him for his "persevering courage and gallant heroism," yet another patronizingly says that "he was not without his virtues."

More significant were appraisals of his role by the long parade of anonymous British "biographers." William Earle Jr. calls Jack "a bold and daring defender of the Rights of Man," and concludes that "thus died as great a man as ever graced the annals of history, basely murdered by hirelings of Government." No wonder writers published anonymously!

Why all the interest in Jack and his short lived rebellion? Why should packed houses in London theatres give "unbounded applause" to a dramatized version of this affair and romantic elaborations of it sell like hot cakes?

The answer is complex but not without its relevances for today. First, there was the appeal of the story in Europe between 1799 and 1832. The idea of a gallant and chivalrous ex-slave fighting the whole colonial-slavery system **single handed** had great appeal to the anti-slavery movement. Its potential for propaganda was utilized to the full. Jack's "biographers" were principally advocates of social protest and change. Real or imaginary episodes were invoked to demonstrate the brutality and degradation of slavery and in particular the African slave trade.

In Africa, Jack or his parents were presented as noble savages, European traders epitomized by Harrop as misguided, bigoted, vicious, yet unwitting tools of the system. Africa's inter-tribal problems were viewed as serious enough without the intervention of the European slave trade. We meet William, himself a white bond-servant to Harrop, vainly protesting the evil traffic, and later himself becoming a hippie type fugitive in the St. Thomas hills, "wild and living in the woods."

#### British dilemma

Several of the books about Jack Mansong were published by evangelical and missionary minded non-conformist advocates of human dignity for both West Indian and African blacks. The desire to make the story relevant to both Africa and the Caribbean may have been the reason why Earle has Jack conceived in Africa, carried in the womb across the notorious Middle Passage and born in Jamaica. The anti-slavery slogan and imprint, "Am I not a Man and a Brother" appears prominently on two of the books on Jack. In one of the pseudo-letters of Earle, purporting to be from a resident in Jamaica to a friend in Britain, is a typical passage advocating the irrelevance of the whole criterion of race:

"Jack is a negro," say they. "Jack is a man," say I. The tremendous interest shown in the pantomime "Obi — or Three-finger Jack" — the writer has copies of both the script and of an original Haymarket playbill — was due to the fact that, farce though it was, it pressed on the very

nerve of the British dilemma. This dilemma was political, economic, social and religious.

In this farce, the resident whites are awfully goody-goody, and Jack is supposed to be representative of the ignorant savage who will not be civilized by the tender mercies of the slavery system, and who can only be tamed by the resolute forces of imperial Britannia. The fatuous doggerel of the finale, set to music (now lost) by Dr. Arnold, no doubt quickened the pulses of the patriotic British audiences:

"Here we see villainy

Brought, by law, to short duration:

And may all traitors fall

By British proclamation.

Chorus: Then let us sing

God save the King, etc., etc., etc."

#### Villain or Hero

And yet the musical left nagging doubts whether Jack really was a villain, or hero, or both, or neither. Among the packed audiences there were several who felt that a basic human and international problem was being exposed, for most of the anonymous writers set about their "biographies" after seeing the caricature of Jack in the pantomime.

More important even than the fundamental issue of whether Jack was criminal, man or merely lost property, was the conflict of cultural and spiritual values. As with the Mau Mau of Kenya it was Jack's obeah which sent shivers down the spines of Jamaican whites, the fear of something little understood and unpredictable.

The contest between Quashee (alias Reeder) and Jack was a confrontation not so much of strength and weapons as between different sets of supernatural powers, African and Christian. As long as he was Quashee, Jack's obeah was an impregnable protection; as Reeder, victory could be expected since Jack's obeah was powerless against the Christians' God. He acquired superior protection by the ceremony of becoming a Christian with a new name.

Jack was not just a political guerrilla, he was fighting a rear-guard action for a system of superstitious magic against western religion and culture, supposedly rational and civilized. To every writer, what brought Jack down was not Sam's rock but the failure of Jack's African magic.

Jack lost support among the slaves and his revolt failed (if indeed it ever seriously started) because his gods were dying. The throngs of cheering blacks lining the route from Morant Bay had their counterpart in the thousands of loyal Kikuyu in the 1950's and early '60's who would have no part with the Mau Mau whatever the cost.

Dr. Moseley took a grim interest in the goat's horn of obeah which Jack always carried, and he personally claimed to have analysed its contents. Certainly it was given to him after Jack's death. He listed these as grave dirt, ashes, the blood of a black cat, and human fat mixed into a paste. In a bag at his waist were a dried toad, a pig's tail, a cat's foot and some kid skin.

There was one other aspect of the whole affair of Jack Mansong which some writers were at pains to emphasize: Moseley says Jack had a "mortal hatred to white man" but "would not disturb one lady's happiness" — though how these two could be effectively reconciled seems to have escaped him. This implacable hatred for whites is seen as a warning of worse to come if slavery, colonialism and racial injustice were perpetuated.

The ultimate influence of the Jack Mansong stories upon the British social and religious climate of the early nineteenth century will never be known. However, it is interesting to know that "Three-finger Jack's little gorrilla war" in the Blue Mountains nearly two hundred years ago was widely seen as a warning that in human, racial, national and international relations there is only one choice: bloodshed or brotherhood.



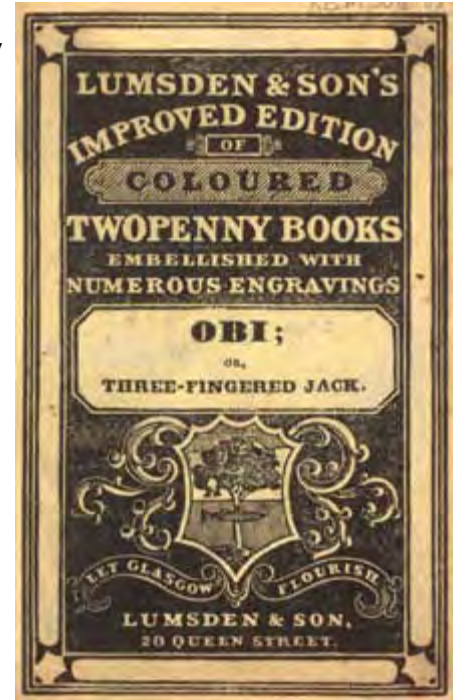
# Histories of Three-Fingered Jack: A Bibliography

## by Diana Paton

Three-fingered Jack is a legendary figure in Jamaica. His story was based on the life of a real person, a man who escaped from slavery some time before 1780, became the leader of a group of maroons in the Blue Mountain region of that island, and was eventually captured and killed. His story was first introduced to the British public by Dr Benjamin Moseley, in his *A Treatise on Sugar*. It became a hit pantomime, opening in 1800 at London's Haymarket Theatre, and playing there and in regional theatres for several years after. Two rather different novels, by William Burdett and William Earle, Jr., respectively, were also published in 1800, each also telling Three-Fingered Jack's story. In 1830, a melodrama version of the pantomime was performed.

This series of web pages attempts to provide a comprehensive bibliography of published accounts of the Three Fingered Jack story, organized according to whether they follow Moseley, Burdett, Earle, the pantomime, or the melodrama. A few more recent versions are in the Miscellaneous and Twentieth-Century list.

- [Texts following Benjamin Moseley](#)
- [Texts following William Burdett](#)
- [Texts following William Earle](#)
- [Pantomime texts](#)
- [Melodrama texts](#)
- [Miscellaneous and Twentieth-Century texts](#)



Each entry in the bibliography gives basic publication information. Some entries are briefly annotated. I have also listed the libraries in Britain and Jamaica where, to the best of my knowledge, the editions are available. I have not attempted to include information about library availability in other countries.

No bibliography of this kind is likely to be complete. You are welcome to send corrections, additions or comments to [diana.paton@ncl.ac.uk](mailto:diana.paton@ncl.ac.uk). I will endeavour to update the pages fairly regularly, but can't promise to do so immediately.

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### About Diana Paton:

I am a historian of the Caribbean, at the University of Newcastle, with a particular interest in Jamaica. I have researched the emancipation period, leading to my publications [No Bond But the Law: Punishment, Race, and Gender in Jamaican State Formation, 1780-1870](#), [Gender and Slave Emancipation in the Atlantic World](#), and my edition of [A Narrative of Events by James Williams](#). I am currently working on a project on the cultural and political history of obeah, which is how I got interested in Three-Fingered Jack.

For my analysis of the texts listed in these pages, see my article 'The Afterlives of Three-Fingered Jack' published in [\*Slavery and the Cultures of Abolition: Essays Marking the Bicentennial of the British Abolition Act of 1807\*](#), ed. Brycchan Carey and Peter Kitson (Woodbridge: Boydell and Brewer, 2007), pp. 42-63.

All images in the Three-fingered Jack archive courtesy the National Library of Scotland.

# Histories of Three-Fingered Jack: A Bibliography

## Obi, or Three-Fingered Jack, the Melodrama

This page lists publications relating to the melodrama of Obi. The melodrama was adapted by William Murray from John Fawcett and Samuel Arnold's pantomime, and opened at the Bristol Theatre Royal in 1830, with Ira Aldridge playing Jack. Unlike the pantomime, the melodrama includes extensive spoken dialogue.

*Obi; or, Three fingered Jack. A melodrama in two acts.* 1854. London: Thomas Hailes Lacy. The New British Theatre (late Duncombe's), No. 469.

24 pages. Price sixpence. 12°. Black and white frontispiece labeled "Obi, or Three Fingered Jack. The Combat. Jack endeavouring to strangle Quashee", identical to the frontispiece to the Duncombe's British Theatre edition of the pantomime. Includes cast and costume list from the original pantomime, as in Duncombe's British Theatre edition, followed by dialogue (including songs) from the melodrama.

Date from British Library catalogue

Available at: British Library, National Library of Jamaica.

Murray (sic), W. H. 1883. *Obi; or, Three-fingered Jack. A drama, in two acts. The plot and principal incidents taken from the pantomime of Mr. Fawcett.* London: John Dicks. Dick's Standard Plays., no 478.

Price one penny, 9 pages. Date from British Library catalogue. External cover and title page are illustrated with the line drawing from the Thomas Hailes Lacy of the melodrama and Duncombe's British Theatre edition of the pantomime, and includes the text "Original complete edition. This play can be performed without risk of infringing any rights." Title page also notes the first performance date ("Theatre Royal Haymarket, July 2nd, 1800") and gives the Dramatis Personae of that performance. Text is the same as the Hailes Lacy edition, immediately above.

Available at: British Library.

Murray, William Henry Wood. 2002. 'Obi; or, Three-Finger'd Jack. A Melo-drama in Two Acts'.

Available at: <http://www.rc.umd.edu/praxis/obi/>. Accessed 9 May 2007.

Electronic edition edited by Charles Rzepka as part of a Romantic Circles Praxis Series edition of Obi.

According to Charles Rzepka's introduction

<http://www.rc.umd.edu/praxis/obi/rzepka/intro.html>, this is based on an edition published in London by Thomas Hailes Lacy, probably c. 1850—that is, the "New British Theatre" edition listed first on this page.

*Obi or, Three Fingered Jack. a Popular Melo-drama in two acts (as performed at Drury Lane Theatre).* nd. London: Penny Pictorial Plays. 8 pages of small print. No 11 in a series of 'Penny Pictorial Plays' which also includes Jack Sheppard, Blackbeard, and Oliver Twist. Includes dramatis personae list followed by the script. Title page includes an illustration captioned "Jack enters from opening at the top of rock. Robbers prostrate themselves before him. Obi Woman shows signs of



joy at seeing him. He presents her with the spoil—she ties the sash round, having first ornamented in with Obi. Obi Woman then fills his Obi horn. Jack then crosses all the Robbers' foreheads to prevent their betraying him, when Obi Woman gives horn and scarf." This edition omits some of the songs that appear in the Hailes Lacy edition, and changes some of the order of the action.

Available at: National Library of Jamaica.

# Histories of Three-Fingered Jack: A Bibliography

## William Burdett, *Life and Exploits of Mansong*, and pamphlet accounts deriving from Burdett

This page lists all the editions of **William Burdett's** text that I have located, followed by the many shorter versions which drew their text from him. As the long titles suggest, Burdett's novel took advantage of the popularity of the pantomime *Obi*. The early editions of his novel include descriptions of the pantomime action, and some of them also include the songs from the pantomime. Most of the shorter, cheaper pamphlet versions do not mention the pantomime.

William Burdett's novel opens in Africa and tells the story of how Mansong, a military hero, is betrayed into slavery and taken to Jamaica where he becomes known as Three-Fingered Jack. The Jamaican section largely follows the pantomime in plot. Like the pantomime, it includes a love story between Rosa, the planter's daughter, and Captain Orford, newly arrived from England.

Burdett's novel went into a tenth edition, but I have not been able to locate the second, sixth, seventh, eighth or ninth editions.

### 1. Editions of Burdett's Novel:

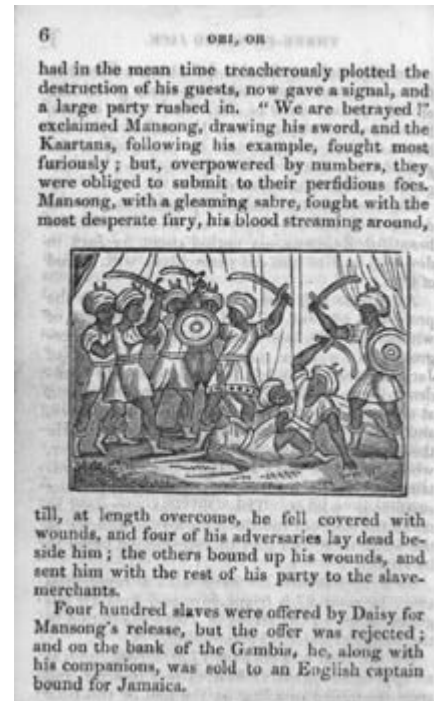
Burdett, William. 1800. *Life and exploits of Mansong, commonly called Three-finger'd Jack, the terror of Jamaica in the years 1780 and 1781: with a particular account of the Obi; being the only true one of that celebrated and fascinating mischief so prevalent in the West Indies. On which is founded the popular pantomimical drama of Obi; or, Three-finger'd Jack, performed at the Theatre Royal, Haymarket; an accurate description of which is also added.* Sommers Town, London: A. Neil.

60 pages. Pages 57-60 are a description of the pantomime. Price one shilling.

Includes an engraving as the frontispiece, titled "Jack had caught his antagonist by the throat with a living grasp." This shows four black figures fighting.

Available at: Eighteenth Century Collections Online (ECCO). ECCO lists the source of its edition as British Library, but I have been unable to locate this edition on the British Library catalogue.

Burdett, William. 1800. *Life and exploits of Mansong, commonly called Three-finger'd Jack, the terror of Jamaica: with a particular account of the Obi; being the only true one of that celebrated and fascinating mischief so prevalent in the West Indies On which is founded the popular pantomimical drama of Obi, or, Three-finger'd Jack, performed at the Theatre Royal, Haymarket; an accurate description of which is also added.* Third edition. Sommers Town, London: A. Neil.  
60 pages.



Text, image, and price appear to be identical to the first edition. The only change is the slight alteration to the title.

Available at: microfilm collection Three centuries of English and American plays, 1500-1830 available at Shakespeare Institute, Stratford, (University of Birmingham); National Library of Jamaica; Eighteenth Century Collections Online. ECCO lists the source of its edition as British Library, but I have been unable to locate this edition on the British Library catalogue.

Burdett, William. 1801. *The life and exploits of Three-finger'd Jack, the terror of Jamaica. With a particular account of the Obi; being the only true one of that celebrated and fascinating mischief, so prevalent in the West Indies. On this history is founded the popular pantomimical drama Obi; or Three-Finger'd Jack; performed at the Theatre-Royal, Haymarket; An Accurate description of which, including all the songs, duets, choruses &c, is also added.* Fourth edition, with additions. Sommers Town, London: A. Neil. 64 pages. An "advertisement" explains that the "rapid sale" of earlier editions "has stimulated us to render the present edition still more acceptable to the public." "We have therefore, in addition to our own knowledge (acquired by many years' residence in Jamaica) had recourse to the best authorities on the subject; and have made several emendations, additions, &c., so that the purchasers of this edition may rely on being in possession of a correct narrative of facts."

This edition is largely the same as the third edition, but includes songs from the pantomime, as well as description of the action (pp. 55-64).

Available at: Bodleian Library, Oxford University; Cambridge University Library

Burdett, William. 1802. *The life and exploits of Three-finger'd Jack: the terror of Jamaica. Including a particular account of the Obi; being the only true one of that celebrated and fascinating mischief, so prevalent in the West Indies, to which is annexed, an accurate description of the pantomimical drama (founded upon this history) of Obi, or Three-Fingered Jack, performed at the Haymarket Theatre, including all the songs, duets, choruses etc.* Fifth edition. Sommers Town, London: A. Neil.

64 pages.

Available at: British Library

Burdett, William. nd. *A New and Tenth Edition of the Life and Exploits of that Daring Robber, Three-Finger'd Jack, A Rebellious Slave, who was brought from Africa, and shortly became the Terror of Jamaica, including a Full and Accurate Description of that Fascinating Charm, called Obi, practised, with such mischievous consequences, by the African Negroes in the West Indies.* London: A. Neill.

38 pages. This edition is shorter than the earlier editions largely because it uses a smaller font, but also because it omits the earlier editions' description of the pantomime.

Price: Sixpence.

Available at: National Library of Jamaica

**2. Anonymously published versions which use part of Burdett's text. Those with dates (some estimated) are listed first in date order, followed by undated editions, given alphabetically by title. I have grouped new editions of the same text together, even where the date is unknown.**

*The History of Three Finger'd Jack, the Terror of Jamaica: containing I. Particulars of his birth - military skill - his being appointed Commander in Chief of the forces of the King of Kaarta, in Africa - great battles - his astonishing valour and success; II. When sent to conclude a peace was treacherously seized - sold to the captain of an English slave ship - taken to Jamaica, where he was sold to a planter; III. Authentic account of the Obi (a charm or system of witchcraft) a fascinating mischief, which caused such horror and dismay in the West Indies; IV. His astonishing fortitude under slavery - procures an Obi - excites and heads an insurrection among the blacks - are defeated - Jack retires to the Blue Mountains, from whence he bid defiance, during the years 1780 and 1781, to the civil and military powers of Jamaica, tho' alone, and unaided by associate or accomplice; V. Several exploits while in the Blue Mountains - loves of Orford and Rosa - proclamations, offering a reward for apprehending Jack - his death, &c.: being the history on which is founded, the pantomimical drama of Obi; or, Three finger'd Jack; performed with unbounded applause at the Hay-Market Theatre: to which is added, a description of the drama, and some of the most favourite songs.* Nd (before 1804). London: S. Brown.

46 pages, price: 6 pence; 17 cm. Frontispiece shows "Rosa by means of a taper burns the Rope, and effects her escape." Title page claims "Selected from the best authorities." Estimated date is based on the fact that the edition published in Stirling in 1804 (below) seems to be an abridged version of this edition.

Pages 3-42 tell the story of Jack, following Burdett's plot. Begins by noting the "unbounded applause" which Fawcett's pantomime has received. On page 41 is a paragraph condemning "the worst of all traffics—the AFRICAN SLAVE TRADE!" Pages 43-44 provide a scene by scene "description of the drama of Obi; or three-finger'd Jack"; pages 44-46 give lyrics to the songs.

Available at: Glasgow University Library; Library of the University of the West Indies, Mona, Jamaica

*The History of Three Finger'd Jack, the Terror of Jamaica. Containing I. Particulars of his Birth - Military Skill - his being appointed Commander in Chief of the forces of the King of Kaarta, in Africa - great Battles - his astonishing Valour and Success. II. When sent to conclude a Peace was treacherously seized - sold to the Captain of an English Slave Ship - taken to Jamaica, where he was sold to a Planter. III. Authentic account of the Obi (a Charm or system of Witchcraft) a fascinating Mischief, which caused such horror and dismay in the West Indies. IV. His astonishing Fortitude under Slavery - procures an Obi - excites and heads an Insurrection among the blacks - are defeated - Jack retires to the Blue Mountains, from whence he bid Defiance, during the years 1780 and 1781, to the Civil and Military powers of Jamaica, tho' alone, and unaided by Associate or Accomplice; V. Several exploits while in the Blue Mountains - Loves of Orford and Rosa - Proclamations, offering a Reward for apprehending Jack - his death, &c. Being the History on*

*which is founded, the Pantomimical Drama of Obi; or, Three finger'd Jack; Performed with unbounded Applause at the Hay-Market Theatre. To which is added, a Description of the Drama, and Some of the most favourite Songs.* Nd (probably before 1804). Second edition. London: S. Brown.

46 pages, price: 6 pence. Identical to the first edition.

Available at: National Library of Jamaica

*The History of 3 Finger'd Jack. The Terror of Jamaica. Being the History on which is founded the Pantomimical Drama Obi: or Three-Finger'd Jack. Performed with unbounded applause at the Theatre-Royal, Haymarket. To which is added a description of the drama and some of the most favourite songs.* Nd. 3d ed. London: S. Brown.

Concludes with a paragraph condemning "the worst of all traffics—the AFRICAN SLAVE TRADE!"

Available at: National Library of Jamaica

*The history and adventures of that famous negro robber, 3 finger'd Jack the terror of Jamaica containing, particulars of his birth--military skill--his being appointed commander in chief of the forces of the King of Kaarta, in Africa--great battles--his astonishing valour and success--when sent to conclude a peace was treacherously seized - sold to the captain of an English slave ship - taken to Jamaica, where he was sold to a planter; His astonishing fortitude under Slavery--procures an Obi (a charm or system of witchcraft) excites and heads an insurrection among the blacks - are defeated - Jack retires to the Blue Mountains, from whence he bid defiance, during the years 1780 and 1781, to the civil and military powers of Jamaica, though alone, and unaided by associate or accomplice--Several exploits while in the Blue Mountains - loves of Orford and Rosa - proclamations, offering a reward for apprehending Jack - his death, &c. 1804.* Stirling: C. Randall.

24 pages. Text seems to be derived from the S. Brown editions (above), considerably abridged, and without the description of the pantomime action. Final paragraph includes the denunciation of the slave trade as "the worst of all traffic."

Available at: Bodleian Library, Oxford University

*The History and Adventures Of that Famous Negro Robber, 3 Finger'd Jack, The Terror of Jamaica. Containing, Particulars of his Birth--Military Skill--His being appointed Commander in Chief of the Forces of the King of Kaarta, in Africa--great Battles--his astonishing Valour and Success--When sent to conclude a Peace was treacherously seized - sold to the captain of an English Slave Ship - taken to Jamaica, where he was sold to a Planter. His astonishing Fortitude under Slavery--procures an Obi (a Charm or system of Witchcraft) excites and heads an insurrection among the Blacks - are defeated - Jack retires to the Blue Mountains, from whence he bid Defiance, during the years 1780 and 1781, to the Civil and Military Powers of Jamaica, tho' alone, and unaided by Associate or Accomplice--Several Exploits in the Blue Mountains - Loves of Orford and Rosa – Dreadful Battle--His Death, &c. 1806.* Stirling: C. Randall.

24 pages. Almost identical to the 1804 edition published by C. Randall, immediately above.



*The History and Adventures of that Famous Negro Robber, 3 Finger'd Jack, the Terror of Jamaica.* 1822. Falkirk: T. Johnston. 24 pages. Very similar to the 1804 Stirling edition, above, including the final paragraph denouncing the African Slave Trade. In the British Library edition, the final pages (23 and 24) are incorrectly bound with the subsequent item.  
Available at: British Library

*The History & adventures of Obi; or, Three-fingered Jack, the famous Negro robber.* 1837. Newcastle upon Tyne: W. & T. Fordyce, printers, Dean Street, Newcastle. To be had also at No. 43, Myton Gate, Hull. 24 pages; illustrations on title page and page 24. According to Oxford University online library catalogue, publishers' dates are derived from C. J. Hunt, C. J., *The book trade in Northumberland and Durham to 1860* (1975). This edition opens with a reference to "Amri, the mother of Mansong, or Three-Fingered Jack," using the name of Jack's mother in the Earle novel. It then continues using text from Burdett. This is the only example I've found of an edition which mixes elements of the Burdett and Earle texts. Concludes with a paragraph condemning "the worst of all traffics—the AFRICAN SLAVE TRADE!"  
Available at: Bodleian Library, Oxford University; National Library of Jamaica

*The History and Adventures of Obi; or, Three-Fingered Jack.* 1840. Glasgow: J. Lumsden. Date from information on National Library of Scotland catalogue. 26 pages. Small edition (12 cm), including coloured illustrations. Title page includes the text: 'Lumsden & Son's improved edition of coloured twopenny books embellished with numerous engravings'  
Available at: National Library of Scotland

*The Famous Negro Robber, and Terror of Jamaica, or The History and Adventures of Jack Mansong.* 1850. Glasgow. 24 pages. Begins 'This daring marauder' Unlike many of the pamphlet editions that follow Burdett, this does not end with criticism of the slave trade. Instead it ends by noting that Jack's "head and three-fingered hand are now preserved in spirits for the satisfaction of the curious."  
Available at: Bodleian Library, Oxford University

Frost, Thomas. 1851. *Obi; or, Three-fingered Jack; a romance.* London: E. Lloyd. 406 pages, 167 chapters, each page printed in two columns, with many black-and-white illustrations. This long melodramatic novel uses the Jamaican elements of Burdett's plot in combination with aspects of Earle's novel and additional new elements including many characters who do not appear in any other version of Three-Fingered Jack. Jack's parents are Amri and Makro from near the Gambia river, and the story of how they arrived in Jamaica is taken from Earle. Jack escapes from the plantation on which he lives, which is owned by the evil Mr Morton,

and captures Captain Harrop, who lives on a plantation elsewhere in Jamaica. Jack later captures the Rosa Selby and Captain Orford, whose escape from his cave is modeled on Rosa's escape in Burdett's novel, although their relationship later ends. Quashee and Sam are ultimately responsible for Jack's death, which they undertake in pursuit of their own freedom. Among the many additional characters are Jack's light-skinned lover Cora, who escapes early in the novel and is killed by bloodhounds accompanying Orford in his pursuit of Jack; Julia Davidson, a quadroon slave woman who early in the novel kills the planter Mr Morton and who is in love with Arthur Morton, Mr Morton's heroic nephew. Arthur does not love Julia, but takes the blame for her crime until she confesses. He later marries Rosa.

Available at: British Library

*Obi, or Three fingered Jack. (Sir Richard Whittington.).* 1861.

London: J. Bysh.

12 pages, 12o.

Concludes with a paragraph condemning "the worst of all traffics—the AFRICAN SLAVE TRADE!" The Three fingered Jack story is on pages 1-9; pages 9-12 are a version of the story of 'Richard Whittington'.

The same text as the other J. Bysh edition, published in 1870.

Available at: British Library

*Obi, or, Three Fingred Jack.* nd [between 1850 and 1870]. London:

J. Bysh. (Date from Bodleian catalogue)

12 pages, 19 cm.

The same text as the 1861 J. Bysh edition.

Available at: British Library; Bodleian Library, Oxford University;

National Library of Jamaica

*The History and Adventures of Jack Mansong, the Famous Negro Robber, and Terror of Jamaica.* nd. Lancaster: C. Clark.

Includes on the last page the famous Wedgewood antislavery "Am I not a man and a brother" motif. Concludes with a paragraph condemning "the worst of all traffics—the AFRICAN SLAVE TRADE!" Identical text to the Otley edition (immediately following), but with different font size leading to different pagination, and different title page.

Available at: National Library of Jamaica

*The History and Adventures of Jack Mansong, the Famous Negro Robber and Terror of Jamaica.* nd. Otley: William Walker.

24 pages.

Identical text to the Lancaster edition (immediately above), but with different font size leading to different pagination, and different title page.

Available at: National Library of Jamaica; Library of the University of the West Indies, Mona, Jamaica

*The History and Adventures, of Obi; or Three Fingred Jack.* nd.

London: J. L. Marks.

Concludes with a paragraph condemning "the worst of all traffics—

the AFRICAN SLAVE TRADE!" Title page headed: 'Marks's edition'  
23 pages. Three-Fingered Jack takes up pages 1-18, followed by  
'The Battle of Chevy Chase', about the Northumberland Percy family,  
pp. 19-23.

Available at: National Library of Jamaica

*The History and Adventures of Obi; or, Three-Fingered Jack. To  
Which is added, Prince Fatal and Prince Fortune. Embellished with  
Neat Wood-engravings.* nd. Edinburgh: Oliver & Boyd.

31 pages. Size: about 2 x 4 inches; part of a series of "Juvenile  
Books."

Price: 2 pence

Concludes with a paragraph condemning "the worst of all traffics—  
the AFRICAN SLAVE TRADE!"

Available at: National Library of Jamaica; National Library of  
Scotland

# Histories of Three-Fingered Jack: A Bibliography

## William Earle, *Obi: or, the History of Three-Fingered Jack*, and accounts deriving from Earle.

This page lists all the editions of **William Earle's** text that I have located, followed by the shorter versions which drew their text from him. Perhaps because it was not connected with the pantomime, Earle's version was not reprinted or republished nearly as frequently as was Burdett's.

Earle's epistolary novel opens in Africa and focuses on Jack's parents, Amri and Makro, who befriend and are then betrayed by a shipwrecked white slave trader, Captain Harrop. Much of the novel is taken up with Amri's narration of this experience to her son, Jack, in Jamaica. As a result of learning about Harrop's treatment of his parents, Jack vows to take revenge.

### 1. Editions of Earle's Novel

Earle, William. 1800. *Obi: or, The history of three-fingered Jack: in a series of letters from a resident in Jamaica to his friend in England*. London: Earle and Hemet.

232 pages

Available at: Cambridge University Library; Institute for Commonwealth Studies, University of London; National Library of Jamaica; Eighteenth Century Collections Online; National Art Library (Victoria and Albert Museum)

Earle, William. 1804. *Obi; or, the History of Three-fingered Jack, in a series of Letters from a Resident in Jamaica to his friend in England*. Worcester, Mass.: Isaiah Thomas, Jr.

168 pages

Available at: Early American imprints (microfiche); National Library of Jamaica.

Earle, William. 2005. *Obi or, The History of Three-Fingered Jack*.

Edited by Srinivas Aravamudan. Peterborough, Ontario: Broadview.

Includes an introduction by Aravamudan and a range of other primary sources, including the relevant extract from Benjamin Moseley's History of Sugar.

Based on the 1800 edition.

[Click here for more information or to buy from Amazon](#)

Earle, William. 1999. 'The History of Three-Fingered Jack'. In Peter J. Kitson and Debbie Lee, ed, *Slavery, Abolition and Emancipation: Writings in the British Romantic Period*, volume 6: Fiction, ed. Srinivas Aravamudan. London: Pickering and Chatto. Pages 271-292, with introductory note pp. 269-270.

This is much shorter than the other editions, and does not make use of the epistolary form. The facsimile does not list an author, but I have followed Srinivas Aravamudan in attributing this directly to Earle.



According to Aravamudan's introductory note, this is a facsimile of "Falkirk's 1822 edition." However, the text is very different to *The History and Adventures of that Famous Negro Robber, 3 Finger'd Jack, the Terror of Jamaica*. 1822. Falkirk: T. Johnston. I have not been able to locate an alternative source.

**2. Anonymously published pamphlets which use part of Earle's text. Those with dates are listed first in date order, followed by undated editions, given alphabetically by title.**

*Fairburn's Edition of the Wonderful Life and Adventures of Three Fingered Jack, the Terror of Jamaica! Giving an Account of his persvering Courage and gallant Heroism in revenging the Cause of his Injured Parents: with an account of his desperate Conflict with Quashee! Who, after many Attempts, at last overcomes him, and takes his Head and Hand to Jamaica, and receives a large Reward for destroying him. Embellished with Four Coloured Engravings.* 1829.

London: J. Fairburn.

24 pages. Price: 6d. Small size.

The actual pamphlets are undated, but date is given by Joseph John Williams, *Psychic Phenomena of Jamaica* (New York: Dial Press, 1934), who describes it as "a melodramatic piece of fiction of no historical value whatever."

Includes crude coloured engravings entitled: Jack receiving Obi, Jack escaping from Prison, Jack conquered by Quashee and Sam, Captain Harrop starved to death in Jack's cave.

Available at: British Library; National Library of Jamaica; Bodleian Library, Oxford University

*The Wonderful Life and Adventures of Three-Fingered Jack, the Terror of Jamaica! Giving an Account of his persevering Courage and gallant Heroism, in revenging the Cause of his Injured Parents; with an account of his desperate conflict with Quashee! Who, after many attempts, at last overcomes him, and takes his Head and Hand to Jamaica, and receives a large Reward for destroying him.* 1829.

London: T&J Allman.

Available at: Library of the University of the West Indies, Mona, Jamaica

*The Life and Adventures of three Fingered Jack, the terror of Jamaica.*

nd. London: Orlando Hodgson.

The text of this edition is the same as that of Fairburn's 1829 edition.

Available at: British Library; National Library of Jamaica

*Three-Fingered Jack. The Young Gentleman's Library; or Treasury of Entertainment With coloured plates and gilt edges.* n.d. London:

Orlando Hodgson.

14 pages. Price: One penny. Very small edition, about 2 by 4 inches.

The cover has a colour picture of Jack.

The text focuses on the African side of the story: on Amri and Makro and their relationship with the villain Captain Harrop. Jack does not appear until page 12. The plot ends with Jack killing Harrop; his escape and life in the mountains is hardly discussed. Very unusually, Jack does not die at the end of this version.

# Histories of Three-Fingered Jack: A Bibliography

## Obi, or Three-Fingered Jack, the Pantomime: Librettos, Scores, Sheet Music and Descriptions

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This page lists publications relating to the pantomime version of Obi, which opened at the Haymarket Theatre, London (also known as the Theatre Royal Haymarket) in 1800 with story by John Fawcett and music by Samuel Arnold. The texts below include songs from the pantomime published separately as sheet music or in collection of songs, as well as descriptions of the action.

Pantomime was a very popular theatrical form involving no spoken dialogue. It developed as a response to state regulation of theatre: only a very small number of theatres were permitted to stage tragedy and comedy in this period. Instead, in pantomime the story is told through mime, song, and written signs. The Haymarket Theatre had been licensed to stage tragedy and comedy since 1766; the fact that Fawcett and Arnold chose to use pantomime to stage Obi demonstrates the popularity and success of the form.

Fawcett and Arnold's pantomime drew on Benjamin Moseley's published account of Three-Fingered Jack, but added a love story between two white characters, Rosa, a planter's daughter, and Captain Orford. Their relationship becomes central to the plot. The hit song from the pantomime, 'A Lady of Fair Seville City' was sung by Rosa.

### 1. Descriptions of the Action, Some of Which Also Include Songs and Lyrics:

Fawcett, John. 1800. 'Obi; or Three Finger'd Jack. A story told by action interspersed with songs, recitative, etc.'

Manuscript held at the Huntington Library, California. Also included in the 'Larpernt Collection', a microcard collection of plays available at the Shakespeare Institute Library, Stratford (University of Birmingham).

This manuscript was produced for submission to the dramatic censor. It includes song lyrics and descriptions of action. Some of the scenes described here do not appear in other descriptions.

Fawcett, John. 1800. *Songs, Duets, & Choruses, in the pantomimical drama of Obi, or Three-Finger'd Jack: (perform'd at the Theatre Royal, Hay Market) To which are prefix'd Illustrative Extracts, and a Prospectus of the Action.* London: T. Woodfall.

23 pages.

The printed wordbook from the Arnold/Fawcett pantomime. Includes extracts from Benjamin Moseley's account of Jack, a scene-by-scene prospectus of the action, and songs. Shorter than the manuscript version above. This edition is reprinted in the 1996 edition of the score (below) and in Aravamudan's Broadview Press edition of Earle's novel.

Available at: British Library

Fawcett, John. 1800. *Songs, Duets, & Choruses, in the pantomimical drama of Obi, or Three-Finger'd Jack: invented by Mr. Fawcett and perform'd at the Theatre Royal, Crow-Street. To which are prefixed illustrative extracts, and a prospectus of the action.* Dublin: N. Kelly.

24 pages

Very similar to the London 1800 edition, above.

Available at: Bodleian Library, Oxford University

Fawcett, John. 1809. *Songs, Duets and Choruses in the Pantomimical Drama of Obi; or Three-Finger'd*

*Jack. (Performed at the Theatre-Royal, Hay-Market) to which are prefix'd illustrative extracts, and a prospectus of the action. Invented by Mr Fawcett, and got up under the direction of Mr Farley. Eleventh edition, with additions and alterations.* London: T. Woodfall.

20 pages. Price: ten-pence.

Pages 3-6 reprint an extract from Benjamin Moseley's *A Treatise on Sugar*. A 'Prospectus' of the action follows (7-10), followed by a list of characters and the actors that play them (11), and then the lyrics of the songs (12-20). Very similar to the 1800 Woodfall version.

Available at: National Library of Jamaica

Fawcett, John. 1810. *Songs, Duets and Chorusses in the Pantomimical Drama of Obi, or, Three-finger'd Jack.*

14 pages

Includes the notes of the title page 'As performed at the New Theatre, Philadelphia.' 'To which are prefixed illustrative extracts.'. Without the music.

Available at: Cambridge University Library (microfiche—part of the Early American Imprints series)

Fawcett, John. 1825. *Obi, or Three-Finger'd Jack: A Serio-Pantomime, in Two Acts*, Volume 59 of *Duncombe's British Theatre*.

Includes Dramatis Personae list and costume list, followed by scene-by-scene description of the action, with the song lyrics incorporated as they appear in the action. Includes fuller stage directions than the Larpent manuscript or the Woodfall editions.

Available at: British Library

Fawcett, John. 1999. 'Obi; or, Three-Finger'd Jack'. In Peter J. Kitson and Debbie Lee, ed., *Slavery, Abolition and Emancipation: Writings in the British Romantic Period*. Vol 5: Drama, ed. Jeffrey N. Cox. London: Pickering and Chatto. Pages 203-219, with introductory note pages 201-202.

Facsimile of the 1825 Duncombe's *British Theatre* edition.

Fawcett, John. 2002. 'Obi, or, Three-Finger'd Jack! a serio-pantomime, in two acts'.

Available at: <http://www.rc.umd.edu/praxis/obi/>. Accessed 9 May 2007. Electronic edition edited by Charles Rzepka as part of a Romantic Circles Praxis Series edition of *Obi*. Based on the 1825 Duncombe's *British Theatre* edition, above.

Fawcett, John. 2005. 'Obi; or, Three-Finger'd Jack: A Serio-Pantomime, in Two Acts'. In Srinivas Aravamudan, ed, *Obi; or, the History of Three-Finger'd Jack, by William Earle*. Peterborough, Ontario: Broadview, 217-27.

Reprints the London 1800 edition.

## 2. Sheet-Music Versions of the Score

Arnold, Samuel. 1800. *The Overture, Songs, Chorusses & Appropriate Music in the Grand Pantomimical Drama call'd Obi; or Three Finger'd Jack. Composed & Adapted to the Action by S. Arnold. with Selections from the most Eminent Masters, arranged for the Voice & Piano Forte. Op. 48.* London: J. Longman, Clementi & Co.

The original published score.

Available at: British Library

Arnold, Samuel. 1996. *Obi; or Three-Finger'd Jack: originally published by John Longman, Clementi's Company, London, 1800, Music for London entertainment, 1660-1800. Ser.D Pantomime, Ballet & Social Dance; v.4.* London: Stainer & Bell.

A facsimile edition of the 1800 Longman edition, along with a facsimile of the 1800 wordbook. It includes a substantial introduction by Robert Hoskins with Eileen Southern, giving a detailed performance history and analysis of the music.

Available at: Birmingham ; Cambridge University Library; Glasgow University Library; Nottingham

University Library; Trinity College Dublin; University of London Library (Senate House); British Library

### 3. Sheet Music for individual songs

Arnold, Samuel. 1800. *Mandingo King*. Dublin: F. Rhames.  
Single page of sheet music.  
Available at: British Library.

Arnold, Samuel. 1800. *The Spanish Guitar*. Dublin: Rhames's.  
Single page of sheet music subtitled: "sung by Mrs Creswell with great applause in Obi, or Three Finger'd Jack"  
Available at: British Library, Bodleian Library, Oxford University.

Arnold, Samuel. 1800. *The Spanish Guitar. A favorite new song as sung in Obi or Three finger'd Jack by Mrs Creswell*. Dublin: Hime.  
Sheet music for piano; followed by arrangement for guitar or flute.  
Available at: British Library

Arnold, Samuel. nd. *The Spanish Guitar, sung with the greatest applause by Miss De Camp, in the Grand Pantomimical Drama call'd Obi, at the Theatre Royal Haymarket*. London: John Longman, Clementi, & Co.  
Available at: Bodleian Library, Oxford University.

*Poor Negro Woman. A favorite song as sung in the entertnt. of Three Fingerd Jack by Mrs. Adison*. 1800. Dublin: Hime.  
Available at: British Library

### 4. Songs from Obi Included in Collections of Songs

*The universal songster: Monstrous droll songs for the year 1801. In which is introduced, The history of Three Finger'd Jack. With a selection of toasts and sentiments*. London: Printed by T. Maiden. for Ann Lemoine. and sold by T. Hurst.  
48 pages.  
Includes songs from 'Obi' as well as a description of the action. Only the words are given.  
Available at: Bodleian Library, Oxford University

*Monstrous Good Songs, and Toasts, 1801 containing selections from the Dramatic Pieces of The Magic Flute, Indiscretions, Three Fingered Jack, Egyptian Festival, The True Friends, Peter Wilkins, Mine, Volcano, Of Age To-morrow, Moses and Mammon, Joanna Montsaucon, Spirit of the Elbe, The Naval Pillar, The Pavillion, Paul and Virginia, to which is added, the Adventures of Three-Fingered Jack*. 1801. London: R. Rusted.  
Price: six pence.  
Among the songs inlcded are the following from Obi: Poor Negro Woman "Sung by Mrs Mountain in Three-Fingered Jack"; The Spanish Guitar "'Sung in Obi; or Three-Fingered Jack'  
At the end of the volume are four pages of very small print which quotes from Benjamin Moseley's account of Jack.  
Available at: Bodleian Library, Oxford University



# Histories of Three-Fingered Jack: A Bibliography

## Obi, or Three-Fingered Jack, the Melodrama

This page lists publications relating to the melodrama of Obi. The melodrama was adapted by William Murray from John Fawcett and Samuel Arnold's pantomime, and opened at the Bristol Theatre Royal in 1830, with Ira Aldridge playing Jack. Unlike the pantomime, the melodrama includes extensive spoken dialogue.

*Obi; or, Three fingered Jack. A melodrama in two acts.* 1854. London: Thomas Hailes Lacy. The New British Theatre (late Duncombe's), No. 469.

24 pages. Price sixpence. 12°. Black and white frontispiece labeled "Obi, or Three Fingered Jack. The Combat. Jack endeavouring to strangle Quashee", identical to the frontispiece to the Duncombe's British Theatre edition of the pantomime. Includes cast and costume list from the original pantomime, as in Duncombe's British Theatre edition, followed by dialogue (including songs) from the melodrama. Date from British Library catalogue  
Available at: British Library, National Library of Jamaica.

Murray (sic), W. H. 1883. *Obi: or, Three-fingered Jack. A drama, in two acts. The plot and principal incidents taken from the pantomime of Mr. Fawcett.* London: John Dicks. Dick's Standard Plays., no 478. Price one penny, 9 pages. Date from British Library catalogue. External cover and title page are illustrated with the line drawing from the Thomas Hailes Lacy of the melodrama and Duncombe's British Theatre edition of the pantomime, and includes the text "Original complete edition. This play can be performed without risk of infringing any rights." Title page also notes the first performance date ("Theatre Royal Haymarket, July 2nd, 1800") and gives the Dramatis Personae of that performance. Text is the same as the Hailes Lacy edition, immediately above.  
Available at: British Library.

Murray, William Henry Wood. 2002. 'Obi; or, Three-Finger'd Jack. A Melo-drama in Two Acts'.

Available at: <http://www.rc.umd.edu/praxis/obi/>. Accessed 9 May 2007. Electronic edition edited by Charles Rzepka as part of a Romantic Circles Praxis Series edition of Obi. According to Charles Rzepka's introduction <http://www.rc.umd.edu/praxis/obi/rzepka/intro.html>, this is based on an edition published in London by Thomas Hailes Lacy, probably c. 1850—that is, the "New British Theatre" edition listed first on this page.

*Obi or, Three Fingered Jack. a Popular Melo-drama in two acts (as performed at Drury Lane Theatre).* nd. London: Penny Pictorial Plays.

8 pages of small print. No 11 in a series of 'Penny Pictorial Plays' which also includes Jack Sheppard, Blackbeard, and Oliver Twist. Includes dramatis personae list followed by the script. Title page



includes an illustration captioned "Jack enters from opening at the top of rock. Robbers prostrate themselves before him. Obi Woman shows signs of joy at seeing him. He presents her with the spoil—she ties the sash round, having first ornamented in with Obi. Obi Woman then fills his Obi horn. Jack then crosses all the Robbers' foreheads to prevent their betraying him, when Obi Woman gives horn and scarf." This edition omits some of the songs that appear in the Hailes Lacy edition, and changes some of the order of the action. Available at: National Library of Jamaica.

# Histories of Three-Fingered Jack: A Bibliography Miscellaneous, Twentieth-Century, and Twenty-First- Century Accounts of Three-Fingered Jack

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## 1. Miscellaneous, Twentieth-Century, and Twenty-First-Century Accounts of Three-Fingered Jack

*Three Finger Jack*. 1970. *New Interest Reading*. Kingston, Jamaica: Collins Sangster. Book 1B of a reading scheme for children. Other titles include 'George and Eva', based on Uncle Tom's Cabin. Available at: National Library of Jamaica

Sherlock, Philip M. 1961. *Three Finger Jack's treasure*. Illustrated by William Reeves. Kingston, Jamaica: Jamaica Publishing House. Also published simultaneously in Britain by Macmillan. Reprinted in 1969 and 1977. 176 pp.

An adventure story aimed at older children. The novel is set in contemporary JA and deals with a group of children who search for Three Finger Jack's treasure in order to save their property from having to be sold.

Available at: British Library; Bodleian Library, Oxford University; University of London Library (Senate House); National Library of Scotland

Black, Clinton V. 1966. *Tales of Old Jamaica*. Harlow, Essex: Longman  
Includes Three-Fingered Jack as one among a number of other stories, pp. 110-119. The plot follows the Burdett version.

'Mansong' Jamaica National Pantomime by Ted Dwyer.

For its 1980-1981 season, the Little Theatre Movement in Jamaica produced a pantomime called Mansong. The plot follows the earlier stage versions in that it includes the romance between Rosa and Captain Orford, but makes some dramatic changes, including the addition of the character of Dada, an enslaved community elder with knowledge of obeah who narrates the story for contemporary Jamaicans.

## 2. A Modern Edition of Three Fingered Jack

Earle, William. 2005. *Obi or, The History of Three-Fingered Jack*. Edited by Srinivas Aravamudan. Peterborough, Ontario: Broadview.

Includes an introduction by Aravamudan and a range of other primary sources, including the relevant extract from Benjamin Moseley's History of Sugar.

Based on the 1800 edition.

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\* The Slavery Website was created in November 2000 \*

\* This page last updated 27 June 2008 \* © Brycchan Carey and Diana Paton 2000-2008 \*

\* This page is: <http://www.brycchancarey.com/slavery/tfj/burdett.htm> \*

# Archaeology and the **MAROON HERITAGE IN JAMAICA**



Maroon (?) grindstone from Nanny Town

**Kofi Agorsah**

**O**f all the fascinating aspects of Jamaican history, the Maroon element appears to be the only one that weaves through the whole period, including the present day. Referring to themselves as 'True blu chankofi piti bo',<sup>1</sup> some Maroons of Moore Town in the parish of Portland claim that, with the exception of the freedom fighters of South Africa, they are the only living genuine and most honourable freedom fighters worthy of the name.

Another interesting feature of the Maroon element in Jamaica is that it provided a testing ground for British colonial tactics and also for their economic and political policies. In addition it demonstrated the colonial government's perception of freedom and human dignity, for freedom to the British at the time was a phenomenon that was applicable only to

themselves. Maroon guerrilla warfare had its origins in the struggle for freedom that has characterized the greater part of their history. In the eighteenth century the Maroons amazed the whole world by their unimaginable feat of resisting the supposedly invincible British army to the point of military stalemate, thus forcing the government to negotiate a peace treaty.



Fig.2. Students at work on floor of a Maroon living area.



Fig.3 Head of sledgehammer in situ.

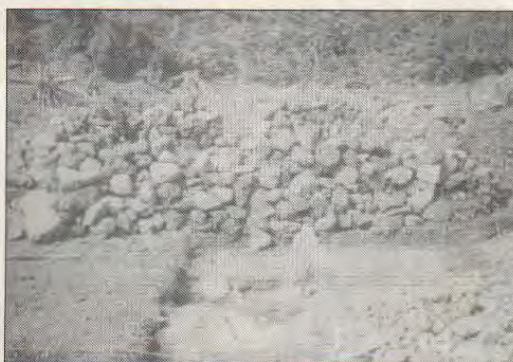


Fig.4 Remains of British military fortification seen from the east.

At the time of the British conquest of the island in 1655, it became clear that the escapees, as the Maroons were considered to be, were a force to be reckoned with. Apart from the burden of the increase in the number of black slaves after the conquest and the attendant complex organization necessary to maintain control, the colonial power quickly recognized that the 'runaway' communities were a legacy that was to determine or significantly influence the course of events. From the time of the return of King Charles II to the throne in 1660 to King George III in 1795, and beyond, the British had to grapple ceaselessly with the desperate efforts of the plantation slaves to free themselves and the simultaneous struggle of the free Maroons to maintain their hard-won liberty.

It is now clearly recognized that the Maroons of Jamaica provide a cultural link between the so-called prehistoric 'Arawaks' and the Spanish on the one hand and the British on the other. It is

this connecting function of the Maroon heritage in Jamaica that makes their history outstanding, forming as it does a continuous and permanent feature of the history of the island itself. This element also makes the overseas history of the colonial and related European nations more interesting and meaningful.

It would be unfair to state that historical references to the Maroons are few. However, these references fail to examine the Maroon past as a cultural history. In the main, emphasis is limited to the role of the Maroons as 'rebels' implying that they did not have the right to fight for freedom and human dignity. Only a few years ago it would have been inconceivable to mention Maroon heritage as a study falling within what is known today as 'Historical Archaeology'. It is now considered to be not only part of this sub-discipline but also the most important element as far as Jamaica is concerned.

### The First Nanny Town Expedition

In 1973 an exploration society in cooperation with the Institute of Jamaica organized an archaeological expedition to Nanny Town. It lasted only a few days. Led by Tony Bonner as the site director and Allan Teulon as the historical adviser, the expedition conducted a test excavation of a limited section of the military fortifications at the Nanny Town site.<sup>2</sup> Working mainly on the surface around the rectangular military wall, members of the expedition recovered fragments of tobacco pipes, musket balls, gun barrels, buttons, green glass bottles, and several pieces of metal objects such as nails, knife blades, staples and spear-heads. The most spectacular find was a large stone with an engraving recording that the British forces had captured the site from the Maroons at the end of December 1734 and briefly occupied it up to July 1735. However, after this expedition, there was not much archaeological activity at any Maroon site for

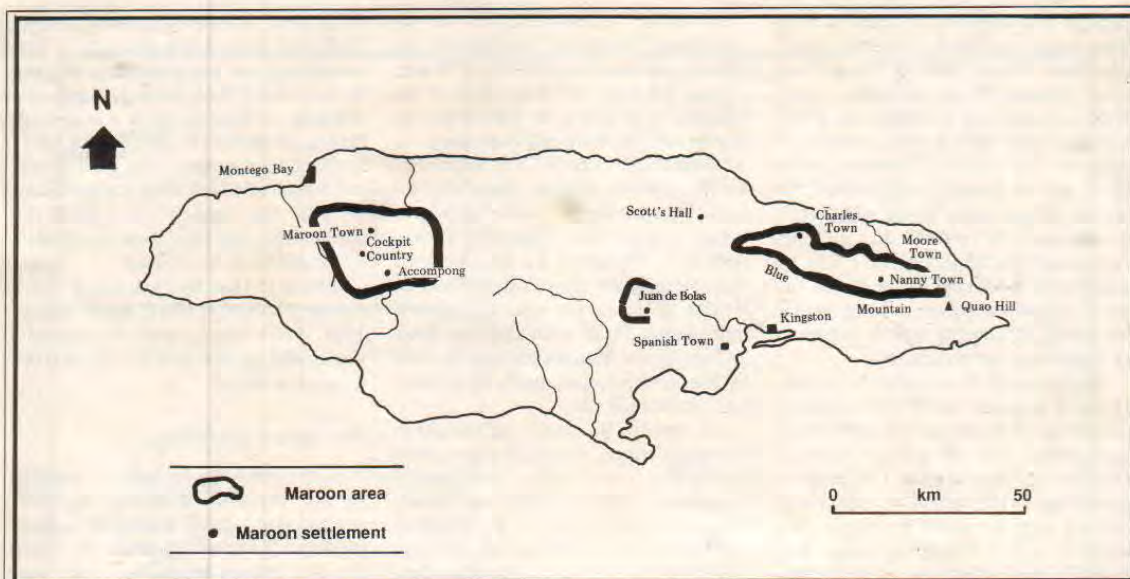


Fig. 5 Map of Jamaica showing Maroon areas

some years. In fact, it is only very recently that the homelands of the Maroon heritage have seen a systematic archaeological investigation.

It was gradually realized that any study of the culture and settlement patterns of the Maroons requires more than mere determination of the location, number, size and spatial distribution of the sites which they occupied. Such a study must also go beyond the perception that limits Maroon history to 'a history of rebels'. For example, it is important to identify the functional role of a site, such as seasonal occupation. Political, economic and social ties existing among and between sites are important factors that should be considered. Also necessary is an understanding or reconstruction of the Maroons' movements and interaction and of the information flow among themselves and with outsiders.

#### UMARP and Recent Investigations

With the establishment of the University of the West Indies, Mona, Archaeology Research Project (UMARP) the Maroon settlements were brought into entirely new focus.

The first phase of UMARP (1987-89), was a general study aimed at identification and location of historical sites in Jamaica. The second phase, which started in 1990, narrowed down to the coverage of Maroon settlements.

The main objectives of the UMARP study of Maroon settlements are (a) to obtain archaeological data that can be used for the interpretation of the sociocultural patterns of the behaviour of the Maroons; (b) to determine the factors that contribute to the location and character of Maroon settlements; (c) to obtain material for dating and providing a chronological framework for the origins and development of Maroon heritage in Jamaica. The overall objective is to identify the character and mechanism of the functional adaptation of Maroon societies in Jamaica over time.

A reconstruction of the Maroon past must also be done in the context of the territories they occupied and the special and changing features of these areas over time. For example, the Cockpit country in western Jamaica with its remarkable but harsh geomorphology of tropical karst and vegetation was the scene of some of the Maroon wars. It was these wars which established the Maroons' reputation for extraordinary military and organizational abilities. How did they cope with the environment? What mechanisms enabled them to overcome the harsh conditions from the social, economic, technological, and military points of view? It is important to identify the character and mechanisms of their functional adaptation through time.

Seventeenth to nineteenth century

maps exist that indicate the approximate territories occupied by the Maroons at different times. It is with the aid of these maps that archaeological reconnaissance and surveys can identify Maroon dwelling sites, guerrilla war camps, hideouts, burial and battle grounds and military tracks.<sup>3</sup> Several of these maps indicate the limits as well as the changing nature of the settlements which were occupied. From other maps can be gleaned information as to the distribution of the Maroons within the settlements. A 1757 map of Accompong in western Jamaica and an 1842 sketch map of what was formerly known as Trelawny Town (Maroon Town) are useful for a study of the patterns of family distribution within those settlements. A study of the social relationships and the development of families would reveal factors that are crucial to an explanation of the nature of the mechanisms by which the continuity of Maroon cultural practices has been maintained until the present day. It would, therefore, be possible to trace the evolution of modern social networks and behaviour patterns of Maroon societies. Information on these is minimal in colonial documentation, the only main source of Maroon history.

Place names in areas inhabited by Maroons at one time or another, like those of other groups of people elsewhere, are very useful for archaeo-

logical research and reconstruction. Such names as Parade, Gun Hill, Look-out Point, Kinda, Bathing Place, Pette River Bottom, Watch Hill, Gun Barrel, Nanny Town and Killdead are a few examples of such useful names. In some of the modern Maroon towns there are sections or divisions that appear to have associations with family groupings over time. In Accompong, for example, family names can be associated with specific areas in the town, although it is claimed that there is no formal agreement to such a pattern of distribution or association.

Another area of study that is currently being pursued is the technological contributions of Maroons in Jamaica. A study being undertaken by Dr Candice Goucher of Portland State University is providing evidence on an eighteenth century iron and brass foundry established by a John Reeder at Morant Bay in St Thomas which used the technological skills of Maroons and slaves of African descent. Technological continuities from the background of their places of origin in Africa would provide additional insight into how the Maroons would have coped with the conditions in which they found themselves in the New World.

#### Distribution of Sites

Maroon sites have been identified in the Juan de Bolas area of the Guanabo Vale and in the hills above [see maps]. These sites are referred to in historical documents as the earliest of the runaway hideouts and areas of resistance. More than any others, these settlements are likely to provide evidence that they do link the prehistoric period with the historical since within this same area is the Mountain River Cave with its important Amerindian rock art.<sup>4</sup>

The Accompong area in the Cockpit country of St Elizabeth [see maps] abounds in sites. Some of them are the Peace Cave, Gun Hill, Pette River Bottom, Big Ground, Grass Parade and Kinda. North of Accompong, a path leads through a modern cattle pen to the north of Kinda and descends a very rugged hill down to the burial ground of Kodjo, the popular Maroon leader who organized the Maroons in a series of guerrilla battles in the early eighteenth century. East of this burial site is an area referred to as Big Ground Grass. To the south of Big Ground Grass, the area is bounded by a stream which

flows into the Black River in the direction of Aberdeen. The famous cave where the peace treaty of 1739 was signed between the English and the Maroons is located at an intersection on the track linking Accompong to Aberdeen. The Peace Cave overlooks the Pette River Bottom where the last battle between the two parties may have taken place. Near Maroon Town, formerly Trelawny Town, north of Accompong, are graves apparently of British soldiers. On top of Gun Hill immediately to the north again are some archaeological features supposedly built by the British forces during their wars against the Maroons.

In eastern Jamaica, in the Blue Mountain region, many sites have been identified, some still with building foundations. Brownsfield, Gun Barrel, Watch Hill, Marshall's Hall, Killdead and Nanny Town are but a few of these. Together with other similar sites they are located in almost inaccessible areas around Windsor, Seaman's Valley, Moore Town and Comfort Castle, all in the parish of Portland. The environment of the sites is usually fragmented by the surrounding mountains and the deep valleys of the Rio Grande, the Negro River, Dry River, Stony River and their tributaries which cut through the territory. The thick vegetation in the area has caused considerable disturbance at many of the sites although these conditions have also sheltered some of them. Landslides and other natural land shifts together with battle damage during the period of Maroon resistance appear to have changed the face of many of the sites.

Marshall's Hall, also noted elsewhere as Marches Hall,<sup>5</sup> is located near Comfort Castle in Portland close to the Dry River. The site is interesting because of its structural features and also for the fact that Maroon oral tradition links the site to the modern Maroon capital town, Moore Town, historically considered to be 'New Nanny Town'. Surface finds consist of eighteenth and nineteenth century European ceramics, house foundations and steps. The site partly overlooks the valley of the Jackmadoree, a stream which flows into the Dry River. Settlement on the site of Marshall's Hall is said to have been in family units, each family occupying specific sections of the site. More studies are envisaged in the near future.

The Brownsfield site, near the Snake

River near Alligator Church Bridge, Portland, sits high on a hill that overlooks the road skirting modern Brownsfield. The main features are remains of houses, with a few fragments of ceramics and green glass bottles on the surface. The Brownsfield and Marshall's Hall sites are significant because they appear to support the speculation that they were established by the Maroons for defence.

The site that has attracted much attention is Nanny Town. Since January 1991, it has seen a series of reconnaissances and surveys and as well as a full scale excavation.

#### The Nanny Town Site

Accessible only by hunters' trails or by air, the site of Nanny Town is strategically located within the loop of the Stony River which marks its southern and eastern boundaries. Blocking off the Stony River and rising steeply from its northern bank is the Abraham Hill. Northwest of the site is Nanny Hill from which Nanny Falls splashes down to the level open grounds to flow into the southwestern bend of the Stony River marking the boundary on that side of the site.

It is not exactly known when Nanny Town was founded, but historical references indicate that by the mid-eighteenth century, the town was not only fully-fledged, but also a stronghold of the freedom-fighting Maroons in the eastern part of the island. Though certainly a principal settlement, Nanny Town's extent of control over other towns is not known.

#### Oral Traditions

Nanny Town was named after the legendary Grandey Nanny who is also documented as having been a small, wiry woman with piercing eyes. She is said to have had exceptional military ability and social as well as political leadership qualities. It is sometimes tempting to suggest that Nanny Town may have been an amalgamation of a number of smaller settlements. The British forces which seized and briefly controlled the area seem to have had little interest in the settlement and, therefore, did not provide much information on it. Molly's Town, Dina's Town, Marshall's Hall, Killdead and Watch Hill are some of the names of ancient Maroon sites mentioned in the

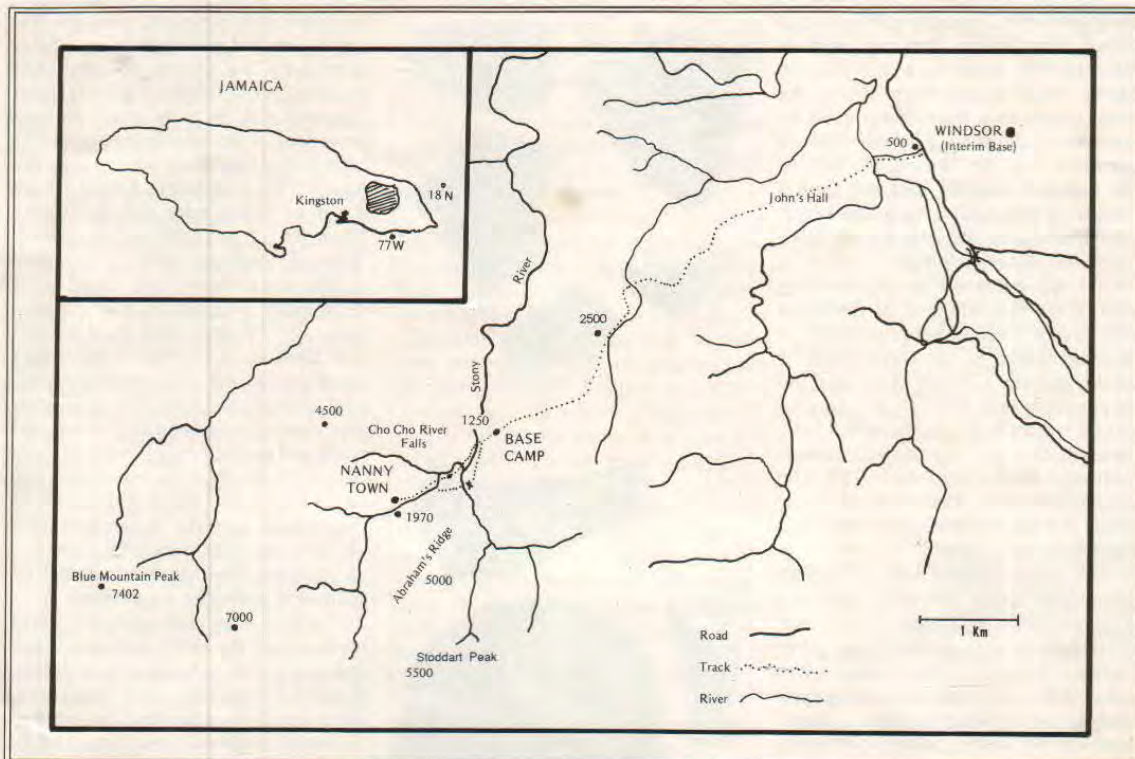


Fig. 6 Map showing Windsor route to Base Camp and Nanny Town

oral traditions of the Maroons and in some documents as lying in close proximity to or within the general area of the Blue Mountains where Nanny Town is located. Some, if not all, of these settlements may have had direct connection with Nanny Town. What were the actual relationships between these settlements? What was the mechanism of their functional adaptation at those times? What was the nature of the social network that enabled them to establish the strong resistance characteristic of the history of the Maroons? These were some of the questions that lay behind the decision for UMARP to undertake a full-scale archaeological expedition to the ancient site of Nanny Town and adjoining areas.

#### The 1991 Nanny Town Archaeological Expedition

For the first time, as a result of the UMARP initiative, the University of the West Indies was undertaking a full-scale archaeological survey and excavation of the ancient site of Nanny Town. The difficulty of the terrain made it necessary to plan the enterprise

in three stages. First was a preliminary trip to determine the most manageable route; this was followed by a pre-excavation trip to study the site in order to prepare a pre-excavation differentiation of Nanny Town and other sites in the vicinity; the third phase was the excavation itself.

*Preliminary trip:* Since the Nanny Town site is so difficult to reach, a preliminary trip was undertaken in January 1991 in order to identify a possible route to the site from the nearest town. Mr Leopold Shelton, assisted by Garcia and Clinton West, was the guide. Two possible routes were identified, one leading from Windsor and the other from Coopers' Hill, both in Portland. Either route would require a hike of at least twelve hours to reach Nanny Town. The Windsor route was selected as being slightly less difficult.

*The Windsor Route:* From Windsor Primary School the route runs southwards for about two hundred metres and then turns eastwards to the banana boxing shed known as Black Gate, about a kilometre away. It is very close to the west bank of the Rio Grande

River which can be crossed by a fording or by raft. The trail continues westward through Parks Hill along an abandoned water pipe-line to Rose Hill, a very muddy and slippery three-to-four kilometre hike. Another kilometre takes the journey to Garland Grove, Pumpkin Hill and Mammee Hill to the north. Much of the way from Windsor up to Garland Grove runs through the rugged Johns Hall district. Two kilometres further on is the Corn Husk River which is crossed at a point called 'White'. Here the easier part of the journey ends and the first major turn is made southwards towards the site of Gun Barrel, three kilometres away. This part of the journey can be accomplished in two to three hours but it is a very rugged, slippery, steep and winding trail. Gun Barrel is approximately halfway to Nanny Town from either Windsor or Cooper's Hill.

Travelling southeast past Sweat Hill, Pipe Hill, Hog Grass Bump and Hand Dog Bump, crossing numerous streams, struggling through many gaps and climbing steep slopes, one gets the true feeling of the rain forest in which the Maroons lived. Nanny Town is at



approximately the same altitude as Hand Dog Bump, but one has to descend Gun Barrel to a spot close to Hand Dog Bump then move on northwards to a base camp used by hunters of the area, located south of Abraham Hill. By skirting the hill to the west and crossing back and forth a couple of times over the Stony River, one finally gains access to Nanny Town just north of Abraham Hill.

*Pre-Excavation Expedition:* This part of the second phase of the UMAR Project took place in February 1991. It was sponsored by the Department of History of the UWI at Mona and the Archaeological Society of Jamaica (ASJ). It was fully supported by the Jamaica Defence Force, with contributions from members of the expedition. Thirty-three persons, some from the United States of America, made up the expedition.

The main purpose was to identify excavation areas. Pre-excavation site differentiation was based on surface distribution of artefacts and other surface features. Four areas were selected and the results of soil chemical analysis are expected to throw a clearer light on the validity of the differentiation, which for the moment is used only tentatively.

*Excavation:* In the following August, the full scale archaeological survey and excavation of the ancient site of Nanny Town took place. UWI student volunteers, lecturers, members of the Archaeological Society and Jamaican high school teachers, Maroon guides and hunters, as well as undergraduate and graduate volunteers from various universities in the United States of America, camped near Nanny Town for four weeks from August 5, 1991, for the historic excavation.

*The Site:* As already indicated, the Stony River and Pitter's River and their tributaries dominate the drainage pattern of the site, while Abraham Hill to the south and Sugar Loaf to the north-northwest dominate the topography. Rocky and rugged, the Nanny Town site and adjoining areas are engulfed in thick, lush green vegetation. The site enjoys the warming sunshine coming through the gap between Abraham Hill and the Sugar Loaf Hill.

A conspicuous feature at the site is a rectangular stone structure believed to be a military fortification built during the British-Maroon wars. A large block of stone near the stone structure is



inscribed with a message that the site was taken and controlled for a brief period by a Captain Brook. This engraved stone appears to have been tampered with by more recent military personnel as an additional name has been found engraved on it since the August 1991 expedition. A third feature is a more recent stone slab, measuring 27cm by 35cm, with the engraving 'Bermuda Regiment 1971'.

The excavation was based on a three-metre grid which was imposed upon the 10 feet grid used by the expedition of 1973. The J4 line which was the J3 of the 1973 expedition was used as the datum point. The excavation was conducted according to natural levels and reached only Level 2 in more than 80% of the area excavated and Level 3 in a few areas, particularly in the eastern sections of the site from which much of the material that appears to predate the Maroon period of settlement of the site was derived.

*Finds:* The provisional field inventory of the finds at Nanny Town indicates that approximately three thousand artefacts were recovered. More than 33% of this total consisted of fragments of green glass bottle, 15% of local ceramics and 10% of metal objects. An interesting feature of the finds is their variety.

*Historic Phases:* Nanny Town is recognized as having seen three phases of occupation. The first appears to predate the Maroon presence in the area, and includes a mixture of local ceramics, stone artefacts and shell material. In areas 4 and 5 particularly, this phase is represented by artefacts that have been provisionally referred to as pre-Maroon and which some of the participants in the expedition think might be 'Arawak'. No date can yet be assigned to this phase although it is strongly suspected to pre-date 1655.

The second phase, provisionally referred to as the Maroon phase of occupation, contains ceramic material, much of which is local grinding stones and a considerable amount of charcoal which, if dated, could probably facilitate our understanding of the relationship of this phase to the others. Much of the charcoal comes from levels that contain plenty of ashy layers on surfaces that appear to have been trampled upon or beaten down. Fragments of gun flints, gun barrels, musket balls, iron nails, green and clear glass bottles together with one fragment of red clay

pipe bowl, are finds from the Maroon phase. The composition of the material from this phase makes it difficult to distinguish it from the later phase which appears to represent the period when the British forces attacked and occupied the site. In addition to the finds already mentioned, the Maroon phase, like that of the phase that followed it, contained kaolin pipe-stems and bowls, implements such as surgical scissors, buttons, a coin (Dutch or Spanish origin), a glass bead, fragments of imported ceramics and fragments of gun barrels.

The third phase is represented by the stone fortification and the engraved stones. The main finds of this phase include many pipe fragments, buttons, fragments of gun barrels, medicine bottles, nails, imported ceramic bowls, plates and cups, buckles, and a large quantity of green glass bottle fragments. A few post holes at the site are associated with this phase. One of them appears to represent the location of a flag post, possibly erected by the British forces. This hole, approximately 1.5 metres deep and lined with stones, is located against the back wall of the stone structure.

#### Discussion

Although no dates are yet available for the phases identified, the results are very interesting because they raise many issues that suggest that there is a need to begin to rethink the standard interpretation of the history of Jamaica. The new evidence clearly confirms that Nanny Town was a stronghold that saw considerable military action. A striking discovery is that this evidence seems to suggest that Nanny Town was occupied for a fairly long period, possibly dating back to a time before colonial contact was made. This possibility becomes even more attractive if the speculation that the artefacts thought to be perhaps prehistoric or 'Arawak' is confirmed. In this case, one could further suggest that Nanny Town might have been a stronghold or a refuge for escapees during the Spanish period and that these escapees could have been members of some of the indigenous groups that the Spanish encountered on their arrival in the island. It could also be the case that some of the indigenous inhabitants who might have already settled at Nanny Town before the Spaniards arrived,

eventually welcomed and sheltered fugitives during both the Spanish and the English periods. If we assume that the prehistoric group consisted of 'Arawaks', it would suggest that the very first escapees were 'Arawaks'. Would that mean that the first Maroons were 'Arawaks'? Possibly.

Another conclusion that follows from this is that the association between the material of the first two phases suggests that a few of the 'Arawaks' who might have escaped into the least accessible regions of the Blue Mountains and similar areas were still there at the time when the English drove the Spanish from the island. Books on the history of Jamaica would then have to correct the erroneous impression that the 'Arawaks' had all been exterminated by the Spanish. It appears from the evidence from Nanny Town, pending the dating results that prehistoric groups in hideouts in remote areas of the island might have been gradually absorbed into the groups that later joined them.

Material associated with the stone structure at the site of Nanny Town clearly supports the opinion that it was not built by the Maroons, as is usually claimed in their oral traditions. The structure may have been used later when the Maroons took over the site again but only after the British had left Nanny Town.

Not much can be said about other questions such as the relationships between Nanny Town and other known Maroon settlements in the vicinity of the site or in other parts of the island, nor about the social network that might have bound them in any relationships. It is also premature to speculate on the structural pattern of the settlement because not much of the site has yet been examined. Whenever much more information about the physical nature of Nanny Town and other Maroon sites becomes available it should be possible to attempt serious generalizations on the character and mechanisms of the functional adaptation of the Maroons over time.

The results of the 1991 excavation appear to present a new opportunity to achieve a better assessment of the Maroon heritage within the general history of Jamaica. The University of the West Indies archaeological research programme is continuing with further excavations and it is hoped that more evidence will be obtained which will

make such a reassessment possible. Much, however, remains to be done.

#### NOTES AND REFERENCES

This paper is a preliminary summary of archaeological investigation into Maroon settlements in Jamaica and includes aspects of excavations conducted in the summer of 1991 at the ancient site of Nanny Town in the Parish of Portland, Jamaica. I wish to express my sincere thanks to the Department of History, Research and Publications Fund Committee, and the Faculty of Arts and General Studies, all of the University of the West Indies at Mona, the Jamaica National Heritage Trust, the Wenner-Gren Foundation for Anthropological Research, and the Jamaica Defence Force for their support. Limited space makes it impossible to mention individual names of members of the February 1991 Nanny Town Expedition which was organized with the support of the Archaeological Society of Jamaica and the Department of History, Mona, nor the foreign and local undergraduate and graduate volunteers and Maroon guides involved in the Summer 1991 excavations which went so very smoothly. I wish also to place on record the cooperation and assistance of Colonel C.L.G. Harris, Chief of the Moore Town Maroons, and his elders, and Colonel Martin-Luther Wright, Chief of the Accompong Maroons, and his elders. The study has so far been a family affair and I am hopeful that we will continue to keep the family alive and growing.

1. This is a Maroon expression roughly meaning 'I am a full-blooded descendant (son/daughter) of a Maroon.' It is an expression of identity and reaffirmation of solidarity and loyalty, usually called into play when two or more Maroons meet and exchange greetings. It clears the way for the discussion of matters that should remain within Maroon circles.
2. Bonner, T. (1974) 'Excavation at Nanny Town', *JAMAICA JOURNAL* 8:2 & 3.
3. Agorsah, E.K. (1990) 'Archaeology of Maroon Heritage in Jamaica' in *Archaeology Jamaica* (New Series), No. 2
4. Watson, K. (1990) 'Amerindian Cave Art in Jamaica', *JAMAICA JOURNAL* 21:1.
5. Agorsah, E.K. (1990), op. cit.

Photographs taken by the author.

REPORT ON EXPEDITION TO NANNY TOWN - JULY, 1967  
BY ALAN E. TEULON - LEADER.

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(1) HISTORICAL BACKGROUND

Nanny Town was perhaps the most formidable of the Maroon settlements in Jamaica in the early eighteenth century, positively the largest in the area of the Blue Mountains, during the decade prior to the signing of the Peace Treaty with the Windward Maroons in June, 1739. The settlement was named after Nanny a legendary Maroon chieftainess.

Standard Jamaican and West Indian histories, such as those by Leslie, Long, Edwards and Gardner refer to the dispersing of the Nanny Town Maroons in 1734 by soldiers led by Captain Stoddart, after whom Stoddarts Peak is named. In historical documents Nanny Town is described as lying beneath Carrion Crow Hill; almost certainly the eminence now known as Abraham. There were about ten successful or partially successful attacks on Nanny Town, referred to in most official documents as the 'Principal Rebel's Town' or the 'Great Negro Town'. However, these successes were soon reversed by the Maroons and the only lengthy occupation of Nanny Town by soldiers was after the 1734 attack when a barrack was built to house fifty men and the location occupied by Regulars for many months. Earlier in 1732 a barrack had been built and occupied for a few weeks. The most complete account to date, of military activity at Nanny Town is contained in 'Royal Government and Political Conflict in Jamaica, 1729-1783' by George Metcalfe, published for the Royal Commonwealth Society in 1965.

In early 1734 the House of Assembly voted funds for the construction of a supply road for the troops stationed at Nanny Town. It is doubtful whether a route was engineered to allow access by mule train, however, several early maps of the island show 'Governor Trelawny's Road (or Path) to Nanny Town' which crossed the Grand Ridge of the Blue Mountains northwards from Island Head Estate near Somerset in St. Thomas. Trelawny's Road is shown as being the surveyed boundary between part of Ben Lomond and the Patents of Edward Montagnoc and Francis Rigby Broadbelt on a plan produced by Surveyor General's Department in 1931.

James Robertson's map of the County of Surrey, published in 1804, shows Nanny Town at the junction of two rivers now known as Stony River and Macungo River. Sheet 'M' of the current series of 1:50000 topographical maps published by the Survey Department shows the 'Approx. Site of Nanny Town', at a position approximately one mile south west of the river junction, on the south bank of Stony River.

The population of Nanny Town in its heyday was estimated as numbering five hundred persons and attacking parties discovered as many as one hundred and thirty houses.

A man made structure known as the 'Stonewall' is mentioned in several articles published in the 'Gleaner' by the explorer Reginald Murray. This is well known to the present wild hog hunters from Johns Hall and adjoining districts in Portland. The area surrounding 'Stonewall' is known to the hunters as Nanny Town and the hill to the west as Nanny Town Hill.

In September, 1868, Thomas Harrison the Crown Surveyor carried out a survey of the Stone River Valley. In the years 1889-90 an attempt was made to locate this historical site by Herbert T. Thomas an Inspector in the Jamaica Constabulary

He included graphic accounts of his visits in his book 'Untrodden Jamaica'. However Thomas's "Nanny Town" was at an elevation considerably higher than 'Stonewall' Nanny Town; he probably visited the site of another Maroon settlement.

(2) OBJECTS OF THE EXPEDITION

The main purpose of this expedition was to locate precisely the position of 'Stonewall', prepare a clearing in the surrounding forest and to find proof of a prolonged period of past occupancy.

A secondary purpose was to carry out an investigation of the botany, forestry and geology of the area.

(3) STATUS AND PERSONNEL OF THE EXPEDITION.

This was a joint venture by the Survey Department, Forests Department and the Institute of Jamaica, the chief members of the expedition being senior members of these organisations.

Several other scientific and private observers were invited to join the expedition to enable a more complete investigation of the area.

Including members of the expedition and assistants a total of 35 persons took part.

(4) TIME AND DURATION

The expedition took place between 21st and 28th July.

(5) LIST OF PERSONNEL  
Expedition Members

ALAN E. TEULON	A.R.I.C.S., of Survey Department - Leader and Surveyor.
TERRENCE BENNETT	Forests Department, Assistant Supervisor of Forests.
GEORGE PROCTOR	B.A., of the Institute of Jamaica - Botanist.
HENRY OSMASTON	M.A., B.Sc., D. Phil., F.L.S. of Bristol University, England. - Forester and Geologist.
MICHAEL ASHCROFT	D.M., M.A., B.M. B.Ch., D.P.H., D.T.M.H. of Medical Research Council, U.W.I., - Medical Officer.
DAVID LEE	B.Sc., of Department of Chemistry, U.W.I. - Photographer.
NEVILLE McFARLANE	Undergraduate, Department of Geology, U.W.I., - Geologist.
DENNIS HEADRICKS	Private Observer.
FRANKLYN ST. JUSTE	Film Unit, Jamaica Information Service, - Cameraman.
ANTHONY STERNE	Lieutenant, Air Wing, Jamaica

Assistants -

Nroman Talbot  
Leopold Shelton  
Adolphus Downer

Ferdinand Frater  
Kenneth Wilson  
Richard Barnes  
Vinard Clarke

Edward Doyle

Joseph Wynter  
Barrington Cowan  
Richard Ribore  
Howard Norris  
Joseph Anderson  
Wesley Burke  
Lucius Grey  
Vincent Young  
Keith Minott  
Roland Ribore  
Ewton McPherson  
Jephtor Ribore  
Lynval Brown  
Gilbert Young

Institute of Jamaica - Plant Moulder.  
Head, Lands Department - Chief Guide.  
ex-Lands Department - Assistant  
Chief Guide.

Headman attached to Botanist.

Warden of Forests Department.

Warden of Forests Department.

Headman of Survey Department - Chief  
Cook.

Headman of Survey Department - Assis-  
tant Cook.

Driver, Survey Department.

Plant Collector.

Guides and Labourers.

The expedition was assisted by Lieutenant Andrew Bogle  
of the Air Wing of the Jamaica Defence Force who piloted the  
helicopter which carried out preliminary reconnaissance.

Corporals Dean, Hall and Houslin of the Jamaica Defence  
force assisted with the helicopter.

E.J. Cowan, Lands Officer and Bancroft Jones, Forests  
officer of Windsor assisted in arrangements for the expedition.  
Bancroft Jones made his house available for accommodating members  
before and after the expedition.

(6)

PREPARATIONS

During the six months prior to the expedition, several reconnaissance trips were made to determine the best approach to the area. Routes from Trinityville in St. Thomas, Durham in Portland and Windsor on the Rio Grande in Portland were investigated.

In January, Mike Ashcroft and Dennis Hendriks reached Macungo River by travelling up the Back River valley and Stony River valley, starting out from Durham. In May, David Ingle-Smith of Department of Geography, U.W.I. and Alan Teulon visited the Stony River with guides Leopold Shelton and Adolphus Downer. In April, David Lee and Teulon flew over the upper Stony River valley in Jamaica Defence Force helicopter. During the month of June, Leopold Shelton was employed by the Forests Department to clear a site for helicopter landing and to build a camp, at a position about one mile north of confluence of Macungo and Stony Rivers. (Grid. reference 715E, 425N). The camp is approximately two chains east of Stony River and approximately fifty feet above the level of the river.

(7)

ROUTE TO CAMP

The journey to camp commenced from the district of Windsor on the Rio Grande. The River is crossed by fording or ferry boat and the parochial road followed through Johns Hall district; (a Land Rover might drive to Johns Hall), approximately two miles beyond Johns Hall, the parochial road is left and a descent made on the right to the Corn Husk river. Ascending the Corn Husk river valley for approximately three-quarters of a mile; here comes the difficult climb, from approximately 1,200 feet above sea level, up over Pine Hill at approximately 3,000 feet

and the descent to the camp site beside the Stony River at 1,200 feet.

This journey is difficult to reckon in miles but is probably about 12 miles in length. A reasonably fit person can travel, lightly laden, from Windsor to Stony River camp in nine to ten hours.

8) JOURNAL OF EXPEDITION ACTIVITIES

Friday 21st July.

Party assembled at Windsor, Rio Grande - Overnight stay at house of Forests Officer, B.S. Jones.

Saturday 22nd July.

Helicopter unable to land at Nanny Town camp because of trees blocking approach - advance party under Shelton sent to cut down trees - Main party travelled from Windsor to Camp - 9 hour journey - Teulon and Headman remained with stores and equipment at Windsor.

Sunday 23rd July.

Helicopter carried supplies and equipment to camp. Teulon and Headman travelled in helicopter - Unsuccessful hog hunt - Exploration trip to site of Nanny Town - party led by Chief Guide, L. Shelton - Stonewall discovered - Botanical collection started by George Proctor.

Monday 24th July.

Rest day for expedition members - Unsuccessful hog hunt - yellow snake killed by hunters - clearing party sent to prepare clearing west of Stonewall - Trip up Macungo River to foot of waterfall approximately half mile from confluence with Stony River. Lee damaged camera in river.

Tuesday 25th July.

Unsuccessful hog hunt - clearing party at Nanny Town. Artifacts recovered by main party.

Wednesday 26th July.

Helicopter arrived with St. Juste, took out Lee - Jack Tyndale - Biscoe flew over camp area in private plane to talk on radio with Teulon regarding progress - main party completed clearing at Nanny Town - chemical treatment of clearing around Stonewall - more artifacts recovered.

Thursday 27th July.

Departure of main party for Windsor - Teulon, St. Juste and three others remained at camp - rain and mist. Two hunters travelling with main party killed wild hog.

Friday 28th July.

Teulon flew out with helicopter and equipment. St. Juste flew to Kingston - remaining men walked to Windsor.

(9) ROUTE TO NANNY TOWN

A lightly laden group can complete the journey from camp to Nanny Town in approximately  $1\frac{1}{2}$  hours. This journey is probably about  $2\frac{1}{2}$  miles in length.

The Stony River is crossed from east to west a few chains south of camp and then an easy walk is had across 'Long Level', another crossing made of the Stony River to the 'Foot of Abraham' on the south bank. This river is crossed three more times in quick succession, the last crossing being from south to north at Fig Tree Crossing near the point where the Chatter River flows into the Stony River. A steady 30 minute climb is made upstream from this crossing, parallel to Stony River, to Nanny Town.

10) SITE OF NANNY TOWN

The Stonewall of Nanny Town is situated at grid reference 711E 421N an elevation of approximately 1,200 feet above sea level. The site is on the north bank of the Stony River on a small flat shelf of about 2 acres in extent, approximately 100 feet above the level of the river. There is a very steep precipice between this shelf and the river.

From the sketch it can be seen that the shelf extends northwards from the precipice about 100 feet to the foot of the steep hill known as Nanny Town Hill. There is a very steep drop into the river east of and about 100 feet from Stonewall.

The only level approach to the site is from the east downstreamside, where there is a narrow strip of land between the foot of the hill and the river.

1) THE STONEWALL

This consists of dry packed stone in a very delapidated condition. The remains of the wall is rectangular in shape, the north and south sides measuring twenty feet, the east and west sides twenty five feet. There is a 3 feet gap (Doorway?) in the centre of the south wall. The walls are approximately 2 feet 6 inches thick and 3 - 4 feet in height.

About a chain to the north of Stonewall there is a pile of large stones, apparently collected by man. Three large boulders about 10 feet in height, lie closely grouped about one chain to the south of Stonewall.

2) TREATMENT OF STONEWALL SITE

An area of approximately 1,000 sq. feet, south west, that is, upstream from the Stonewall was cleared of all vegetation. This area is now suitable for landing helicopter.

All of the area cleared, with the exception of that north of Stonewall was sprinkled with a strong solution of 'Esteron' brush killer in water. Trunks of large trees left standing near the Stonewall were girdled and treated with a solution of Hyvar - X in Kerosene. All tree stumps were treated with this last solution.

As a result of this chemical treatment, it is hoped that the site will remain clear of vegetation until new aerial photography for mapping is flown over this area. This is likely to be at the beginning of 1968.



(13) LOCATION OF NANNY TOWN.

By compass bearings to recognisable topographical features the position of Nanny Town can be located on Valuation Index sheet 155 in 12,500 series published by Survey Department. The approximate position is at grid ref. 711E 421N. The precise location will be identified on new aerial photography mentioned above.

(14) ARTIFACTS

Most of the artifacts recovered were lying on the surface inside or nearby the Stonewall. At the foot of the hill just west of Stonewall seemed a likely place to search as it was about 40 feet from the 'doorway' and within convenient throwing distance. At this spot an area of 10 feet by 10 feet was bushed very low, the roots and humus removed, and a search made among the stony surface uncovered. The following is a list of those items discovered.

- |  |   |                 |
|--|---|-----------------|
| 2 complete bases   | } | bottle remains. |
| 13 pieces of base  |   |                 |
| 4 necks  |   |                 |
| 1 piece of side  |   |                 |
| 50 fragments   |   |                 |
| 3 pieces of 'delftware' - related,<br>white with hand painted blue pattern | } | Pottery.        |
| 14 fragments 'delftware'.  |   |                 |
| 2 pieces, unrelated, possible from<br>Belamine jars.                       |   |                 |
| 3 pieces, related from a utensil   | } | Iron.           |
| 5 pieces, assorted, possibly from<br>utensils.                             |   |                 |

One piece of English, white Kaolin clay pipe - one inch in length.

Items collected from the general area included many pieces of bottle, all British in origin, green, hand-made, mouth blown. A small nail (1½ inches) was found about 6 inches below the ground surface in a small test pit dug in the centre of the Stonewall.

Two of the best finds were a hoe head, found in the Stonewall and an axe head retrieved by Leopold Shelton from Nanny Town Hill. Shelton had seen this some years ago, whilst hunting wild hogs.

Mike Pawson, Treasurer of the Jamaica Historical Society, has examined the bottle remains and places them in two periods as follows:-

- About 50% from period 1730 - 1745
- Remaining 50% from period 1740 - 1760.
- Two bottle bases belong to a later period.

These dates can only be approximate, so it is possible that all date from the period of military occupation prior to signing of the Peace Treaty in 1739. However, no artifacts of military significance were recovered and all items might have been used by either militia troops or stolen by Maroons.

## 15. HISTORICAL CONCLUSIONS

The possibility has been mentioned by Murray that 'Stonewall' was a sangar or stone breastwork built by the Maroons. This is doubtful as 'Stonewall' is the only known man-made structure in the area, and the Maroons, so adapted to their notorious ambushade and withdrawal had ample natural defences. It is more plausible that 'Stonewall' is the remains of part of a barrack built by the militia, possibly constructed to house vital arms and ammunitions. However, local hunters are of the opinion that the wall was built by Maroons, as it is of dry stone and they feel that a group of militia backed up by large numbers of pioneers would have used mortar.

It seems that the position of Nanny Town shown by Robertson, approximately sixty years after its abandonment, merely conformed with the fact that it was located close to the confluence of the Stony and Nanny (Macungo) Rivers. At Robertson's position there is no evidence of disturbance of the natural forest. Neither is there a great precipice over which the Maroons, purportedly surprised by Stoddarts attack, could have thrown themselves.

The reasons for accepting 'Stonewall' as the site of Nanny Town are as follows:-

- (i) 'Stonewall' is the only known man-made structure in the area.
- (ii) Evidence of considerable disturbance of the natural forest around the site.
- (iii) The recovered artifacts prove occupation by a large group of persons.
- (iv) The 'Stonewall' area is probably the most suitable site of such a settlement, the flat area of approximately two acres being ideal as an assembly or meeting area, and the shelf above and parallel to the river ideal for cultivation. Nanny Town Hill would have been a suitable site for the huts. The site, cleared of trees, would afford intervisibility between strategic points up and down the valley and Abraham Peak.
- (v) The great precipice into the river lends substance to the story that surprised Maroons threw themselves over a precipice when Stoddarts troops attacked.
- (vi) Trelawny's Path (To Nanny Town) shown on Robertson's map terminates before reaching his position of Nanny Town, much nearer to the position of 'Stonewall'.

## 16. GENERAL CONCLUSIONS

This expedition has located with a high degree of certainty, the location of Nanny Town.

The artifacts collected are of the period during which militia and regular troops occupied Nanny Town.

The clearing of two camp sites and the erection of a hut at the lower site will assist future visits to this virtually unexplored but fascinating area of the Blue Mountains. The accompanying reports deal with the brief investigations of the botany, forestry and geology of the area, and it is to be hoped that further and more complete studies will be made.

17. Records

The Jamaica Information Service issued a press release after the expedition returned and articles appeared in the 'Daily Gleaner' and 'Star' on August 17th.

A programme produced by Bertie Miller of the Jamaica Information Service, entitled 'Nanny Town', appeared on the Jamaica Broadcasting Corporation television on August 19th. The programme lasted approximately 25 minutes and included interviews with Teulon, Procter and Shelton and a ten minute film of expedition activities.

The artifacts recovered will be presented to the Institute of Jamaica as will a collection of photographs at present being prepared by David Lee.

18. Recommendations

It is hoped that the appropriate authorities will give serious consideration to the following possibilities for further use of the Nanny Town area.

(i) Historical Research

There remains a great deal to be unearthed by students of Jamaican History. An organised 'dig' at the 'Stonewall' site could reveal a wealth of domestic and military momentos of a neglected but exciting period in the islands history.

(ii) Historic Monument

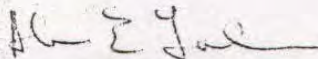
Nanny Town could be added to the official list of historic monuments and a suitable person appointed to keep the site in good condition.

(iii) Museum

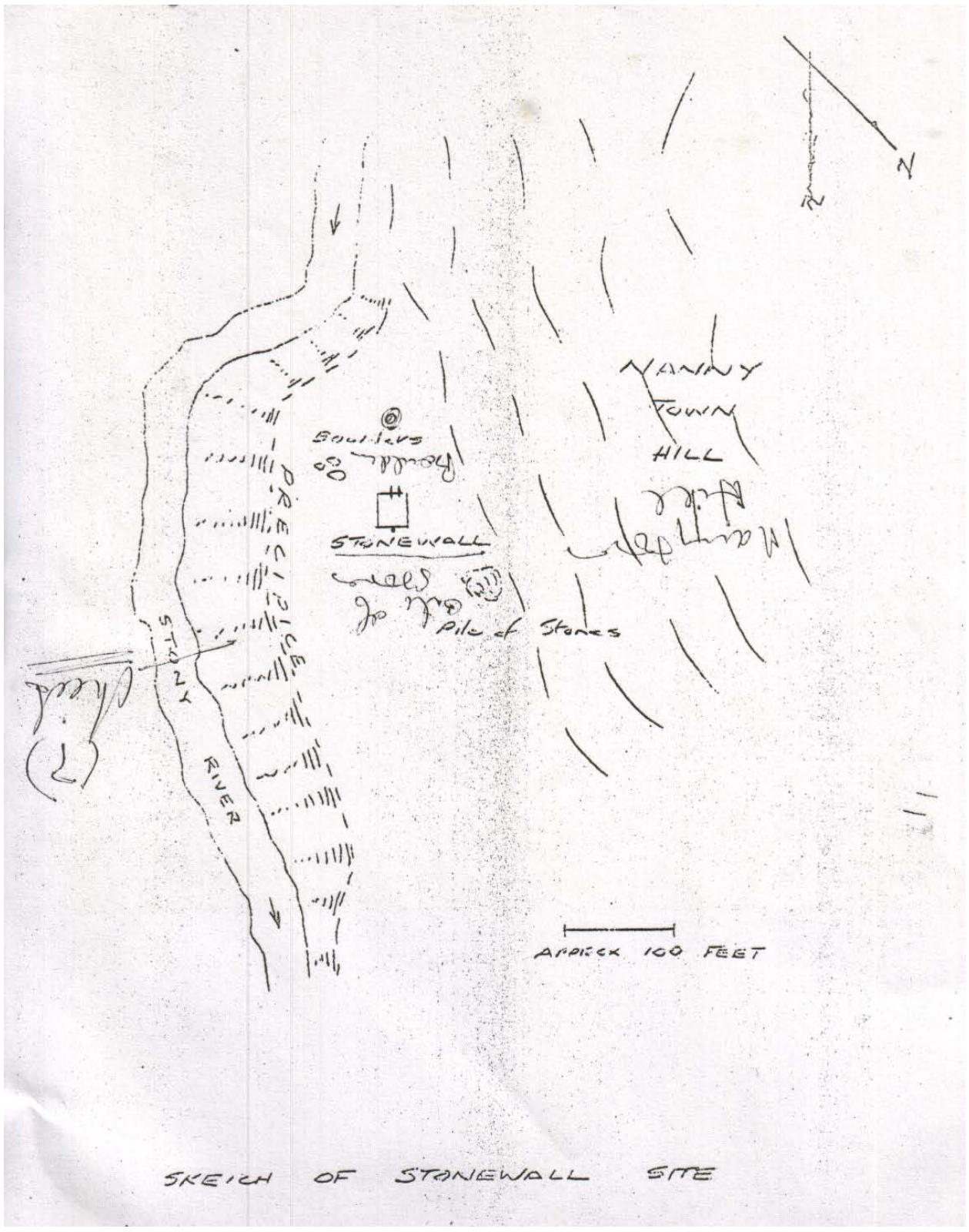
In addition to the existing Folk and Arawak museums and the proposed Spanish Museum, a Maroon Museum could be established. The Maroons of More Town (formerly of Nanny Town) have a valid historical claim to have been the most formidable group of Maroons in the island. A museum displaying artifacts from Nanny Town and similar sites could provide a fascinating tourist attraction in Portland, an area where repeated efforts have been made of late to increase the number of tourist attractions.

(iv) Military exercises and 'Outward Bound' Courses.

This little explored area affords challenging opportunities to local and foreign troops engaged in military exercises and to youth organizations engaged in training young persons to fend for themselves under arduous circumstances.



(ALAN E. TEULON)  
September, 1967.



SKEICH OF STONEWALL SITE

REPORT ON THE  
BLUE MOUNTAIN EXPEDITION 1973  
JAMAICA

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From Beverly Carey  
February, 1974

presented on behalf of the Moore Town Maroons,  
PORTLAND, JAMAICA

FEBRUARY 15, 1974

REPORT ON THE NANNY TOWN EXPEDITION

To be presented to the Director of the Institute of Jamaica and the  
Council of the Maroons at Moore Town, Portland

Prepared by Beverly Carey, 7 Dublin Castle Close, Gordon Town, St. Andrew.

This report includes my own personal impressions of the British-Jamaican Expedition to the Blue Mountains and Nanny Town. It is a honest reflection of my point of view and does not reflect in any way the viewpoint of any other person who participated in this venture.

PARTICIPATION

This expedition was planned by the members of the British Scientific Exploration Society under the sponsorship of the Ministry of Defence in Great Britain. It was financed by the participants, British firms and Jamaican firms in Jamaica. Many Jamaican firms contributed foods as well. Accommodation was provided by the Jamaica Defence Force who also provided transportation including helicopter support and radio links on a twenty-four hour basis.

The visit to the Blue Mountain area lasted for three and a half weeks although the team was in Jamaica for six weeks.

I was able to participate in the expedition largely through the efforts of the Council of the Moore Town Maroons of which community I am a descendant. These efforts were supported by the government of Jamaica, whom I must thank and who actually made the trip possible.

No participation was planned for the Maroons in this expedition apart from their use as paid guides. No Maroon from the Moore Town community of Portland and who trace their ancestors to Nanny Town were invited to attend. Due to government influence, myself and Mr. Charles Aarons (a Council member) had the opportunity to attend. Also, through Government and Maroon pressure certain standards were laid down for the British side. These were outlined to the liaison officer on the British side by the Director of the Institute of Jamaica in a meeting held at the Institute.

These included:-

Full Maroon participation, the leaving of all archeological finds in Jamaica, all news items for the press should be processed through the office of the Director. Mr. Dawes also ascertained the role of the Maroons to ensure that this would be one of dignity etc.

As I was a Maroon representative, Mr. Dawes told the Maroon council that all expenses incurred by me were not the responsibility of the Government of Jamaica but the Maroons'. I wish it placed on the records that all my expense my expenses

were met from my own pocket as being a Maroon with very strong links and actually a claim in Cornwall Barracks that I could not ask the Maroon community to reimburse me. I was happy to serve. My role was to be Consultant Historian to the British side and to represent the Moore Town Maroons.

The Jamaican Scientific side included the following:

Mr. Tony Porter, Government Geologist  
Mr. Roderick Ebanks, Government Archeologist  
Mrs. Beverly Carey, Maroon - amateur Historian (a Botanist by training)

Also included was Mr. Charles Aarons, a representative of the Maroon Council and my own personal assistant and guide.

There were also several guides and high school cadets participating. Two signallers from the Jamaica Defence Force provided 24 radio-link. There was also at least one student Botanist from the University of the West Indies.

#### THE TRIP

The Jamaican scientists were supposed to travel by JDF truck from UP Park Camp at 8.am on Sunday, December 16th., 1973, however, because of a telegram from Colonel Harris, Mr. Ebanks and myself decided to leave at 6.am. to start the long trek earlier. We arrived in Port Antonio at 9.am. and started out at 10.30 am. Our route was via John's Hall, Garland Grove, down to the Corn Husk River, up to Gun Barrel Hill across the ridge into the valley of the Stony River and into the base camp which was located in the mid area of the Stony River.

This was not the route used by the Britishers as they crossed Pipe Hill which is up-stream the Corn Husk River. Due to the deep shadow in the forests, we overnighted at Gun Barrel Ridge and reached the base camp site at 12.am. the next day (December 17th., 1973).

#### BASE CAMP

This base camp was developed because of the difficulty of taking the stores into the Nanny Town areas where the level land was very limited preventing the large helicopter from landing. All their supplies and equipment was therefore placed at the base camp and was carried in entirely by the JDF helicopters. So ~~was~~ two boxes for myself and one for Mr. Ebanks. In addition, the biologists could do most of their work in the base camp area.

There were three huts at Base Camp. One was used for the biological specimens, a second for the community area and dining room and a third by the Guides and Jamaica Defence Force. Mr. Porter's and my own food supplies were handed over to the British quartermaster, the British therefore provided us with food. Mr. Ebanks, being a vegetarian saw to himself. The JDF and the Guides had their own arrangements.

#### ADMINISTRATION

The expedition was administered by a quartermaster from the British side who provisioned the entire expedition. Mr. Ebanks was accommodated in the hammock of the British mountaineer and who returned to Kingston on the 17/12/73. Mr. Porter and myself slept on the trumpet benches in the community hut.

Administration in the camp was excellent and well-ordered and all of the Jamaican scientists were given every courtesy and service by all members of the British team. There could be no justifiable complaint about this.

While administration was excellent, a severe embarrassment for the Jamaican team resulted from an outburst from Lt. Nott due to failure of the JDF cadets to bring in their complete food supply. Lt. Nott was advised by radio and later in person that due to the difficult path, the cadets' food supplies would arrive on the next helicopter and that the JDF headquarters was requesting the British team to supply them until the helicopter arrived. Lt. Nott on receipt of this information did not hesitate to express his contempt for the JDF officers who he felt should be fired for allowing their cadets to eat the food which he had brought from England. As our discomfort and embarrassment became evident, members of the expedition cautioned Lt. Nott to keep further comments to himself which he did. However, to my knowledge no member of the Jamaican side ever discussed this matter with him.

During the first three days of our group in the Stony River Base Camp torrential rains fell and as this put the river in spate (some 6 feet high), we were stranded at base camp and unable to proceed to Nanny Town until Thursday when an helicopter arrived to take us there. During this time, Mr. Aaron and Mr. Lindsay (a paid guide) went up to Nanny Town before the river rose and built a new hut there in order to provide shelter for Mr. Ebanks, Mr. Porter and myself.

#### NANNY TOWN

Nanny Town is located in the upper Stony River Valley about 2½ miles above the Base Camp. The shortest route there takes about 1½ hours and utilizes 5 crossings of the Stony River. The longest route is ¼ hour longer and utilizes two crossings - one of the Macungo River (a tributary of the Stony River and one of the Stony River).

The site under investigation, described by the British team as Nanny Town covers an area of about 2½ acres on a high terrace of the Stony River. Here it is dwarfed by Two Claw Ridge to the west and to the northeast Abraham Peak. In calling this area Nanny Town, the British Expedition team historians have made a straight acceptance of the facts based on the interviews of person probably Maroons captured by the soldiers and recorded by British historians and archivists. However, this strict description is not really true as I hold evidence to indicate that this site was only a small part of the total Nanny Town area. It was however, the site occupied by the British troops. This town is described in records prior to 1732 as the Great Negro Town and after 1732 as Nanny Town. The British team also hold that there were other towns in the area but these towns have never been located.



#### HISTORICAL BACKGROUND

Nanny Town, probably 1690 to 1734 was up until 1730 unknown to the English in Jamaica. Between 1690 and 1734, a period of over 40 years, a very sophisticated community of Africans was developed. This included a rich culture in language, music and legends, a military as well as a civil government and a tremendous plantation covering over 640 acres. They also had a well-organized system of trading for supply of household and other equipment. In 1730 - the Maroons deserted Nanny Town and never again lived there only defended it.

While we accept and in fact know that a considerable portion of their household utensils and tools were removed by them and by the English from this town, we must accept that there is still enough sherds left to give us some idea of just how they lived.

Present-day Maroons still reflect a great deal of their early culture. This is possible because an early teaching was that their Kramanti language and customs should be closely held by them and only communicated to trusted Maroon individuals within their community.

Since the Maroons do not originate from one tribe but are a mixture of several, Jamaica can obtain considerable information on early African roots by a careful study of their history, their contribution to the building of Jamaica and to their social development.

For this reason then, an immediate study of Nanny Town, hand in hand with a study of their culture and history along with the development of a museum project are of tremendous importance to all Jamaica.

#### THE DIG

Prior to the arrival of the Jamaican participants, the British research team, specifically the British research team at Nanny Town viz.

Mr. Alan Teulon, Surveyor & amateur Historian

Mr. Richard Snailham - Lecturer in Modern History at Sandhurst

Mr. Tony Bonner - Farmer & amateur archeologist

had created a grid system on the cleared area of Nanny Town and had started random digs in the flat area as well as in the 'stone wall'.

The methods adopted by the team seemed quite well organized and Mr. Bonner presented a picture of efficiency.

As far as the objects were concerned, I am of the opinion that these were found in approximately the areas in which they were dropped as movement by water must be discounted due to the good draining of the entire area by a large number of streams which do not flow through the flat areas. I feel as well that the areas excavated are not those which will provide the greatest material, however, it was convenient to start there.

Further research at Nanny Town should not follow this pattern but rather utilize data on the original layout of this Maroon community.

### ARTIFACTS FROM STONE WALL

#### Lance Head

A Maroon defense and hunting implement. Supported by both archive and Maroon references. At Moore Town, this was used up until the 1950's. Uncertain as to whether this implement was introduced by Africans coming to Jamaica while it was held by the English or whether it was in use under the Spaniards. As hog-hunting was a past-time among the Africans dates from before 1655, the junga may have been in use then.

#### Cutting & Digging Implements

typical of estate life

#### Household Utensils

typical of estate life plus some indigenous clay pottery.

#### Clay Pipes

Typical of those used by the Maroons - can be confirmed by study of those at Moore Town. Could have been an item of barter on the West Coast of Africa where Portuguese and Dutch traders were most active. Regularly cut fragments, the Maroons claim, were shot-gun pellets for shooting cattle and pigs.

#### Shots

Swan shot, and peewee shot were used by both Maroons and troops in 1734. Before 1734, the largest instrument in use was probably the musket, in 1734, a swivel gun (probably a 20 pounder) was used to enable the troops to finally keep Nanny Town.

#### Bottles

Rum was the principal spirit used by the troops. However, in or around 1729, troops came from Gibraltar to Port Antonio and were used in assaults against Nanny Town. These troops carried great stores with them from Gibraltar. Could the wine bottles have come from hence or would planters serving in the militia have used them.

#### Medicine Bottles

In 1733, many medical stores were destroyed by sailors marching against Nanny Town. However, these were destroyed not at Stone Wall but downstream the town.

### FUTURE EXPLORATION

As a rule, it is felt that this should come under strong government control through the Institute of Jamaica and the National Trust Commission using the services of volunteers. The value of using military support (administration of camp, communication and transport), cannot be too heavily stressed, for the following reasons:

1. the area is difficult to reach and a mishap could easily become a fatality.
2. Rivers, often in spate can be avoided by timing the trip for the dry seasons.
3. Stores - Military rations would be useful for storage and small packaging, it is impossible to survive on the natural flora and fauna of the mountains as fruit trees are non-existent in the area.
4. Transport - no roads, no proper tracks in. Mules cannot be used beyond John's Hall.

For further work on Nanny Town, two routes are recommended.

1. The Burnett route over the Grand Ridge of the Blue Mountain
2. The Hobby's Route via Fruitful Vale

#### Points to Remember

1. Clearing of the whole flat area around Stone wall -- the Middle and Lower Town
2. Location of the Upper Town
3. Hobby's route over Two Claw Ridge
4. DeMillier's Ambush on Stony river (clearing of a track from Nanny Town to the ambush)
5. Hobby's Barracks
6. Island Head Barracks (Burnett's).
7. The Breastworks

In such a further research programme, the involvement of the Moore Town and Charles Town Maroons is recommended, not as a courtesy but for valuable information.

#### Analysis of Blue Mountain Expedition

Useful in that it has awakened interest in the African culture, particularly that of the Maroons.

From a national viewpoint, a fiasco which should have never have gone through, mishandled from its inception with the resulting ridicule of very old and valued Maroon traditions due to -

1. the total lack of sensitivity to African and creole values in Jamaica
2. The unfortunate white in right attitude of the British expedition team who were more concerned with sensational value and used every opportunity to set local forces one against the other. This was supported by Jamaican-paid nationals who were more interested in the embarrassment of the visitors than in the interests of their own Jamaicans.
3. The fact that restrictions imposed on the British team were not strong enough due to fact that we have not cultural policy and that there was no real method to police the restrictions.
4. A game of favouritism played by many government representatives who did not view the Jamaicans as a team - e.g. the refusal of the Jamaica government to fund the Maroon representatives notwithstanding the useful information and services which could result from their participation; the refusal of certain JDF personnel to provide transportation for Jamaicans because of the criticism of the way the expedition was being fielded. Notwithstanding this they not only transported all the British team, but also their mountaineer, botanist, photographer, the Daily Mirror Photographer and the British High Commissioner and his two sons to and from Nanny Town.

It will remain a lasting embarrassment that no government official could find the time to return to Nanny Town to visit the expedition site though the British High Commissioner could get there.

We would like to suggest that the Ministry of Natural Resources prohibit further destruction of Nanny Thatch trees as this plant, a very important source of material for roofing among the Nanny Town Maroons is becoming extinct.

Notwithstanding any criticisms made earlier, the writer thanks, the Government of Jamaica, The Jamaica Defense Force, the Institute of Jamaica, especially Mr. Neville Dawes for their efforts in making her participation in the expedition a reality.

prepared by Beverly Carey

copied to -  
Mr. Roderick Ebanks, Institute of Jamaica  
Colonel C.L.G. Harris, Moore Town.

SCIENTIFIC EXPLORATION SOCIETY

BLUE MOUNTAINS EXPEDITION

JAMAICA

Exploratory Excavations at NANNY TOWN - December  
1973 to January 1974.

The Scientific Exploration Society under the leadership of Lt. Harley Nott and with the cooperation of the Institute of Jamaica undertook exploratory excavations at Nanny Town; coupled with an investigation of the adjacent area for evidence of other sites and tracks used by Maroons, Jamaican militia and British troops during the first part of the 18th century.

Brief Background to the site.

Nanny Town is situated in a valley about 20 miles N.E. of Kingston on the northern side of the Blue Mountain Ridge, about 2000 ft. above sea-level; densely wooded, with a rainfall in the area which can be as high as 250" per year. The Town is named after chieftress Nanny to whom supernatural powers were attributed. There is documentary evidence from both England and Jamaica of a "large Negro Town" in this area; but the actual site was not re-established until found by an expedition led by Alan Teulon in 1967, when the carved stone commemorating the fall of the town to Coll. Brook on 17th December 1734 was found.

The Maroons who occupied Nanny Town were originally slaves freed by the Spaniards during the middle of the 17th century, when the Island was taken by the British. They were later reinforced by runaway slaves from British plantations. It is not known when they were first established in Nanny Town; and there is little evidence of their activities before 1720; but by raiding the neighbouring settlements during the next few years, the militia were forced to take repeated action against them, mostly unsuccessfully; though the Town was occupied briefly during this period. In 1734 Nanny Town was finally taken by the militia under Colonel Brook and garrisoned almost continuously by the British Army until the Peace Treaty with the Maroons in 1739. It is believed that the town was then abandoned and through inaccessibility and local superstition the actual site was lost.

Nanny Town is roughly triangular in form. Bordered on the N.W. for about 290 ft. by the densely forested mountains; on the N.E. by a fast falling water course about 375 ft. long flowing into the Stony River which makes the third boundary. There is access to the Stony River by a path down a 40 ft. cliff on the S.W. point of the triangle, and also on the S.E. corner at the junction of the river and water-course where the land drops away to river level.

The site was investigated by:-

Richard Snailham M.A., Deputy Leader and Historian

Alan Teulon, Historical Adviser to the Expedition

Tony Bonner, Site Director

First, a triangular area of approx. 135 ft. by 90 ft. by 170 ft. on the S.W. end of the site was cleared of trees and bush. A rectangular stone wall building (called Stonewall) and adjoining the base of the triangle was also cleared (an area about 30 ft. square). A camp site was established about 30 ft. N.E. of Stonewall.

The site had been little disturbed since abandoned about 235 years ago and there was a scattering of artifacts on the surface of the ground, mainly early 18th century British green glass bottle fragments. Perhaps an occasional visit from a hog hunter; while some blank cartridge cases show evidence of a visit by military personnel in recent years.

A datum line was established running from the S.W. edge of the precipice passing 3 ft. from the base line of Stonewall and continuing through the undergrowth to the watercourse, a distance of 290 ft. Each end was fixed by markers hammered into bedrock (see plan). This line was lettered at 10 ft. intervals from A to two marks beyond Z.

The cleared area (including Stonewall) was squared and numbered at 10 ft. intervals starting from the north west and making the Datum line No. 3. The lower left-hand letter and number was used to identify each square. A plastic bag was placed within each square so that surface artifacts could be collected and their positions recorded.

Three 10 ft. squares G.2, F.3 and F.4 were excavated to an average depth of 7 inches to the natural soil. Most artifacts were found in the top 4 inches. The soil is free draining loam covered by a thin layer of leaf mould. The area to be excavated was chosen because it showed more surface artifacts.

Square G. 2 Finds included.

Musket barrel  
Axe head, iron  
2 copper straps approx. 6" X 2" with square fixing holes  
2 buttons (iron)  
Large iron staple  
Hammer and flint for musket  
Flash pan cover  
Broken pipe stems (clay)  
Sherds of English Delft including pieces of base and rim  
Sherds of white interior and exterior glazed pottery  
Nails and quantity of unidentified iron fragments  
Quantity of English green glass early 18th century bottles including necks and bases.

Square F. 3 Finds included.

Green glass bottle fragments as above  
White glass bottle fragments including pieces of base  
Sherds English Delft  
Musket ball  
Pipe Stems (clay)  
Iron nails, knife blade and iron fragments  
Honing stone (small)  
Key  
Stub end of musket ? about 3" long  
Complete moulded bottle embossed Price & Son on one side, London on other. Probably left by hog hunter or traveller (later than 1832).

Square F.4 Finds included

Green glass bottle fragments (as before)  
including base and neck  
Clay pipe stem pieces  
Sherd (rim) crackle glazed  
Fragments (iron, copper and lead)  
Iron cutting tool approx. 12" long, cutting edge  
one side, opposite side hammered over (handle  
fitting one end)  
5" iron rod  
Chest handle (iron, hinge fitting one side)

Though not excavated artifacts from the area below  
included many bottle fragments:-

Square F.2 Piece of musket barrel  
Spear(broken). Javelin points  
" H.6 Circular brass ornamental disc about 1½"  
diameter with square central hole (see  
photograph) unidentified  
" J.6 Axe head  
" G.5 Hammer (flint lock)  
" B.2 Iron cooking pot sherd  
" D.3 Large iron hook 6" X 4"

Stonewall

The floor of Stonewall was excavated in two parts,  
to an average depth of 8" to the natural soil. Most  
artifacts were found in the top 4 to 5 inches.

Stonewall 1 Finds included

Sherds of Bellamine ware including piece of face  
Sherds of thick green external glazed pottery  
(probably Spanish)  
Sherd red earthenware  
Sherds of Delft (English)  
" " white interior and exterior glazed pottery  
Musket barrel  
Musket balls  
Clay pipe stem pieces  
Iron nails and fragments  
Early 18th century green glass bottle fragments  
White glass fragments

Stonewall 2 Finds included

Small Spanish silver coin dated 1675  
6 musket balls (2 flattened)  
2 small shot (pistol 1)  
1 ball approx. 1½" diameter  
Flint lock hammer and flint  
Flint lock mechanism with pan  
Sherds Bellamine, Delft and red earthenware (imported)  
Iron button  
Copper tube about 4" X ½"  
Clay pipe stems  
White and green glass bottle fragments

The top hold of Stonewall yielded similar artifacts. Pipe stems. Green glass bottle fragments. Delft and white glazed sherds. One musket ball and one small shot lead. One square flat fragment of green glass bottle.

The ledge south of C.D.E. was examined and apart from bottle fragments and a piece of iron nothing was found; but on the cliff edge south of M and N many artifacts were found including pieces of iron cooking pot and local pottery sherds (Yabok ware), knife blades, clay pipe stems and bowl fragments, including a black bowl fragment, which could be of local manufacture, copper rod, flint lock flint, 5" piece of musket barrel ? and of course green glass bottle fragments.

The carved stone which reads:-

Decem 17 1734  
This town was tak  
By Coll Brock  
and after kept  
By Capt Cooke  
Till July 1735

was moved back to the site where it was originally found, and set up vertically.

The final 2 days at Nanny Town we were assisted by boys of the Boys Brigade and Scouts of Jamaica. They scoured the whole area of Nanny Town for surface artifacts. Apart from green bottle fragments, they found local cooking pot sherds of Yabok ware, one on the path to the river on the S.W. point of the site. Two similar sherds, one 16 ft. S.E. of point Z on datum line and another a further 12 ft. south of this point.

A small trial trench was dug with their aid approx. 10 ft. south of point R to a depth of approx. 4 ft. (near the camp site). The finds which included green glass bottle fragments, delft sherds, 2 musket balls, iron nails, flint-lock flints etc., were buried deeper in the soil, which might indicate a living area or longer occupation.

All finds were recorded by the letter and number of the square in which they were found or in the uncleared area by their position north or south of the letter on the datum line.

As an exploratory dig it has indicated something of the layout, equipment and artifacts which were used by the Maroons and occupying forces. It is to be hoped that the site will be protected and archaeological work continued, and the artifacts, which remain in Jamaica, will yield more information on closer study.

I would like to thank all who helped on the site. Richard Snailham and Alan Teulon (for historical information and practical help). Bernard Davis, Pamela Baker, Adrian Ashby Smith, Carolyn Oxton and other members of the Scientific Exploration Society and from Jamaica, Beverley Carey who is deeply involved in the history of the Maroons, Roderick Ebanks, Archaeologist, also for his help with the artifacts, and members of the Boy Scouts and Boys Brigade.

In Kingston I would like to thank Mr. Neville Dawes and the Institute Staff for their assistance and amenities which were freely put at our disposal.

*Tony Banner*

Tony Banner.





## NATIONAL ENVIRONMENT & PLANNING AGENCY

10 & 11 Caledonia Avenue, Kingston 5, Jamaica W.I. Tel: (876) 754-7540/3 Fax: (876) 754-7595-6 Tollfree: 1-888-991-5005  
E-mail: ceo@nepa.gov.jm, Website: <http://www.nepa.gov.jm>

Ref #17/20

29 October 2013

Mr. Dorrick Gray  
Executive Director (Actg)  
Jamaica National Heritage Trust  
79 Duke Street  
Kingston

RECEIVED  
DATE 1/11/2013

Dear Mr. Gray

Re: Blue and John Crow Mountains (BJCM) World Heritage Nomination

The National Environment & Planning Agency (NEPA) is in receipt of your letter dated 7 October 2013 and wishes to express its support to the Jamaica National Heritage Trust (JNHT) for taking the lead in such an important initiative with respect to the captioned.

It is against this background, that the Agency takes pleasure in providing you with the information requested.

- a) Topographic map of the Blue and John Crow Mountains National Park (BJCMNP) highlighting the declared area.
- b) A copy of the Order declaring the area a National Park under the Natural Resources Conservation Authority (NRCA) Act and the National Parks Regulations.

The Agency hopes that the Nomination of the BJCMNP as a World Heritage site will be successful.

Yours sincerely  
National Environment & Planning Agency

Peter Knight, JP  
Chief Executive Officer/Government Town Planner

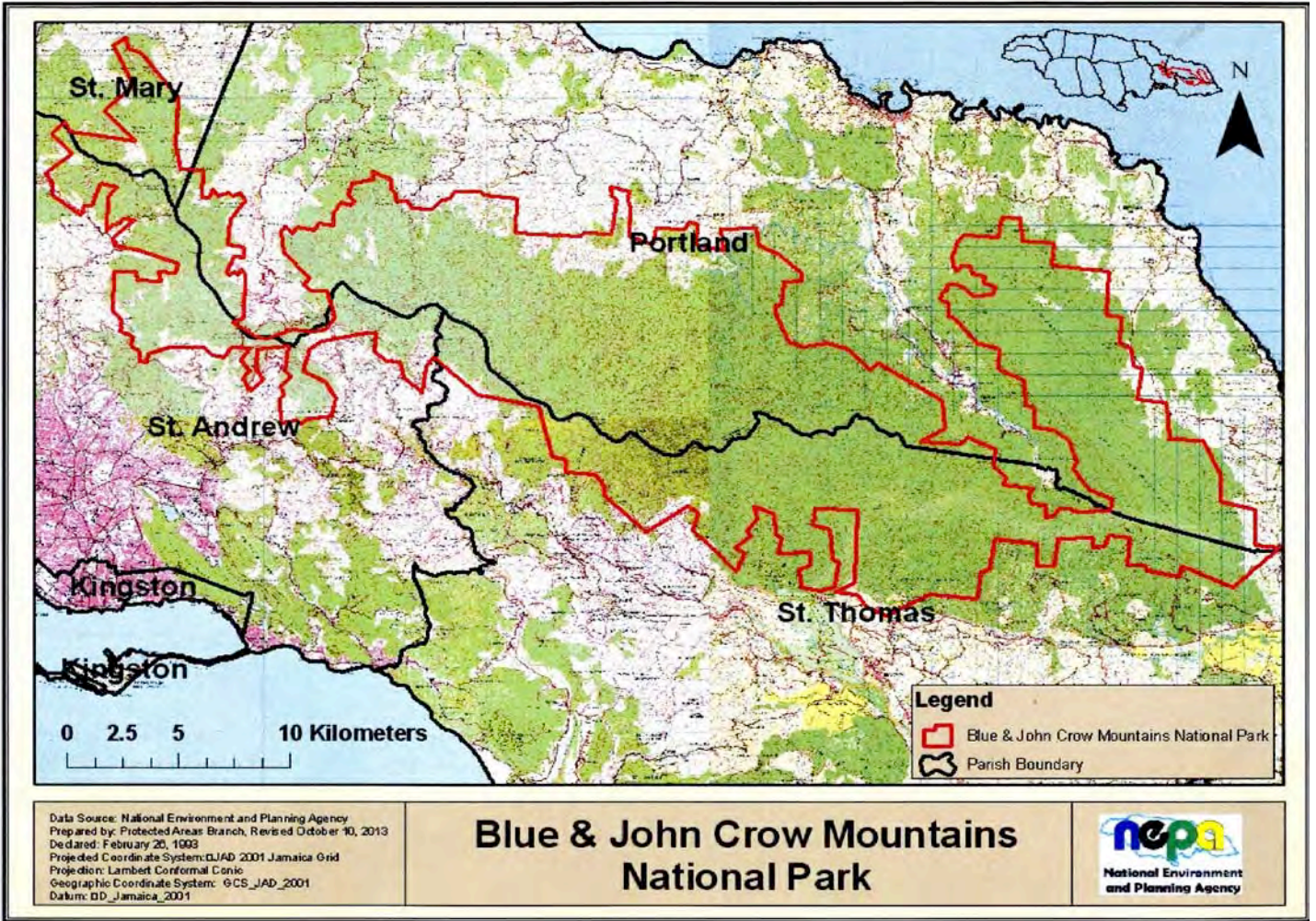
CG/ob

Attch

Any reply or subsequent reference to this communication should be addressed to the Chief Executive Officer, to the attention of the officer dealing with the matter, and the reference quoted where applicable.

*Managing and protecting Jamaica's land, wood and water  
A Government of Jamaica Agency*

received  
1/11/2013



THE NATURAL RESOURCES CONSERVATION  
AUTHORITY ACT

ORDER  
(under section 38)

THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW  
MOUNTAINS NATIONAL PARK) (DECLARATION) ORDER, 1993

*(Made by the Minister on the 26th day of February, 1993, upon the  
recommendation of the Natural Resources Conservation Authority)*

L.N. 97/93

*[26th February, 1993]*

1. This Order may be cited as the Natural Resources Conservation (Blue and John Crow Mountains National Park) (Declaration) Order, 1993.
2. The boundaries of the Blue and John Crow Mountains National Park shall be as set out in the Schedule.

Schedule.



*THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW  
MOUNTAINS NATIONAL PARK) (DECLARATION) ORDER, 1993*

SCHEDULE

(Paragraph 2)

All that piece or parcel of Crown Land known as Silver Hill and Chestervale Plantation situated in the parishes of St. Andrew and Portland containing by survey 206.88 hectares and butting:

- NORTHERLY: On Silver Hill in possession of the Chief Secretary  
 EASTERLY: On part of Chestervale in possession of the Chief Secretary and Clydesdale Forest Reserve  
 SOUTHERLY: On part of Clifton Mount in possession of the Commissioner of Lands and part of Chestervale in possession of Yallahs Valley Land Authority  
 WESTERLY: On part of Silver Hill in possession of the Chief Secretary, Wallenford in possession of Ina Benn, main road from Buff Bay to St. Peters,

or however, otherwise the same may be butted, bounded, known, distinguished or described.

All that piece or parcel of Crown Land part of the Tom's Hope Land Settlement in the parish of Portland containing by survey 29.67 hectares and butting:

- NORTHERLY: On parts of the Tom's Hope Land Settlement allotted to small settlers east on a portion of the property known as Mt. Lebanon in the possession of Valdin Morrison and on Crown Lands known as Adam Brandon's patent south on a portion of Adam Brandon's patent in the possession of Charles Moresby west on a parochial road leading from Windsor to Park Mount and on a reserved road save and except:
- (a) that portion of the parochial road 149.8 metres wide leading from Windsor to Park Mount and passing through the area above described; and
  - (b) that portion of a road reserved 62.42 metres wide leading from lot 156 of the Tom's Hope Land Settlement to Mt. Lebanon and passing through the area above described.

All those parcels of Crown Lands in the parishes of St. Mary, St. Andrew, Portland, and St. Thomas known as the Blue Mountain Forest Reserve and containing by estimation 41,939.87 hectares more or less and including the following blocks:

SCHEDULE, *contd.*

known, distinguished or described save and except those parcels of land in the possession of small settlers.

*Juniper Block (District 17)*

All that portion of Crown Land forming part of the Blue Mountain Forest Reserve and butting:

NORTHERLY: On part of the Blue Mountain Forest Reserve, District 18

WESTERLY: On Mt. Moses, Tweedside and Wm. Whitfield in the possession of the Water Commission,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Springfield Block (District 17)*

Comprising the following patents or parts thereof—

Springfield, Heirs of Bains and butting:

NORTHERLY: On Summer Hill

EASTERLY: On part of the Blue Mountain Forest Reserve, District 18 and Hermitage in the possession of the Water Commission

SOUTHERLY: On Norwich Castle and part of Campbell's Mount in the possession of the Water Commission

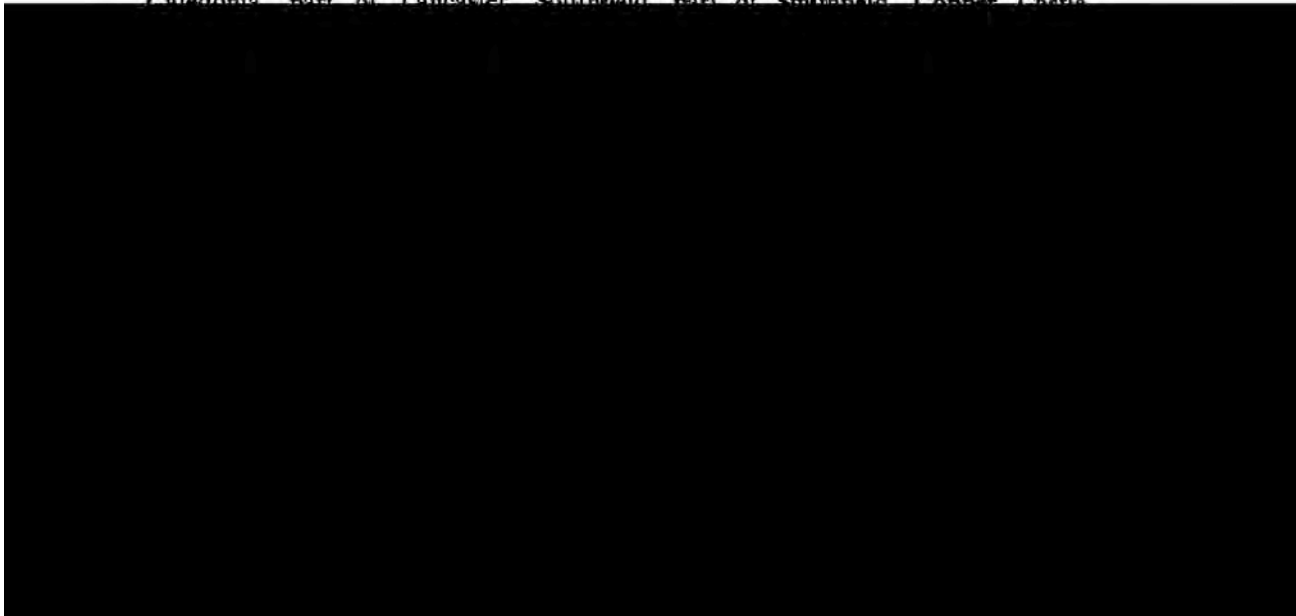
WESTERLY: On Moresham and Muff Castle in the possession of the Water Commission,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Newcastle Block, Western (District 18)*

Comprising the following patents or parts thereof—

Juniper Grove, Old England, Heirs of Dodd, Oathley, Castle Dawson, Green Hills, Hollywell, Mt. Horeb and West Vale, Cold Spring, Clifton Mt., Limerick Mtn., Silver Hill, Jamaica Spa, Pleasant Hill, Middleton, Greenwich Hill, Caledonia, part of Lancaster, Southfield, part of Smithfield, Connor Castle



THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW  
MOUNTAINS NATIONAL PARK) (DECLARATION) ORDER, 1993

SCHEDULE, *contd.*

*Silver Hill Block, Eastern (District 18)*

Comprising the following patents or parts thereof—

John Ferguson's patent, part of Chestervale Plantations, Ross Patent, part of Silver Hill, part of Cedar Valley Plantation, part of Spring Hill, and Clydesdale and butting:

- NORTHERLY: On part of the Blue Mountain Forest Reserve, District 19  
 EASTERLY: On part of the Blue Mountain Forest Reserve, Districts 19 and 26  
 SOUTHERLY: On Pleasant Hill and part of Chestervale Plantation  
 WESTERLY: On part of Wallenford, part of Cedar Valley Plantation, Spring Hill and Chestervale,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Trafalgar Block (District 19)*

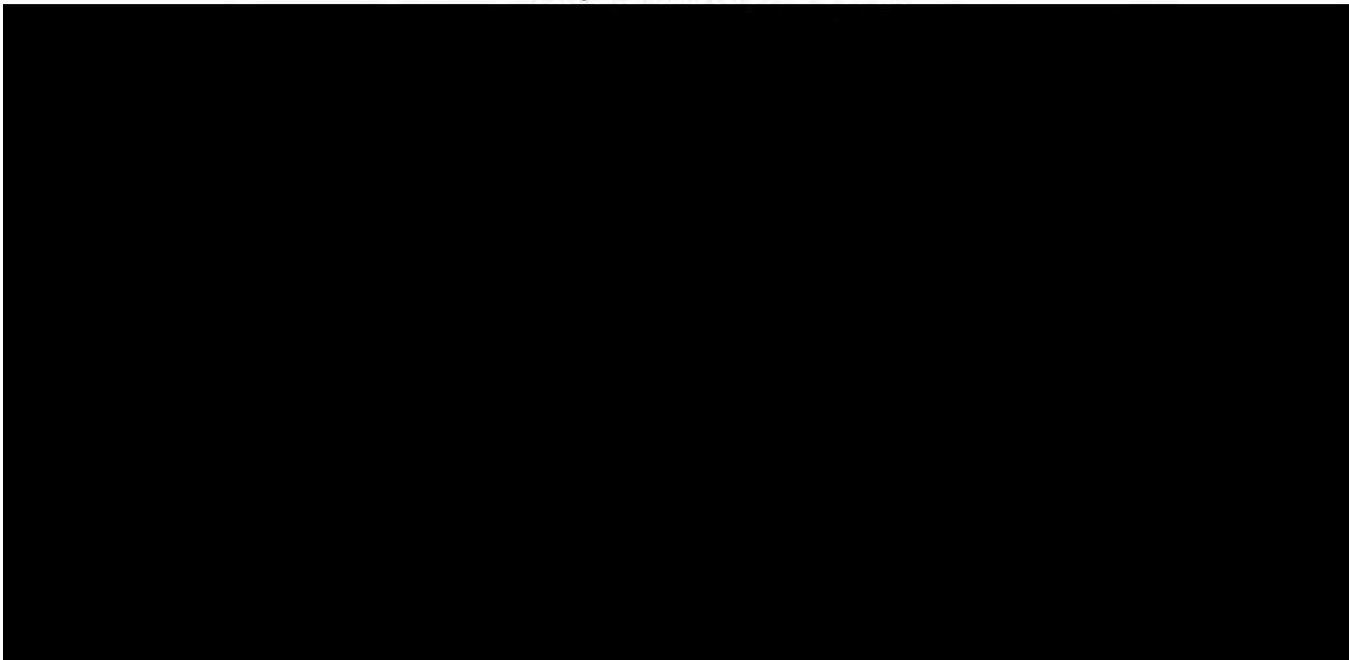
Comprising the following patents or parts thereof—

Part of Geo. Wright, part of Sportsman's Hall, Patality, part of Atkinson and Hanbury, Colthirst's Run, Trafalgar Plantation, part of Leighfield, part of Pleasant Mount, John Buck's Patent, Westphalia, Edward McGeachy, Samuel Linwood, and Wm. Linwood, Robert B. Hugh, New Haven part of Wood and Plummer, part of Geo. Burrell, Richard Faith part of Hall's Delight and unreserved Crown Land—part of Geo. Wright and part of Sportman's Hall, and butting:

- NORTHERLY: On Retreat, M. Biggs, part of Hall's Delight, part of Atkinson and Hanbury, Resource and Trouble Hill  
 EASTERLY: On part of the Blue Mountain Forest Reserve, Districts 20 and 26  
 SOUTHERLY: On part of Blue Mountain Forest Reserve, District 26  
 WESTERLY: On part of Blue Mountain Forest Reserve, District 18 Breman Valley, part of Leighfield in the possession of small settlers, and the Brook Plantation,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Swift River Block (District 20)*



SCHEDULE, *contd.*

*John's Hall Block (District 21)*

Comprising the following patents or parts thereof—

Part of Charles Stewart, part of John Sanderson, John Neilson, Thomas Reece, John Swarbeck, Paul Phipps, Jno. P. Baker, Wm. Smellie, James Farrier, James Campbell, Wm. Lane, Colin McKenzie I and II, Anne Lane, Charles Phipps I and II, Abigail Phipps, Edward P. Wallen I and II, Thomas Gray, Thomas Cushnie, Mark Howard, Elizabeth Ann Adams and unreserved Crown Lands, that is part of John Sanderson, Tuscan, Madrid, part of John Swarbeck, part of Friendship Hall, part of Geo. Christie, and butting:

NORTHERLY: On unpatented Land, Brook Dale and Golden Vale Estate

EASTERLY: On Rose Hill, Garland, Grove, Kensington Plantation, Experiment Hill, Brownsfield and part of the Blue Mountain Forest Reserve, District 22

SOUTHERLY: On part of the Blue Mountain Forest Reserve, District 25

WESTERLY: On part of the Blue Mountain Forest Reserve, District 20,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Rio Grande Block, Western (District 22)*

Comprising the following patents or parts thereof—

Part of Geo. Christie, Patk. Johnson Natty, Fraser and Kinneard Wm. Smellie I and II, Edward Barry I and II part of Marshall Hall, Alex. Cumming I, II and III, part of Daniel Moore, Edward West, part of Robert McDermott, Kings Land, Edward Bernard, Geo. French I, II and III, part of Thomas Cockburn, Francis Moore, part of John Moore I and II, and part of Edgar's Rio Grande Pen, and butting:

NORTHERLY: On Kent

EASTERLY: On Claremont, Marshall's Hall, Altimont Township, Mill Bank, Bowden Pen, part of Edgar's Rio Grande

SOUTHERLY: On part of the Blue Mountain Forest Reserve, District 24

WESTERLY: On part of the Blue Mountain Forest Reserve, Districts 21 and 25,

or however otherwise the same may be butted, bounded, known, distinguished or described.

THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW  
MOUNTAINS NATIONAL PARK) (DECLARATION) ORDER, 1993

SCHEDULE, *contd.*

*John Crow Block (District 25)*

Comprising the following patents or parts thereof—

Part of John McRoberts, Sm. Baillie, part of James Baillie, Elizabeth Baillie, part of John Salmon, John Moodie I and II, Allan McLean I, II and III, part of Wm. Ross, part of Thomas Weir, part of Hodgson, and Malgred, unclaimed Land south of Cambridge Back Lands, H. Littlejohn, Wm. Fulton III, Thomas Wainsborough, Hospitality, part of John Scarlett, part of Windsor Castle Mtn., Thomas Davidson I and II, Robert Locke, Geo. Ball, Geo. French IV, part of Edward Stanton, Lawrence Arglesworth and unreserved Crown Lands, that is, part of Jno. Salmon, part of John Scarlett, part of Windsor Castle Mountain, part of Edward Stanton, Greenfield, Bellevue and butting:

NORTHERLY: On Cambridge Back Lands, part of John McRoberts

EASTERLY: On part of John McRoberts, part of Thos. Weir, Hodgson and Malgren, part of Wm. Ross, Vineyard Hill, Eccles-down Pen, Spring Valley, part of James Baillie in possession of small settlers, Muirton Back Lands, Eddingham Plantation, Haining Estate

SOUTHERLY: On Rowlandsfield, part of the Blue Mountain Forest Reserve, District 24

WESTERLY: On part of the Blue Mountain Forest Reserve, District 24, or however otherwise the same may be butted, bounded, known, distinguished or described.

*Plantain Garden Block (District 24)*

Comprising the following patents or parts thereof—

Wind Hill, Duart Castle and Farm, Craighead, Nathaniel Beckford, Donald Taylor Henry Lumsden, Alex Sheriff I, II and III, Wm. Craigie, part of John McKinley, Cave, Bottom Pound Hill, Wm. Probart, Aeneas Grant, John Nimmo, Lots Mt. Donald, Edward East, part of Cedar Grove, and butting:

NORTHERLY: On part of the Blue Mountain Forest Reserve, Districts 22 and 23

EASTERLY: On part of the Blue Mountain Forest Reserve, District 23

SOUTHERLY: On Kent, Lebanon, part of Cedar Grove, Dr. Alex.



SCHEDULE, *contd.*

- EASTERLY: On part of the Blue Mountain Forest Reserve, Districts 22 and 24
- SOUTHERLY: On property known as Spring, Hillside, Mullet Hall and Garbrand Hall, part of Union Hill in the possession of small settlers, Island Head, Benn Lomond, Newfield, Newington, Moy Hall and Windsor
- WESTERLY: On part of the Blue Mountain Forest Reserve, District 26, or however otherwise the same may be butted, bounded, known, distinguished or described.

*Cinchona Block (District 26)*

Comprising the following patents or parts thereof—

Part of Pleasant Hill, Bellevue, remainder of Crichton Run, Dulee Domum, Markham Hill, part of Woodland, part of Strawberry Hill, Helen Whair, Thos. Rurpin, unpatented land (north of Hibernia), Old England, part of Mt. Teviot, J. Fowles I and II, Wm. Cowan, Alex. Robertson, Alex. Stephenson, S. J. Dallas, Portland Gap I, II and III, part of Abbey Green, part of Whitfield Hall, part of Radnor, Ector's Patent, Wm. Gordon, unpatented land (North of Portland Gap), Anthony Davis, Henry Stanley, Iron River, Henry Turpin, W. H. Hall, John Hall and Sheldon Black Land, Maria French and butting:

- NORTHERLY: On part of the Blue Mountain Forest Reserve, Districts 19 and 20
- EASTERLY: On part of the Blue Mountain Forest Reserve, Districts 20, 21 and 25
- SOUTHERLY: On Arntully, Sherwood Forest, remaining portions of Radnor, Abbey Green and Whitfield Hall, Sheldon, remaining portions of Mt. Teviot, Old England, Strawberry Hill and Woodlands and Mount Hybla
- WESTERLY: On Resource, Pleasant Hill and part of the Blue Mountain Forest Reserve, District 18, or however otherwise the same may be butted, bounded, known, distinguished or described.



THE  
**JAMAICA GAZETTE**  
**SUPPLEMENT**

**PROCLAMATIONS, RULES AND REGULATIONS**

182H

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Vol. CXXVI

TUESDAY, JUNE 17, 2003

No. 59C

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"Park" means the Blue and John Crow Mountains National Park, the boundaries of which are set out in the Natural Resources Conservation (Blue and John Crow Mountains National Park) (Declaration) Order, 1993;

"pass" means a pass issued by the Park Manager entitling the holder to utilize a recreational area in the Park.

3.—(1) Subject to paragraph (3) a person shall not enter the grounds of any recreational area unless he holds a valid pass which he has in his possession at the time of entry.

(2) The Park Manager may, in respect to the Hollywell Recreational Area issue:—

- (a) a pass for a single entry; or
- (b) an annual pass for multiple entries.

(3) An authorized officer under the Natural Resources (National Parks) Regulations, 1993 may enter the Hollywell Recreational Area without a pass.

(4) The Park Manager with the approval of the Authority may exempt any person from the provisions of paragraph (1).

(5) The fees specified in Part I of the Schedule shall be payable in respect to a pass issued under this regulation.

Part I  
Schedule.

4. Every person who intends to utilize the main recreational hiking trail from Portland Gap to the Blue Mountain Peak shall pay the appropriate fee set out in Part II of the Schedule.

Part II



SCHEDULE

(Regulations 3, 4 and 5)

PART I

*Fees payable for passes issued under  
Regulation 3*

Type of Pass —	Amount of Fee —
<i>Single Entry:</i>	
1. Persons ordinarily resident in Jamaica	<p>\$100.00 for each adult and child over the age of 12 years.</p> <p>\$50.00 for each child 6 to 12 years of age.</p> <p>No fee is charged in respect of a child under the age of 6 years.</p>
2. Persons not ordinarily resident in Jamaica	<p>US\$10.00 or the equivalent in Jamaican currency for each adult and child over the age of 12 years of age.</p> <p>US\$5.00 or the equivalent in Jamaican currency for each child 6 to 12 years of age.</p> <p>No fee is payable in respect of a child under 6 years of age.</p>
3. A group of ten or more adults ordinarily resident in	



SCHEDULE. *contd.*

## PART II

*Fees payable for hiking trail under Regulation 4*

Type of Pass —	Amount of Fee —
1. Persons over 12 years of age ordinarily resident in Jamaica	\$200.00
2. Persons over 12 years of age not ordinarily resident in Jamaica	US\$20.00 or the equivalent in Jamaican currency.
3. Children 12 years of age and under	\$50.00

## PART III

*Fee payable for camping in a designated campground*

Type of Pass —	Amount of Fee —
Camp fee	\$100.00 per night for each adult and child over the age of 12 years of age. \$50.00 per night for each child 6 to 12 years of age.

Dated the 16th day of June, 2003.

DEAN PEART,  
Minister of Land and Environment.

Minister of

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3. Regulation 12 of the principal Regulations is hereby amended by deleting from paragraph (2) the word "ten" and substituting therefor the word "fifty".

4. Regulation 13 of the principal Regulations is hereby amended by deleting from paragraph (5) the word "five" and substituting therefor the word "twenty".

5. Regulation 14 of the principal Regulations is amended:—

(a) by deleting paragraph (1) and substituting therefor the following:—

" (1) Any person who is desirous of:—

- (a) hiring or selling anything;
- (b) producing anything for hire or sale;
- (c) providing any service for reward;
- (d) carrying on any other commercial activity,

in a national park shall apply to the Authority, in such manner as the Authority may determine, for a commercial licence or a concession permit specified in paragraph (3), as the case may require. ";

(b) in paragraph (2) by:—

- (i) deleting the words "five thousand" and substituting therefor the words "forty thousand";
- (ii) renumbering the paragraph as paragraph (8);

(c) in paragraph (3) by:—

- (i) deleting the words "A park manager" and "his" and substituting therefor the words "The Authority" and "its"; respectively;
- (ii) renumbering the paragraph as paragraph (9);

(1) the following as paragraphs (2), (3), (4), (5)

(b) renumbering the paragraph

(1) the following as paragraphs (2), (3), (4), (5)

(d) by inserting next after paragraph

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to any person who made an application under paragraph (2) having regard to the following:—

- (i) the designated space to be allocated for the activity;
- (ii) the type of commercial activity;
- (iii) the gross annual earnings of the applicant;
- (iv) the size of operation and facilities that are provided by the Authority.

(4) A person shall pay to the Authority on the grant of:—

- (a) a commercial licence:—
  - (i) an annual licence fee of ten thousand dollars; or
  - (ii) a monthly licence fee of one thousand dollars; or
  - (iii) a weekly licence fee of two hundred and fifty dollars; or
- (b) a concession permit, a permit fee of five thousand dollars.

(5) A person to whom a concession permit is granted shall, in addition to the permit fee payable under paragraph (4) (b), pay an annual franchise fee calculated:—

- (a) as a fixed sum based on an estimate of gross earnings; or
- (b) as a percentage of the estimated profits to be made by,

the holder of the concession permit.

(6) The percentage of estimated profits referred to in paragraph 5 (b) shall be determined by the Authority on an annual basis.

paragraph (3) may be granted  
commercial licence may be granted

shall be determined by the Authority on an

(7) A concession permit granted under  
for a period not exceeding three years and a con

" (3) An application for a permit under paragraph (1) shall be in the form set out as Form A in Part A of the Schedule and shall be accompanied by a fee of:—

- (a) one thousand dollars, in the case of an application to conduct research or collect specimens for purposes other than commercial purposes; or
- (b) two thousand dollars in the case of an application to conduct research or collect specimens for purposes that are commercial. ";
- (c) by renumbering paragraphs (4) and (5) as paragraphs (8) and (9) respectively; and
- (d) by inserting next after paragraph (3) the following as paragraphs (4), (5), (6) and (7):—

" (4) Where the application for a permit under paragraph (1) is approved, the applicant shall pay a fee of:—

- (a) three thousand dollars where the permit is for research or collection of specimens for purposes other than commercial; and
- (b) six thousand dollars where the permit is for research or collection of specimens for purposes that are commercial.

(5) An application shall be made in respect of each natural object or species of plants or animals.

(6) The Authority shall grant a permit to carry out research in the form set out as Form B in Part A of the Schedule.

(7) The Authority shall grant a separate permit in the form set out as Form C in Part A of the Schedule for each natural object and each species of plant or animal."



(b) by inserting next after sub-paragraph (b) the following:—

- " (c) require the holder of a permit or licence to produce his permit or licence, as the case may be, for inspection;
- (d) seize any weapon, trap or device of any kind with which an offence appears to have been committed;
- (e) search any person whom he may reasonably have cause to suspect of contravening any provision of these Regulations."

11. The Principal Regulations are hereby amended by inserting next after regulation 35 the following as regulation 36:—

\*Recovery of  
civil debts. 36. The Authority shall be entitled to recover any debt due to the Authority as a civil debt in a Resident Magistrate's Court, notwithstanding any limitations as to amount recoverable under the Judicature (Resident Magistrates) Act."

SCHEDULE (Regulations 14A and 16)

PART A

FORM A (Regulation 16(3))

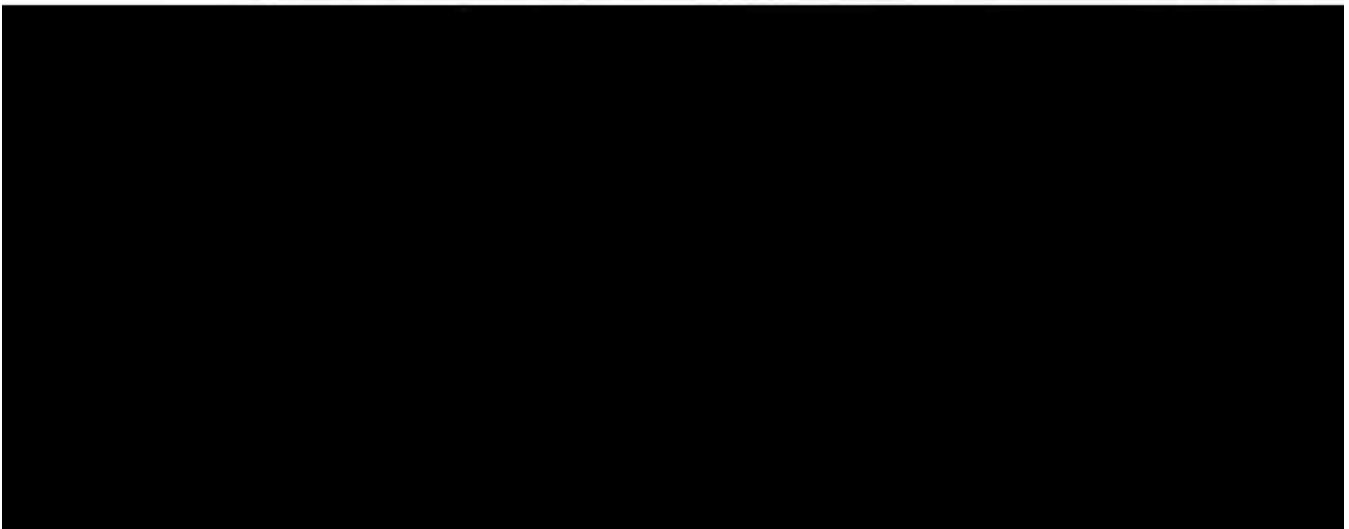
THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES (NATIONAL PARKS) REGULATIONS, 1993

*Application for Permit to Carry Out Research or for the Collection of Natural  
Objects or Specimen Animal or Plant Life in a National Park*

A. *General Information*

1. Name of Applicant(s) \_\_\_\_\_



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PART A, *contd*

FORM A, *contd*

5. Agency or Institution on behalf of which the Application is being made, if any:

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6. Name and Institutional Address of Principal Investigator:

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7. Qualification of Principal Investigator:

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8. Names and qualifications of Associates who will work on the project (attach very brief C.Vs):

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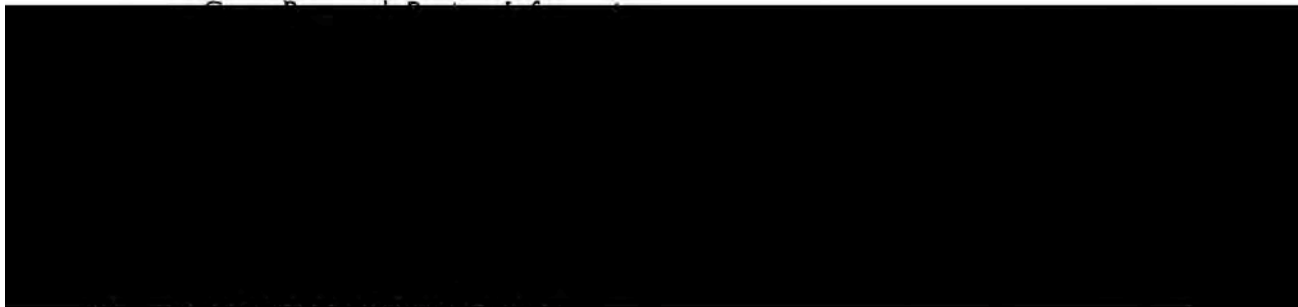
9. Why was Jamaica selected as the research site?

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C. *Research Project Information*

1. Give short description of the proposed research including its objectives (a copy

PART A, *contd.*

FORM A, *contd.*

- 
- 
- 
- 
2. State precisely the proposed location of the project and the site(s) at which research will be conducted:

- 
- 
- 
- 
3. State the duration of the project:

4. Expected output at end of the project:
- 
- 

5. What kinds of materials or information are to be collected or produced?

\_\_\_\_\_ Specimen or Sample Collection

\_\_\_\_\_ Recordings (Audio/Video)

\_\_\_\_\_ Photographs

\_\_\_\_\_ Written notes

\_\_\_\_\_ Computer entries

\_\_\_\_\_ Reports

\_\_\_\_\_ Articles and Scientific Papers

\_\_\_\_\_ Other outputs (specify)



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PART A, *contd.*

FORM A, *contd.*

7 (a). Is your project meant to facilitate commercial, industrial or exclusively academic purposes?

7 (b). *NOTE: Commercial purposes here include but are not limited to:*

- (i) The use of samples or specimens, photographic and audio-visual materials and illustrations, for commercial purposes.
- (ii) Chemical, pharmacological and biotechnological study.
- (iii) The use of materials or specimens for propagation or breeding purposes.

Academic purposes here refer to only taxonomic, conservation, ecological and biogeographical investigations.

8. Proposed linkage(s) with local institution(s), if any. (State whether each institution has been formally approached and indicated (very briefly its response).

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9. Indicate any training component for local counterparts:

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10. Do you intend to conduct research on lands legally owned or occupied by indigenous or local communities? If so, where?

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FORM C

(Regulation 16 (7))

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT  
 THE NATURAL RESOURCES (NATIONAL PARKS) REGULATIONS, 1993  
*Permit to Conduct Collection of Natural Objects and Specimens  
 of Plants or Animals within the National Park*

Permit No.: \_\_\_\_\_

Pursuant to an application under regulation 16 (5) of the Natural Resources (National Parks) Regulations 1993, the Authority hereby grants a permit to:—

Name of Permittee \_\_\_\_\_

Address of Permittee \_\_\_\_\_

To carry out research in \_\_\_\_\_

Location of Research Site \_\_\_\_\_ Parish \_\_\_\_\_

For the purpose herein mentioned \_\_\_\_\_

To collect \_\_\_\_\_ specimens

Type of specimens/objectives \_\_\_\_\_

Valid from \_\_\_\_\_ to \_\_\_\_\_

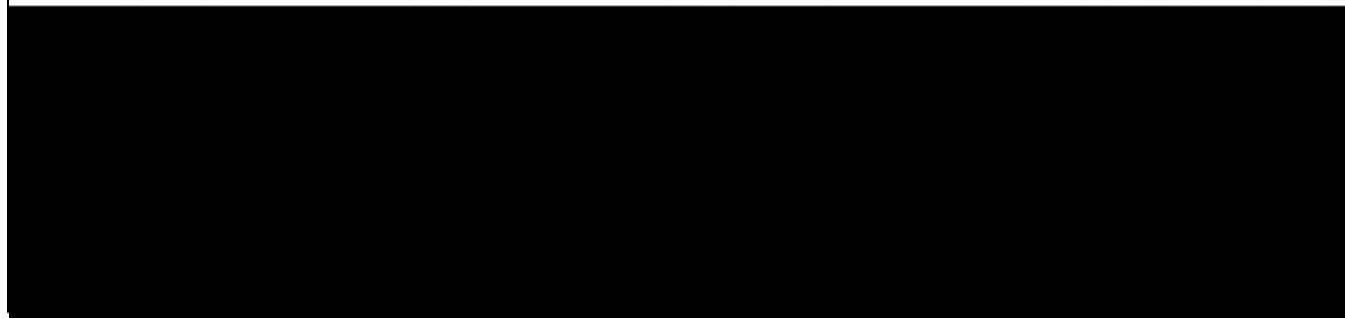
This Permit is subject to the conditions in the Schedule.

Any contravention of any condition (s) may result in suspension or revocation of this Permit.

*N.B.: A person who carries out any form of research or collects any object, specimens of animal or plant life in a National Park without a valid permit commits an offence under regulation 16(8) of the National Parks Regulations.*

SCHEDULE

(Specify conditions)



## PART B

(Regulation 14A)

*Activities and Location Fee payable in respect of Research*

The location fees referred to are:—

- |     |   |             |
|-----|---|-------------|
| (a) | concerts, parties and any other such activities .. .. .                             | \$60,000.00 |
| (b) | the making of commercial films/ television, documentaries or advertisements .. .. . | \$75,000.00 |
| (c) | weddings and sporting events .. .. .  | \$30,000.00 |

Dated this 16th day of June, 2003.

DEAN PEART,  
Minister of Land and Environment.

No. 701

## THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION (MARINE PARKS)  
(AMENDMENT) REGULATIONS, 2003

In exercise of the powers conferred upon the Minister by section 38 of the Natural Resources Conservation Authority Act, the following Regulations are hereby made:—

1. These regulations may be cited as the Natural Resources Conservation (Marine Parks) (Amendment) Regulations, 2003 and shall be read and construed as one with the Natural Resources Conservation (Marine Parks) Regulations, 1992 hereinafter referred to as the principal Regulations.

2. Regulation 3 of the principal Regulations is amended:—

(a) in paragraph (1):—

- (i) by deleting the words "or except" and substituting therefor the word "and";
- (ii) by inserting immediately after the word "licence" the words "or permit";

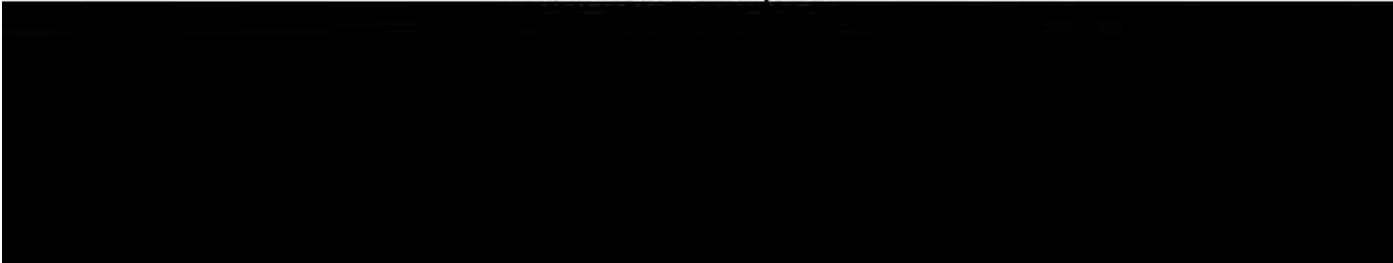
(b) in paragraph (2) by deleting the word "and" and substituting therefor the word "or";

word

(b) in paragraph (2) by deleting the word "ten" and substituting therefor the word "forty".

- 
- 
4. Paragraph (2) of regulation 7 of the principal Regulations is amended by deleting the word "five" and substituting therefor the word "forty".
5. Regulation 8 of the principal Regulations is amended:—
- (a) in paragraph (6) by deleting the word "ten" and substituting therefor the word "fifty";
  - (b) in paragraph (7) by deleting the word "five" and substituting therefor the word "forty".
6. Regulation 9 of the principal Regulations is amended:—
- (a) in paragraph (1):—
    - (i) by inserting immediately after the word "may," the words "after consultation with the marine park manager and";
    - (ii) by inserting immediately after the word "scientific" the word "commercial";
  - (b) in paragraph (2) by deleting the full stop at the end of subparagraph (iii) and substituting therefor a semicolon and by inserting next thereafter the following:—

"First Schedule. (iv) be accompanied by the fee specified in the First Schedule.";
  - (c) by inserting next after paragraph (2) the following as paragraph (2A):—

"Second Schedule. (2A) the applicant shall, on the grant of a permit by the Authority, pay the fee specified in the Second Schedule.";
  - (d) in paragraph (4) by deleting the word "ten" and substituting therefor the word "forty".
7. The principal Regulations are amended by inserting next after regulation 9, the following:—
- "Scuba diving. 9A.—(1) A marine park manager may, on such terms as he thinks fit:—
- (a) issue to a licensed scuba diving operator such number of permits for sale to persons who wish to scuba dive within a marine park; or
  - (b) sell permits to certified divers who may wish to scuba dive within the marine park,
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(3) Subject to paragraph (4), a licensed scuba diving operator shall send to the marine park manager:—

- (a) a return of the fees collected for the permits sold;
- (b) all the counterfoils in respect to the permits sold and the identification tags issued,

within seven days of the end of each month in which the permits are sold and the identification tags issued.

(4) Where a licensed scuba diving operator is an all inclusive hotel, the return of the fees and the counterfoils shall be made within seven days of the end of the quarter during which the permits were sold and the identification tags issued.

(5) A licensed scuba diving operator who makes his return of fees prior to or within the period specified in paragraphs (3) and (4) shall be entitled to a commission equivalent to ten per cent of the total amount of sales made during the period.

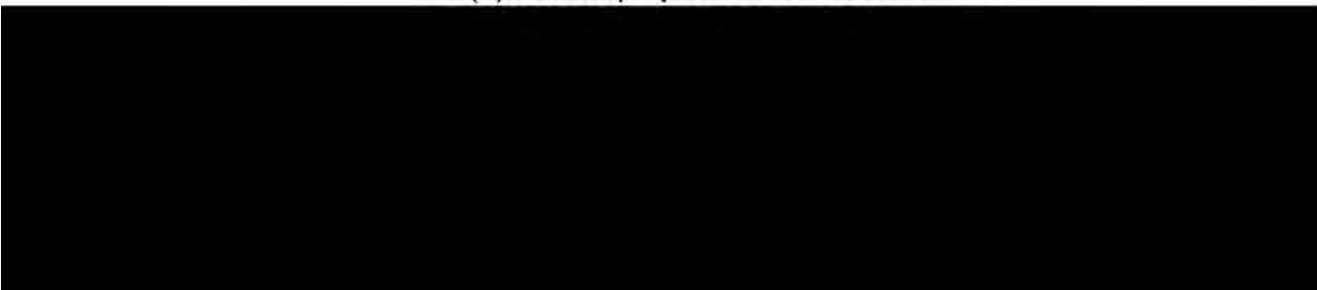
(6) Where a licensed scuba diving operator fails to make a return of the fees collected and the counterfoils of the identification tags, the marine park manager may refuse to issue to that licensed scuba diving operator any permits and identification tags until the return of the fees is made and the counterfoils received.

(7) Any:—

- (a) person who scuba dives without a permit or identification tag sold to him by a licensed scuba diving operator or a marine park manager; or
- (b) person in charge of a vessel who knowingly transports another person who has no permit or identification tag to any place in a marine park for the purpose of scuba diving,

commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding thirty thousand dollars or to imprisonment for a term not exceeding three months.

(8) For the purposes of this regulation:—





Snorkelling  
facility.

9B.—(1) The marine park manager may, on such terms as he thinks fit, grant a permit for the operation of a snorkelling facility in a marine park.

(2) An application for a permit under paragraph (1) shall be in writing and shall contain information as to the:—

- (a) name and address of the applicant;
- (b) name and registration number of the vessel;
- (c) number of snorkellers expected to use the facility in the year for which the permit is sought;
- (d) number of snorkelling trips that the applicant expects to take per day;
- (e) location of any snorkelling activity.

Second  
Schedule.

(3) The applicant shall, on the grant of a permit by the marine park manager, pay the fee specified in the Second Schedule.

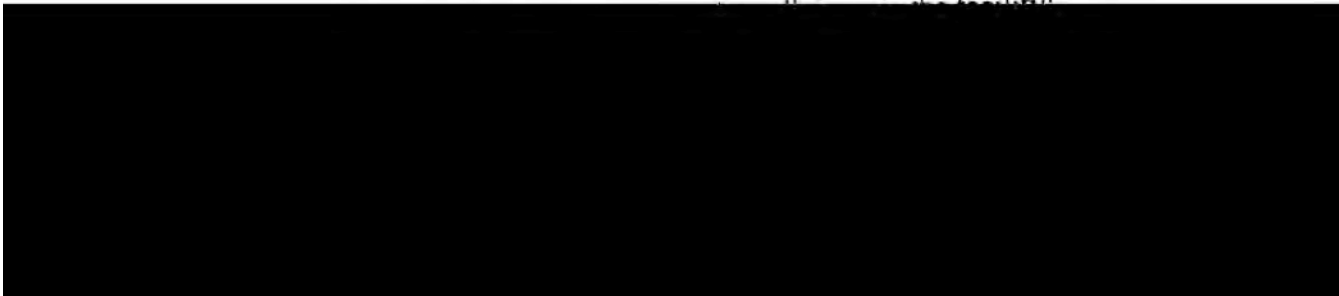
(4) A permit issued pursuant to this regulation shall be valid for the period of one year.

(5) An application for the renewal of a permit granted under this regulation, shall be made one month prior to the expiration of the existing permit.

(6) Where a person to whom a permit is granted for the operation of a snorkelling facility had:—

- (a) underestimated the number of snorkellers pursuant to the paragraph (2) (c), that person shall, at the end of the year pay to the marine park manager the difference in fees;
- (b) overestimated the number of snorkellers pursuant to paragraph (2) (c), that person shall be credited with the amount overpaid at the time of payment of the renewal fee.

(7) A person granted a permit for the operation of a snorkelling facility shall:—



BOWDEN PEN FARMERS ASSOCIATION  
Upper Rio Grande Valley  
Comfort Castle P.O.  
Portland  
Telephone (Cell) 462-8163  
Email: bpfa\_ecotourism@yahoo.com

17<sup>th</sup> November, 2013

Attention Mr. Dorrick Selvenious  
Jamaica National Heritage Trust  
Duke Street  
Kingston.

Dear Sir:

The Bowden Pen Farmers Association is seeking the help of the Heritage Trust to investigate two sites located in the upper Rio Grande Valley of St. Thomas.

The sites are located in close proximity to Quaco River and south of the Corn Puss Gap Trail. The sites are believed by the Maroons to be special places for their ancestors and Quaco in particular. The first site is known as the Sacred Site and is believed to be a burial ground and from the large caldrons, bricks and bearings on the site there is also the belief that a sugar mill was once there..

The second site is on the hill overlooking the river where it is believed Quaco's compound was situated. This site was badly damaged in the 80's by tractors that destroyed a number of dry

en on the ground.

situated. This site was badly damaged in the 80's by stone walls and covered a large chain that could be se

# Seeking and Securing Sacred Natural Sites among Jamaica's Windward Maroons

Kimberly John, Collin L.G. Harris and Susan Otuokon

## Summary

This chapter suggests broadening the management levers of human behaviour in Jamaica's protected areas beyond economic benefits and moral persuasion to include other drivers of behavioural change such as the spiritual. The indigenous Windward Maroon culture is examined for notions that parallel the western conservation concept of 'setting apart' areas for special uses and sacredness. The Maroons have occupied lands in the Blue and John Crow Mountains and Cockpit Country for more than three centuries. Only a few examples were found of sacred natural sites primarily associated with supernatural healing, burial and refuge. However, their sparse presence is significant in the Jamaican context of widespread ecological degradation and erosion of Maroon culture. Second, a discourse is initiated on how such sites can be integrated with, and even improve, protected area management by restoring and incorporating a sense of the sacred among protected area beneficiaries. The relationship between the protected area and sacred natural sites is seen to be synergistic since incorporating these sites into protected area management will help to preserve their knowledge and transmission within the Windward Maroon community and in turn reinforce the culture of Jamaica's only remaining indigenous group.

## Introduction

Conservation efforts in Jamaica are faced with the dual task of restoring fragmented ecosystems and repairing or developing healthy linkages between people and nature. The latter usually focuses on sustainable livelihoods, where ecosystems are managed as commodities for wise use and profit. The discourse explores how this perspective can be broadened by including the sacred natural sites associated with Jamaica's Windward Maroons who occupied what is now the Blue and John Crow Mountains National Park (The Park) for some 300 years, and who had significant interactions with the indigenous Taínos before their extinction. The Park and the Windward Maroons are two entities which started and persist independent of each other, but which can each play a role in the other's success and survival as will be explored later.

Jamaica was first settled around 600 AD by the Taínos (described below) who were rapidly destroyed after the Spanish invasion of 1494. By 1513, Spanish settlers were compelled to import African slaves to replace the Taínos as a source of slave labour. Jamaica's population has grown steadily since the 600s AD from an estimated 60,000 people to the present 2.7 million people (STATIN, n.d.). The island's pattern of economic development and urbanization has contributed substantially to the destruction of biodiversity and indigenous artifacts (Atkinson, 2006).



## Jamaica's indigenous people

The Taínos were an ethnic group whose pre-Columbian range included much of the Antilles. They inhabited Jamaica for about 900 years; however, within 30 years of contact with Europeans, most Taínos were extirpated and no longer existed as a separate group (Senior, 2003). Although some aspects of their culture remain in Jamaican food traditions, cultivated plants and the name 'Jamaica' which is derived from the Taíno word for 'land abounding in springs', many questions about Taíno spiritual beliefs and practices will remain unanswered. However there are some clues about their spirituality in the archaeological records, the traits of related Amazonian groups from which the Taíno evolved and in the journals of contemporary Europeans. It is likely that the Taínos perceived sacred forests, trees, caves, rocks and rivers across Jamaica's landscapes (Saunders and Grey, 2006). For example some tree species such as *Ceiba pentandra* (silk cotton) were used to make significant zemís (objects that possessed spiritual powers or spirits residing in trees, rocks, caves and other natural features) and has retained its spiritual relevance throughout the Antilles (see also Chapter 13). Is there a chance then, that in their brief interaction and eventual assimilation within the Maroons, the Taínos transmitted some of their spiritual knowledge?

Although predominantly West African in origin, the Maroons claim to have Taíno ancestry.

Maroons are characterized as communities in the Americas comprising a blend of indigenous Amerindian peoples and Africans who escaped slavery, formed viable communities within their territory and maintained their freedom by fighting off colonial attempts at control (Agorsah, 1994). Jamaica's Maroons first formed during Spanish occupation (1494–1655) when some slaves escaped to the hilly interior to join the remaining Amerindians. More slaves escaped as a result of the British invasion in 1655 and integrated into the existing Maroon settlements. By the early 1700s the Maroons became a problem for the British because of their growing numbers, raids on plantations and because their example of independence inspired plantation slaves to rebel. Several laws were passed and battles fought in unsuccessful attempts by the British colonists to rein in the Maroons.

The Maroons settled in two inaccessible areas: the Windward Maroons in the Blue and John Crow Mountains and the Leeward Maroons in the Cockpit Country. They owed much of their success in battle and long-term resilience to local ecological knowledge learnt from the Taínos in these high-biodiversity areas where the steep, rugged terrain and the almost impenetrable forest created natural fortresses. The Windward Maroons were almost completely dependent on the forests for food plants, clothing, shelter, household items, medicines and even toys for their children. They also had a close relationship with the streams and rivers which provided food, escape routes, hiding places, essential drinking water and even a guerrilla warfare technique that confused the British soldiers when groups of Maroons disappeared into waterfalls (Figure 14.1). This relationship is reflected in many of their centuries-old stories and songs which refer to 'following the river' to safety (Bilby, 2005).

After 80 years of conflict, the British requested peace. Two peace treaties were signed in 1739, by the Leeward and Windward Maroons respectively, granting the Maroons possession of the land they controlled. To this day, the Maroons are the only example of communal land ownership in Jamaica, with land holdings in the Rio Grande valley of more than 2000 hectares.

Traditional Maroon religion closely resembles West African and Taíno religions where the natural and supernatural worlds flow together. According to Agorsah (1994), this is characterized by the concept of a Creator God, the veneration of ancestors and rituals associated with both of the above. However, the peace treaties of 1739 marked the beginning of the Maroon's 'creolization' – the fusion and hybridization of different local cultural elements into one homogenous culture (Bedasse and Stewart, 1996). Bilby (2005) reports that by the mid 1800s, the presence of missionaries in Maroon settlements was firmly established. Within a few decades of the treaty, nearly all Maroons were converted to Christianity. A distinct Maroon culture still exists, particularly in the spheres of food, music, dance and the linguistic relic of West African dialects known as 'Kramanti', which along with other elements of Maroon culture is in decline and changing rapidly (Bilby, 2005). Bilby argues that the important markers of Maroon cultural identity are now the





**Figure 14.1** Nanny Falls with the present Colonel of the More Town Maroons, Wallace Sterling, in the foreground

Source: K. John

intangible, internal and private, not the tangible and public. The cultural distinctiveness and value of the Maroons was proclaimed in 2003 as an element of the Intangible Cultural Heritage of Humanity as being of outstanding universal value by UNESCO. Among the many pieces of literature that document the history and culture of the Maroons are two that call for an examination of significant sites. Bedasse and Stewart (1996) recommended identifying areas of cultural significance for ecotourism purposes and Harris (1994) advocated for the documentation of special areas before the knowledge of them is lost.

## **Blue and John Crow Mountains National Park**

The Blue and John Crow Mountains National Park is Jamaica's first and largest national park,

spanning 495.2km<sup>2</sup> and one third of the island's remaining natural forests (JCDT, 2005). First declared first as a Forest Reserve in the 1950s and subsequently as a National Park in 1993 its national and global importance is based on high levels of faunal and floral endemism, and the water and other ecosystem services provided to the wider society and economy.

Apart from its role in conserving biodiversity (JCDT, 2005) there has also been a growing recognition of the value of the cultural heritage of the Park. The Windward Maroons were described as 'frontline stakeholders' engaged in the formation and declaration of the Park. More recently, documents prepared for the World Heritage Site nomination emphasized the unique Windward Maroon culture and stressed the sacredness of the Park and buffer areas. The Park was nominated as a UNESCO World Heritage Site in January



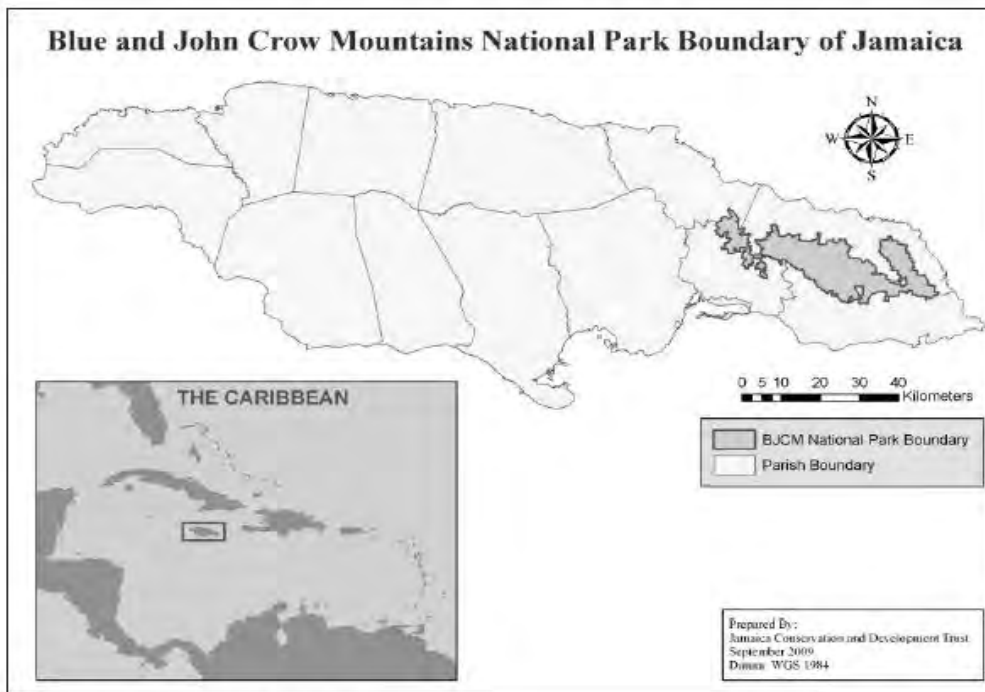


Figure 14.2 Location map of the Park

Source: Jamaica Conservation and Development Trust (JCdT)

2009, after a protracted consultation process which involved the Windward Maroons.

### Sacred sites in Jamaica

Sacred connections between modern Jamaican culture and the natural environment are expected to be weak because the society is relatively young and because there has been a sharp disconnect between indigenous/traditional groups and most modern Jamaicans caused by the extinction of aboriginal Taínos, severe and prolonged slavery and colonization, creolization and now modernization. Consequently, the home-grown environmental culture is still in its very early stages.

The search for sacred natural sites in Jamaica started at the Jamaica National Heritage Trust (JNHT), whose mission focuses on the promotion, preservation and development of Jamaica's material and cultural heritage. All of the 29 'sacred' heritage sites in the JNHT database are churches

from mainstream Christian denominations, none is associated with significant groups such as the Taínos, Maroons or Rastafarians, and no sites are both 'sacred' and natural. This imbalance might reflect: the limited interest of Jamaica's overwhelming Christian majority in other worldviews; the Rastafarian focus on the African homeland; the paucity of tangible Taíno artifacts, and the secrecy of Maroon sacred knowledge and traditions. Maroons are regarded as the most secretive group in Jamaica (Bedasse and Stewart, 1996; Bilby, 2005).

### Seeking sacred natural sites among the Windward Maroons

Given the more than 300 years of continuous occupation of the Blue and John Crow Mountains and their retention of vestiges of West African and Taíno cultural elements, Maroon sacred natural



sites are a practical starting point for investigating the sacred values of the Park. This discourse aims to stimulate the discussion of the sacredness of nature in the Jamaican context through the following questions: What sacred natural sites exist among the Windward Maroons? Why are they sacred? How are they managed? And what are the management implications?

The findings are based on:

- 1 key publications;
- 2 participatory research such as focus group meeting and interviews conducted among the Windward Maroons;
- 3 targeted interviews with Maroon elders; and
- 4 the draft World Heritage Site nomination dossier for the Park. Attempts were made to verify the data by independently consulting and cross-referencing with elders in the maroon community.

### **Maroon sacred natural sites**

At first glance, the Maroons seem to have adopted a very modern and utilitarian view of nature, where forests, land and water are primarily resources for exploitation. However, many maroons recognize the mountains as a sacred landscape with significant areas of forest and streams which meet the accepted criteria for sacred natural sites. In times past, these were sites of refuge, places of healing and places where ancestors were buried. Many of these sites are found within the Park boundary and some are located in the buffer zone. Recalling and describing these sites is a source of great pride for elder Maroons.

### **Places of refuge**

The main places of refuge that have been identified are Nanny Town, Pumpkin Hill and Stony River. Nanny Town, the original capital of Windward Maroon lands, is located within the Preservation Zone of the National Park at about 670m above sea level. Nanny Town is named after the great Maroon chieftain and national heroine Nya Nya, commonly called Nanny, who led the Maroon communities in warfare against the English in the early 1700s. Archaeological research by Dr.

Kofi Agorsah on the 5000m<sup>2</sup> site, found *zemís* (see above) in the lower levels of the excavations, suggesting the site's original use by the Taínos as a sacred hill site before 1655. This period of Taíno occupation overlapped with what is described by Agorsah (1994) as the Maroon Phase. During the maroon phase the site was an important place of safety for the Africans because of its remote location, the thick forest and the treacherous water course of the Stony River, which borders the site. Bilby (2005) included Nanny Town, sometimes called Stony River (or Toni Ribba) as a major sacred site among Maroons and described the obvious 'awe' that Maroons feel when they speak about it. The area is regarded as the site where Nanny's spiritual power is still concentrated. According to Bilby (2005), Stony River is held sacred by the Maroons because it was a major escape route, source of water and food for the Maroon citadel at Nanny Town.

Pumpkin Hill is a former Maroon settlement where according to oral traditions, Nanny planted pumpkin seeds during an acute food shortage. The seeds sprouted and produced fruit on the same day and Nanny was able to provide food for her soldiers. Pumpkin Hill is a remote yet very visible promontory overlooking Rio Grande (Figure 14.3), which according to Bilby (2005) stands as a reminder to the Maroons of their special place in history.

### **Places of healing**

The Maroons identified many riverine areas that have cultural significance including Sanda and Stony River. Sanda is a deep, narrow pool along the Wild Cane or Negro River that has existed for centuries. Sanda's healing properties were discovered in the 1700s when a maroon elder was completely healed from a potentially fatal wound by swimming along the pool. The name 'Sanda' is derived from the undisclosed song that the elder sang as he went to the river and has a very special meaning in Maroon oral traditions. These healing properties were useful for curing battle injuries during the long conflict with the British and more recently for healing after 'science works' (Maroon spiritual rituals during which some persons are cut with machetes). Another recent Sanda tradition is





**Figure 14.3 River View in Rio Grande valley looking west at the Maroon sacred natural sites of Pumpkin Hill (highest peak) in the Blue Mountains**

Source: K. John

that persons about to get married bathe at Sanda on the dawn of their wedding day.

### Places of burial

The Maroons have retained the West African and Taino religious concepts wherein burial sites are viewed as the resting place of ancestors and where ancestral spirits reside and protect the living. The Blue and John Crow Mountains are home to several unmarked Maroon burial sites. Consequently, most of the area is regarded as a sacred landscape; a 'secure, natural citadel' (R. Ebanks, personal communication). This sacredness is accentuated because the ancestors buried in the mountains died while trying to protect the freedom and survival of the Maroon community. Bedasse and Stewart (1996) reported that the

Maroon elders spoke with 'reverence' about the 'Forest' which is understood to be the Park.

### Places of cultural significance

Many special sites emerged in the study whose sacredness need to be verified. Sites that are proposed as sacred by some persons but not supported by others include Quao Falls, Dinnertime and Dinnertime Peak, the Rio Grande and Nanny's Boiling Pot.

Little consensus was found among the Maroons on the significance of Quao Falls, located on the Quao River. It is reputed that Quao, a Maroon captain and contemporary of Nanny, would lead Maroon women and children through the plunge pool into a cave at the back of the Falls which led them to an unknown exit.





To the British militia at the time, it appeared that the Maroons disappeared into the waterfall. The Dinnertime settlement and Dinnertime Peak refer to a former Maroon settlement where hundreds of Maroons were housed under one structure and probably served as a place of refuge (I. Harris, personal communication). Further inquiries into the intangible values of the Rio Grande are also needed. The Rio Grande is the main drainage in the Windward maroon territory and is the largest Jamaican river in terms of discharge. According to I. Harris (personal communication), in times past, Maroons revered the Rio Grande as a powerful force of nature and a source of food and inspiration. This agrees with 18th-century reports describing Rio Grande settlements as 'fishing communities' (Agorsah, 1994) and Bilby's description of the Rio Grande as a hallowed river among Maroons.

Another culturally significant site connected to the Rio Grande is Nanny's Boiling Pot. Nanny's Boiling Pot is a famous site where British soldiers were warned to beware of a large boiling pot, under which there were no flames, in which the Maroon heroine Nanny would kill their comrades. Bilby (2005) proposed that this boiling pot is near the turbulent confluence of the Stony River and Rio Grande along which was a narrow path. According to some accounts, Nanny placed soporific herbs in the river and soldiers walking on the path above the confluence would become drowsy, fall into the river and drown.

### **Management of sacred natural sites among the Windward Maroons**

Maroons felt a sense of duty to maintain their sacred natural sites in times past. First of all, outsiders were not authorized to visit these sites otherwise they were 'bound for trouble' and as Bilby (2005) wrote outsiders would expose any collaborating Maroons to 'severe spiritual sanctions'. Furthermore, children were not allowed at many sacred natural sites, for their own safety and because many of the rituals were deemed to be inappropriate for children.

As a result, today there is no evidence of active management of sacred natural sites among the

Maroons, neither by formal management structures nor by social group norms and beliefs. Visitors are still discouraged from visiting some sites such as Quao Falls until they learn to communicate with the ancestors (R. Ebanks, personal communication). Moreover, Maroon culture has changed; it has retreated from the public to the private sphere. There are no Maroon community-based mechanisms for recounting or celebrating these sites and unfortunately, knowledge of Maroon sacred natural sites is no longer being transmitted to the younger generation through the oral traditions. Alarming, the knowledge of these sites seems to be stored in a few (academic) documents – such as this one – or it is held between a few Maroon individuals who in some cases cannot independently verify each other's stories.

### **Threats to Maroon sacred natural sites**

The persistence of Maroon sacred natural sites in the Maroon community and wider Jamaican society is uncertain given several unfavourable conditions. These threats are the limited transmission of sacred natural site knowledge, the fact that many monuments and markers are impermanent and the risk of trivializing the sites among the Maroons.

The limited transmission of site knowledge is a recurring concern in Harris (1994), Bedasse and Stewart (1996) and Bilby (2005). This break in transmission of the oral history occurs between the remaining elders, many of whom are now in their 90s, and the young and middle-aged Maroons. This is partly due to the customary Maroon secrecy which prevented critical information from passing into the wrong hands. The 'wrong hands' in this case were outsiders, Maroons of mixed blood and rash Maroon youth who do not display the patience, perseverance and respect necessary to be stewards of the oral history. In fact some elders would prefer to go to their graves with the oral history kept to themselves rather than entrust this information to the unworthy.

In the 1960s and 1970s there was also a deliberate restriction in the expression and transmission of Maroon cultural heritage, which was believed to limit Maroon advancement through the educational system and to contradict Christian teachings.



Although this decision was later reversed, it was too late, and many Maroon traditions were driven underground and into extinction. This mirrors an incident in the 1930s described by Bilby (2005) among the Leeward Maroons in which a Maroon convert to Christianity burned down the sacred house of Kojo and other ancestors.

Many monuments and markers are impermanent. The markers of burial sites and other sacred areas might have been naturally destroyed because they were made of biodegradable materials. Agorsah's excavation found few artefacts of the Maroon phase at Nanny town, whereas permanent artifacts were found from the Taíno and Modern Phase. Additionally, the Maroons were very mobile, and during clashes with the British, they elected to destroy the belongings left behind in abandoned settlements. As such, few permanent structures were left from the period preceding the peace treaty.

In the face of cultural extinction, there is an increasing willingness among the Maroons to partner with outsiders in the preservation of their cultural heritage and in the transmission of that knowledge to young people. There is however, a fear among many elder Maroons of the sacred natural sites becoming trivialized. Some interviewees were concerned that the recent interest in their cultural heritage might cause others to make unverified claims of sacredness in random places in an attempt to cash-in on visitors to the Park; others simply think that sacred knowledge is not for everyone.

## Management recommendations

Jamaica's indigenous community has lost much of its traditional knowledge including sacred natural sites, and nascent but uncoordinated efforts are underway to document and protect the little that remains. This mirrors efforts to conserve what's left of Jamaica's biodiversity. The Park's management has fostered interest in both the natural and cultural heritage of the landscape using its cultural values as a major justification for nominating the Park as a World Heritage Site. Interest in Maroon culture and sacred natural sites is also pronounced among intellectuals and explorers who want to understand this semi-autonomous state in Jamaica, never conquered by the Europeans.

In light of the uncertain future of sacred natural sites in the Park they should be quickly brought into the management purview of the Park and the JNHT through existing legal, policy and institutional means. A framework is proposed based on the premise that legal designation in conjunction with a feasible management plan will enable the long-term protection and appreciation of the Maroon sacred natural sites. The framework consists of the following five actions.

**Step 1:** Develop a comprehensive and reliable database of sacred natural sites. This should be a participatory process involving the Maroons, park management, cultural researchers and archivists who will ensure that the survey is more than an academic effort or a hunt for sites to market for tourism. This can take the form of simply recording traditional stories about these sites as recommended by Putney (2005). This was illustrated in Bilby (2005) whose book is, to a large extent, a distillation of stories told by Maroon elders and faithfully recorded in the local vernacular. Above all, the documentation and dissemination of information about sacred natural sites should be done with respect for Maroon secrets and in close collaboration with the widest possible cross-section of the Maroon community.

**Step 2:** Develop and implement a robust verification process. This process will develop locally relevant indicators of sacredness and naturalness and assess the proposed sacred natural sites according to the agreed criteria. Furthermore, the sites should be 'ground-truthed' to ensure that the features do exist and to determine whether any information or artifacts have been preserved at the site.

**Step 3:** Integrate sacred natural sites into National Park Education and Awareness programmes. The goal of this programme will be to build awareness of the spiritual value of the Park among its stakeholders. This should be useful for buffer zone residents who might not relate to ecosystem services that are often realized in areas far removed from them. For example, the Park is described as a major source of water for the capital of Jamaica, Kingston, while it is geographically and culturally remote from the city. In particular, it will reinforce



the sense of belonging among buffer-zone residents and hopefully improve the stewardship of the Park. The value of this emotional link to the conservation movement was noted by Wilson (2002) who proposed that the human brain can only truly connect emotionally to a small piece of geography. A critical component of this education programme should be completely Maroon-centric, promoting Maroon heritage amongst Maroons. This will build on the work being done under the UNESCO/IOJ (Institute of Jamaica) project to record and promote Maroon cultural heritage.

Step 4: Include priority sacred natural sites for special protection in the Park. This will include management planning for the sites using frameworks such as the modified Conservation Action Planning tool developed by The Nature Conservancy (Secaira and Molina, 2005). UNESCO-IUCN guidelines for and New World examples of incorporating sacred natural sites in protected area planning are available in (Wild and McLeod, 2008). The next management planning period for the Park is 2010–2015 and the sites should be included in the planning process.

Step 5: Ensure legal recognition of sacred natural sites and seek protection through the JNHT. A legal mechanism already exists for protecting cultural sites in Jamaica. Under the Jamaica National Heritage Trust Act, a building, site or landscape can be declared 'protected national heritage' under criteria such as its historic, architectural, traditional or archaeological value. In addition to the World Heritage status being sought by the Park, verified Maroon sacred natural sites inside and outside of the Park should be declared as protected national heritage. The process for designating Protected National Heritage is clearly described in JNHT promotional materials (JNHT, n.d.). By seeking legal designation for the sacred natural sites, the portfolio of sacred sites under protection will more accurately represent the nexus between the natural and the sacred in Jamaica's heritage.

Based on this preliminary study of the Windward Maroons, sacred natural sites among the Leeward Maroons, some of which were introduced in Wright (2004), should also be examined and incorporated

into the management of Cockpit Country, another high priority area for conservation.

## Conclusions

The sacred natural sites of the Park present a compelling opportunity to highlight, protect and preserve the cultural values of Jamaica's protected areas. Sacred natural sites within the Park and its buffer zone showcase the deep-rooted, spiritual value of nature, having been places of refuge, healing and burial among the Windward Maroons and possibly Taínos. The presence of sacred sites can help to reinforce respect and appreciation for the Park as a repository of cultural and spiritual resources among the Maroons who inhabit the buffer zone, and the wider Jamaican public. Conversely, the Park clearly creates opportunities to conserve these cultural values and maintain them in the cultural domain. The involvement of the Park management and relevant authorities in managing these sites will further the conservation objectives by enriching the values base of the park and bolster the cultural heritage of the Maroons. Although they are few in number and in danger of being forgotten and completely lost, there are clear policy and institutional mechanisms for rapidly protecting Jamaica's sacred natural sites through protected area management plans, the Jamaica National Heritage Trust, the 2003 proclamation of Intangible Cultural Heritage and potentially, World Heritage Site status. A shared sense of urgency and collective will are now needed.

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**UNESCO**  
**Nomination Dossier**

The Cultural and Natural Heritage  
of the  
**Blue and John Crow**  
**Mountains**

**Volume II – Further Appendices**  
**Property Plans**

## **APPENDICES VOLUME II**

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### **MANAGEMENT**

Hollywell Ecotourism Development and Management Plan

Hollywell Biodiversity Conservation Management Plan

Hollywell Blue and John Crow Mountains National Park Signage Plan with Graphic Design Guideline

Blue Mountain Peak Trail Biodiversity Conservation Management Plan

# HOLYWELL ECOTOURISM DEVELOPMENT AND MANAGEMENT PLAN



THE JAMAICA CONSERVATION AND DEVELOPMENT TRUST  
WITH THE SUPPORT OF

THE ENVIRONMENTAL FOUNDATION OF JAMAICA  
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# List of Acronyms

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BJCMNP	Blue and John Crow Mountains National Park
CAPE	Caribbean Advanced Proficiency Examination
CXC	Caribbean Examination Council
EAST	Environmental Audits for Sustainable Tourism
EMP	Ecotourism Management Plan
EMS	Environmental Management Systems
GDP	Gross Domestic Product
HEART/ NCTVET	Human Employment & Resource Training/ National Council for Technical Vocational Education and Training
JCCP	Jamaica Cluster Competitiveness Project
JCDT	Jamaica Conservation and Development Trust
JDF	Jamaica Defence Force
JHTA	Jamaica Hotel and Tourist Association
JPSCo	Jamaica Public Service Company
FD	Forestry Department
LAC	Limits of Acceptable Change
NEPA	National Environment and Planning Agency
NRCA	National Resources Conservation Authority
UNESCO	United Nations Education and Scientific Council
USAID	United States Agency for International Development
UWI	University of the West Indies

# Executive Summary

Holywell is the main recreation area within the Blue and John Crow Mountains National Park. As such, it must not only provide recreational opportunities for local Jamaicans and overseas visitors, but also contribute to fulfilling the mission and goals of the national park. Consequently, ecotourism is proposed as the approach to meet the dual purposes of Holywell and by extension, the national park. While there is some debate regarding the promotion of ecotourism in Jamaica, the focus of the Holywell Ecotourism Development and Management Plan (referred to as the “Plan” from hereon) will be on the use of ecotourism as a policy and management tool. This will ensure that Holywell supports the national park, in terms of funding for conservation, providing benefits to local communities, and educating visitors. This will be done in a way that minimizes the environmental degradation of the site and of the park.

An outline of the goals and their general strategies is provided below and the details for each programme are in separate chapters.

Goals/Outcome	Chapter	Strategic Approach	Key Activities
Operation of Holywell as a successful business, generating a profit for use in the conservation of the BJCMNP by:  - doubling revenue by end of five years, - generating profit of at least \$1m by year 4.	2 (Business Plan)	Improve implementation of management systems.  Pursue product development as per plan.  Improve and increase marketing.  Increase opportunities for visitor spending.  Expand and improve community and cultural components.	Put professional management in place.  Raise funds for product development – both infrastructural and services.  Implement marketing plan.  Work with local communities to develop income-generating ventures linked to Holywell.

<b>Goals/Outcome</b>	<b>Chapter</b>	<b>Strategic Approach</b>	<b>Key Activities</b>
Physical and infra-structural development of the site that aids in meeting the goals, particularly with respect to recreation, education and income generation.	3 (Development Plan)	<p>Improve, expand and adapt existing buildings.</p> <p>Improve entrance and ticket/information areas.</p> <p>Use new infrastructure to enhance interpretation, visitor spending and cultural experience.</p>	<p>Source funding to implement development plan.</p> <p>Explore the possibility of expanding area currently under lease e.g. for additional cabins.</p>
Environmental management of the site to ensure least environmental impact.	4 (Environmental Management)	<p>Continued use of site as the ranger station for Administrative Area 2 of the park.</p> <p>Develop and establish detailed systems for environmental and visitor management.</p>	<p>Continue to use Holywell as a base for park programme implementation for Administrative Area 2.</p> <p>Work with EAST for the establishment of an EMS and pursuit of Green Globe certification.</p> <p>Establish a Visitor Monitoring and Management System.</p>
Plans and systems in place to ensure the safety of visitors.	5 (Safety, Disaster Preparedness and Emergency Management)	Systems in place to deal with public health, safety, security, disaster preparedness and emergency management, search and rescue.	Improve systems in terms of documentation, training and implementation.
Ensure customer satisfaction through improved hospitality management.	6 (Hospitality Management)	<p>Improve the system of bookings.</p> <p>Improve customer service systems.</p>	<p>Training.</p> <p>Implementation of new systems.</p>

<b>Goals/Outcome</b>	<b>Chapter</b>	<b>Strategic Approach</b>	<b>Key Activities</b>
Increase visitor awareness and sensitivity to the natural and cultural heritage of the BJCMNP.	7 (Interpretation)	Interpretive Programme operating through the use of signage, brochures and tour guides, as well as special educational activities.	<p>Raise funds to implement first half of Signage Programme.</p> <p>Prepare designs/layout for second half of Signage Programme and raise funds to implement.</p> <p>Improve existing interpretation programme.</p> <p>Design and construct interpretation for new Visitors' Centre.</p> <p>Prepare educational manual for BJCMNP that can be used at Holywell by school groups at all levels.</p>
Benefits to Local Communities.	8 (Benefits to Local Communities)	Ensure benefits, financial and otherwise, to local buffer zone communities.	<p>Employment and purchase of services or goods from local community members, where possible.</p> <p>Training and education activities e.g. with youths.</p> <p>Events/activities at Holywell that involve community members.</p> <p>Facilitate community-based tourism.</p>

<b>Goals/Outcome</b>	<b>Chapter</b>	<b>Strategic Approach</b>	<b>Key Activities</b>
Piloting ecotourism in the BJCMNP.	9 (Piloting Ecotourism in the BJCMNP)	Use experience at Holywell to guide planning and implementation in the park's other recreation areas.	Document lessons learned.  Use signage and other items, as well as activities from Holywell at other sites.
Monitoring and Evaluation.	10 (Measuring Success and Revising Strategies)	Monitor and evaluate the success of activities for adaptive management.	Surveys and other methods.

# Chapter 1: Introduction



## ***Blue and John Crow Mountains National Park (BJCMNP)***

The Blue and John Crow Mountains National Park (BJCMNP) was declared in February 1993 under the Natural Resources Conservation Act of 1991. It is Jamaica's only national park, covering about 78,000 hectares (almost 200,000 acres) of the steep mountain slopes of the upper regions of 10 watersheds and sections of the parishes of Portland, St. Thomas, St. Andrew and St. Mary. The BJCMNP is nationally and globally important for a number of reasons:

1. It has a high level of biodiversity and numerous endemic plant and animal species, many of which are threatened.
2. Its forests, that are vital for supplying water to eastern Jamaica – providing over 40% of the island's population with potable water for human consumption as well as water for agriculture and other industries.
3. It is to be nominated as one of Jamaica's first World Heritage Sites.

The BJCMNP is managed under several inter-linked programmes, including conservation and education. Therefore, ecotourism has been selected as the most appropriate approach to recreation and tourism in the BJCMNP because it merges and satisfies the interests of all the park's programmes. In addition to Holywell, the Blue Mountain Peak Trail and Portland Gap which are currently being used for recreation as well as the Upper Rio Grande Valley (particularly around Millbank), are being developed for community-based recreation and tourism opportunities. Recreational use of these areas by locals (domestic tourism) is currently more significant than foreign visitation for the BJCMNP (as with national parks globally). Most visitors are from the Greater Kingston Metropolitan Area and are persons who, for example, visit the park for a day to relax and enjoy the outdoors away from the pollution and unrest of the city. Therefore, the use of ecotourism principles in the operation of Holywell makes a contribution to national public health, education, community development, and social well-being.



## **1.1 National Park Financing**

The Jamaica Conservation and Development Trust (JCDDT) is a non-government organisation (NGO) and a registered charity, committed to promoting environmental conservation and sustainable development. It manages the BJCMNP under delegation from the Natural Resources Conservation Authority/National Environment and Planning Agency (NRCA/NEPA) and a co-management agreement with both the NRCA/NEPA and the Forestry Department (FD). The JCDDT has a twenty five (25) year sub-lease for Holywell from NEPA/NRCA through the Forestry Department and the Commissioner of Lands. The purpose of the lease is to allow for generation of income to assist with park management. The lease agreement requires the preparation and execution of a Development Plan for Holywell.

In spite of an agreement stipulating that the Government of Jamaica (GOJ) should make a financial contribution to the sustenance of protected areas, they are unable to do so. This is because of the limitations of the national budget to allocate funds that can sufficiently support operational activities. The operational management of protected areas is, therefore dependent mainly on funds granted by donor agencies and the Jamaica National Parks Trust Fund (JNPTF) that provides an annual grant for the upkeep of the BJCMNP. Unfortunately, this grant has decreased significantly over the years because of the inability of the JNPTF to attract additional funds, coupled with the decline in interest rates.

Individually, protected areas are expected to generate some income from user fees and other charges associated with their recreation areas. Holywell is the most developed of the recreation areas within the BJCMNP having been established in the late 1960s by the Forestry Department. In the Recreation/Tourism Programme of the park's Management Plan 2005 – 2010, Holywell was a major focus in terms of its potential to generate more income in order to help to support the conservation of the park. However, in the event that Holywell is unable to make a significant financial contribution to the park's management, its operation as an ecotourism attraction makes educational and social contributions to achieving the conservation goals of the park. This is because several of the activities associated with ecotourism (including interpretation and community outreach) are relevant to park management activities.

## **1.2 Tourism and Protected Areas in Jamaica**

Tourism is one of the most important industries in Jamaica providing a significant, direct economic contribution to the country. It contributes to 7.7% of Gross Domestic Product (GDP), 7.6% to employment and the foreign exchange equivalent of up to 56% of other inflows (Res & Co, 1998). The *Jamaica: Master Plan for Sustainable Tourism, (2002)* states that tourism's success should not only be measured by the amount of GDP, foreign exchange and jobs it provides, but more importantly, by the extent to which the industry serves as a vehicle for providing economic and social opportunities for the Jamaican people. At present, tourism tends to be more beneficial to large businesses than to small, rural communities. As

crime, tourist harassment and growing price competition increases, the security of promoting the traditional tourist package of “sun, sea, and sand” is gradually eroding and being replaced by alternative types of tourist attractions. The Tourism Master Plan has been prepared to acknowledge these changing trends with a new emphasis on nature, culture, adventure, community, heritage and ecotourism.

According to the Policy for Jamaica’s System of Protected Areas (1997), one of the goals of the system is to provide recreational and educational opportunities to improve the quality of life for all Jamaicans and overseas visitors. One of the primary uses of national parks, according to the policy, is for tourism and recreation. The development and management of recreation and tourism in the BJCMNP is therefore, of particular relevance to the diversification, greening and community involvement being sought for the island’s tourism industry.

### **1.3 Defining Ecotourism**

Ecotourism is defined in several, different ways. For example, according to the International Ecotourism Society (1990), ecotourism is “responsible travel to areas that conserve the environment and improves the well-being of local people”. Almost similarly, the World Conservation Union (1996) defines it as:

*“Environmentally responsible travel and visitation to natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features, both past and present) that promote conservation, have a low visitor impact and provide for beneficially active socio-economic involvement of local peoples.”*

The World Tourism Organisation (2002) makes a distinction between *nature tourism* and *ecotourism* – two concepts that are often incorrectly used interchangeably to define the same activity. In its definition:

*Nature tourism is a form of tourism in which the main motivation is the observation and appreciation of nature.*

*Ecotourism is a form of tourism with the following characteristics:*

- *All nature-based forms of tourism in which the main motivation of the tourists is the observation and appreciation of nature as well as the traditional cultures prevailing in natural areas*
- *It contains educational and interpretation features*
- *It is generally, but not exclusively organised for small groups by specialised and small locally-owned businesses. Foreign operators of varying sizes also organise, operate and/or market ecotourism tours, generally for small groups*
- *It minimises negative impacts on the natural and socio-cultural environment*
- *It supports the protection of natural areas by:*
  - *generating economic benefits for host communities, organisations and authorities that are responsible for conserving natural areas;*
  - *creating jobs and income opportunities for local communities; and*

- *increasing awareness both among locals and tourists of the need to conserve natural and cultural assets.*

It has been argued that using the term *ecotourism* when marketing an attraction may discourage visitors who are looking for a relaxing or active natural experience but do not consider themselves “ecotourists”. Further, with a trend towards the establishment of standards and certification, park management would not wish to reduce its credibility by offering a product that does not meet international standards. In the context of the BJCMNP however, *ecotourism* is used to describe a management approach and process and will not necessarily be used in marketing or promoting the site.

*“‘Nature tourism’ is grounded in the behaviour and motivation of the individual [tourist] whereas ‘ecotourism’ is a more comprehensive concept which is based on a planned approach by a host country or region designed to achieve societal objectives beyond (but including) those of the individual.” Ziffer (1989)*

## **1.4 Purpose of the Plan**

An Ecotourism Management Plan is a tool to guide the development and management of tourism in a protected area in a way that synthesizes and represents the vision of all the stakeholders while fulfilling the conservation objectives for a site. Typically, the plan would be a detailed continuation of general guidelines established in a *General Management Plan for a Protected Area* (Drumm and Moore, 2002). This plan should be considered and used within the context of the BJCMNP Management Plan 2005 – 2010. It is designed to create a comprehensive system of management and development of Holywell as an ecotourism attraction and will serve two purposes:

- To provide a vision and strategic plan for the development and management of Holywell as an ecotourism site within the BJCMNP.
- As a point of reference and instruction for the development, implementation and maintenance of ecotourism measures for Holywell,

It is intended to include both short and long term strategies and will therefore be flexible in order to deal with changes in time, environmental management practices, society, and unforeseen circumstances. Two major strategies are required in order to meet the goals of Holywell and the BJCMNP:

a) Employing a manager for Holywell. This person would be responsible for:

1. implementing the development and management plan,
2. assisting with the administrative, marketing, fundraising and financial management support of the plan, along with the JCDT’s staff.

The individual to be chosen will be required to have:

- a background in hospitality management, with training in sustainable tourism,
- excellent leadership skills to manage the existing team at Holywell,
- s/he would be expected to spend at least 75% of their time addressing recreation/ tourism at Holywell and the remainder on the park's other recreational areas.

b) Funding. Funding will need to be sourced in order to implement the plan. Some smaller components may be funded through corporate sponsorship; however, major funding will need to be sought in order to implement several of the larger components of the Development and Business Plan.

## Chapter 2 – The Holywell Business Plan



This chapter addresses the need for the Holywell Ecotourism Development and Management Plan to guide the generation of income for the operation of the site and conservation of the BJCMNP, primarily through marketing, administrative and financial management.

### 2.1 Background

Holywell is financially sustained based on funding from two sources:

1. **User fees.** This includes charges for entry, cabin and campsite rental, educational packages, groups and retreats etc. However, this is only sufficient to cover expenses for casual labour and other operational expenses such as electricity, fuel for vehicles, and machinery and equipment used for the maintenance of the site.
2. **Contributions from the JCDT.** Income from grants sourced by the JCDT assists in covering the salaries of the Station Chief and Ranger and other administrative and marketing costs. However, as the economic and political situation changes globally and nationally, it is becoming increasingly difficult to secure funding and donations. Additionally, between 2000 and 2002, the JCDT experienced a number of institutional crises such as the loss of senior managers, which in turn resulted in a reassessment of the organisation's business strategies. In order to cope with the changing national and global environment, a number of changes were implemented one of the most significant being, to make the decision to use a more business-oriented approach to generating profits for the sustenance of the organisation.

Improved management and marketing of Holywell (which started in late 2002) resulted in an increase in income and in the number of visitors to the site by over 50% during 2003 (Table 2.1). Similarly, the figures for 2004 showed an average increase of about 50%. However, the passage of Hurricane Ivan in September 2004 significantly affected these figures. These improvements indicate that Holywell is one of the potential tools for generating income for conservation. In addition, Holywell contributes to implementation of the management programmes of the BJCMNP. For example, the site is used as a training centre for community youths under the Education and Public Involvement Programme. Further, the Income and Expenditure Projections for 2005 – 2009 indicate that by the end of 2008, Holywell could operate without grant funding and make a profit.

**Table 2.1 – Sources of Income for Holywell**

<b>Source</b>	<b>2003</b>	<b>2004</b>
Income from Recreational Use	\$1,309,500	\$1,484,286
Income from Grants	\$2,699,012	\$2,600,260
Expenditure	\$4,008,512	\$4,084,546

(See Income and Expenditure Statement 2003/04)

Management of Holywell as a recreation area within the BJCMNP is nationally significant because the purposes of the park since 1993 have been for biodiversity/ecosystem conservation and to provide recreational and tourism opportunities. The twenty-five year lease of the 10ha (25 acres) core of the Holywell property to the JCDT by the Commissioner of Lands, through the Forestry Department and the National Environment and Planning Agency (NEPA), is for the purpose of supporting management of the BJCMNP. The national park is managed by the JCDT under a delegation agreement from the Natural Resources Conservation Authority (NRCA)/NEPA and a collaborative management agreement between NEPA, FD and the JCDT.

Recreation areas like Holywell can be used to achieve the goals of the National System of Protected Areas, highlighted in the Policy document and which include economic development, environmental conservation, sustainable resource use, recreation and public education, public participation, local responsibility, and financial sustainability. There are very few (if any) functioning recreation areas within Jamaican protected areas. Therefore, the success of Holywell is important both to the sustainability of protected area management as well as to the success of the collaborative approach to protected area management.

Recreation areas are essential for any country because its citizens need open spaces with facilities and services that allow for recreational activities to be conducted in leisure time. Recreational activities are essential for physical, psychological, and spiritual well-being, and outdoor recreational activities have a special role to play, particularly for citizens living in increasingly congested cities, and stressful circumstances. These activities include:

- relaxing, quiet activities such as enjoying nature, meditating, camping,
- socializing, for example at picnics,
- physical activities e.g. walking and hiking,
- educational and intellectually stimulating activities e.g. bird-watching or interpretative trails.

(Goodbody & Smith, 2002)

For rural communities, in addition to being able to use recreation areas like Holywell for their own recreation, these sites provide opportunities for income generation through employment or sale of products such as farm produce or craft.

## **2.2 Vision, Mission and Goals**

### **Vision**

Ecotourism at Holywell will be characterised by the experience of a reasonably constant low volume of visitors from both Jamaica and overseas. Visitors are expected to fall into two main categories:

- Persons or groups looking for outdoor enjoyment and relaxation on day trips in a natural and beautiful setting,
- Persons or groups looking for more active outdoor pursuits, who will overnight at the camps or in the cabins and utilise trails and paths for hiking/walking.

The types of persons who could fall into the latter category will be researchers, bird-watchers and ecotourists, with very specific requirements. However, the majority of the two types will be persons who, while they enjoy and appreciate the outdoors and are somewhat concerned about conservation, would not necessarily consider themselves to be ecotourists.

It is anticipated that the number of visitors will eventually increase to about 17,000 persons per annum (including persons who attend special events at the park throughout the year). A Visitor Impact Monitoring and Management System will ensure that neither the volume nor the activities of guests will result in degradation of the environment.

All patrons will pay an entrance fee to the park in addition to the costs for other services .for example, slide show presentations, guided tours, and products. Trained persons from local communities will provide many of these services and products.

In summary, the revenues from Holywell are projected to exceed its total operating costs by the end of 2008. This income will provide for both the ecotourism management activities at Holywell and conservation endeavours with the Blue and John Crow Mountains National Park.

### **Mission**

The mission of Holywell is to support the Blue and John Crow Mountains National Park's mission and objectives by providing recreational opportunities for local and international visitors, using ecotourism principles.

## Goals

The goals of Holywell are to:

- i) provide recreational and educational opportunities for Jamaicans and visitors that:
  - o raise awareness and knowledge about the BJCMNP, thereby motivating concern and support for conservation of the national park, and
  - o result in the least environmental degradation to the site.
- ii) generate income for conservation/management of the BJCMNP
- iii) provide benefits for communities around the BJCMNP by increasing the local community's support for natural resource management.

## 2.3 Product Description

### 2.3.1 Tangible and Intangible Assets

While Holywell was originally established simply as a nature attraction, its purpose has evolved to include a focus on recreation and tourism within the context of a national park. Ecotourism is the approach and therefore, both natural and cultural heritage components are relevant. The annual park celebration *Misty Bliss*, for example, is a celebration of the park's declaration of the protection and conservation of the area's rich natural and cultural heritage. The event includes exhibits and activities that focus on the park's natural habitat through the use of poster displays, guided tours along the nature trails, quizzes etc. as well as activities related to the Jamaican culture - for example, the cooking of traditional Jamaican food and entertainment by local dance and drumming groups such as the Charlestown Maroons.





*Misty Bliss - Drumming*

### ***Tangible Assets – The Natural Habitat***

The tropical, montane mist-forest of Jamaica is a type of rain forest that is unique to the Blue and John Crow Mountains National Park. The park's high altitude causes the rain to occur sometimes as mist. The mist only turns to rain when the water content of the atmosphere reaches saturation or when the wind hits trees and the air warms causing condensation of the water vapour so that rain falls from the "rain trees". These types of forests are sometimes called cloud forests.

About 50% of the flowering plants in the mist and rain forests of the BJCMNP are endemic to Jamaica, and it is probable that about 30 – 40% may only be found in the Blue and John Crow Mountains (Iremonger, 2002). These include many orchids and bromeliads, shrubs such as "hot lips" (*Cephaelis elata*), the "cup and saucer" (*Blakea trinervia*) and trees such as the milkwood (*Sapium harrisii*) and the umbrella tree (*Schefflera sciadophyllum*). In addition, there are numerous non-flowering plants including tree ferns, ferns, club-mosses such as the selaginella, mosses and lichens such as the "old man's beard" (*Usnea* sp.), several of which are endemic.



*Mist Forest*

The wildlife of the area is similarly diverse and unique. The park contains species such as the endemic Jamaican boa or yellow snake (*Epicrates subflavus*), the Jamaican hutia or coney (*Geocapromys browni*) and the largest butterfly in the western hemisphere – the giant swallowtail butterfly (*Papilio homerus*) but these are unlikely to be observed at Holywell. The park is home to the island's 27 endemic species and subspecies of birds, and most of them including the Jamaican blackbird, Jamaican oriole, white chinned thrush, and the Jamaican tody can be seen at Holywell.

#### **Other Features of Holywell**

- *cool, fresh air and the swirling mist,*
- *scenic vistas of mountains and the panoramic views of the city of Kingston,*
- *winding trails under thick forest canopies and carpeted with lush ferns and mosses,*
- *rustic wooden buildings including the cabins and gazebos.*

### ***Tangible Assets – Cultural Relics***

The cultural heritage of the Holywell area features:

- Army Camp at Newcastle,
- Coffee farms and great-houses,
- Coffee and related products,
- Maroon culture.

### ***Intangible Assets***

The values, traditions, and distinctiveness of the villages and communities in the Blue and John Crow Mountains form the intangible assets of the area and are linked to the natural and cultural tangible assets. Two of the most well known communities in the area are the Maroon communities in Charles Town (Buff Bay Valley) and Moore Town (Rio Grande Valley). However, there are other villages with rich histories of coffee farming that are also unique. Intangible assets of the area include:

- Maroon Culture – dance, drumming, language, craft, etc.
- Mountain Village Culture – farming practices, dance, music, food, craft, etc.
- Popular Jamaican Culture – dance, music, etc.



*Local Craft*

## 2.3.2 Threats to the Site

### *Access*

- The park's soil composition is predominantly shale. Together with the high levels of rainfall, landslides are a common threat. They cause access problems in terms of blockage of both paths and roadways leading to and from Holywell.
- Within Holywell, there are also concerns about an access road leading from the Woodford community through the site. From Woodford, the road connects to Norbrook or via Maryland back to Irish Town. It has been ascertained that the road is used mostly by coffee farmers and drivers of all-terrain vehicles.
- The fact that Holywell does not have boundaries defined by fences, markers, etc. makes it accessible from a number of points. This concern is also applicable to the wider BJCMNP, with respect to identification of the boundaries.

### *Sustainability*

- The sustainability of the site is threatened by the cost of operations, which oftentimes exceeds the income earned. Measures will need to be taken to address this problem in order to increase income above expenses if the site is to continue operation. Under the current business approach of the JCDT, it is no longer acceptable nor viable to depend on outside factors such as donations and funding to sustain the park.
- As the inflow of visitors increases in number and frequency, the natural resources will become more stressed and the eventual result will be damage to trails and vegetation. This will decrease the environmental sustainability of the site and its ability to attract the desired target market.

### *Invasive Species*

Invasive species are a threat to the health of the forests in the park as they grow quickly and easily, invading and dominating the areas in which they are found. Some of these species are the *Gleichenia* commonly called "bracken fern", ginger lilies and red-bush. Removal of these species is not simple because they tend to have rhizomatous roots that are difficult to remove completely, and often grow on slopes where their removal may result in landslides. Persons responsible for landscaping must consider how invasive are the species of plants and trees used for beautification.

### ***Environmental Degradation***

This threat is perhaps the most pervasive because of its association with parts of protected or natural areas used for recreation and tourism and other areas that are used heavily by humans. The resources, which are the basis of the tourists' visit, may be damaged or destroyed by visitors and their activities. Degradation can occur in a number of ways and in a variety of intensities. Much of the damage is visible such as litter, trampled vegetation and trail erosion. However, other effects such as the impact on wildlife may be less obvious. Visitors cause other changes to nature and protected areas. These may be subtle changes that affect the natural processes which cause problems, including the alteration of animal behaviour. These changes are often difficult to detect but are important. Visitors sometimes not only cause negative impacts on the site that hosts the tourism activity, but also on neighbouring or surrounding lands.

### **2.3.3 Facilities and Services**

Holywell provides a wide variety of recreational activities for individuals or groups such as families, church or youth groups who visit the park for a day or stay overnight for short or long periods for example, during holidays or for a retreat or camp.

Current facilities and services are:

- A large, landscaped picnic area with seven gazebos, tables/benches and bathrooms,
- A smaller, landscaped picnic area "Mystic Grove" with a gazebo and bathrooms,



*Gazebo*

- A tuck-shop that sells snacks, drinks and light meals,
- Nature trails – a network of short, easy trails connecting the picnic areas to the administrative centre, including the Blue Mahoe Trail,
- Hiking trails – “Oatley Mountain”, “Waterfall”, “Shelter” and “Wag Water”/ “Dick’s Pond”,



*Nature/Hiking Trail*

- Guided tours (on request) with TPDCO certified guides,
- An Educational Visitors’ Centre with exhibits and information,
- Kid’s Discovery Zone – an interpretive and interactive play area,
- Educational packages for school and other groups,
- Accommodations:
  - Three, fully-furnished cabins – each with its own bathroom and kitchen facilities
  - Five campsites and tents available for rent,
- Meeting/Retreat facilities for up to twenty (20) persons,
- Merchandise including park souvenirs and local craft.

General improvements to be implemented over the next year include:

- Landscaped entry and new “Welcome” Ticket Sales Booth,
- Delineated parking areas,
- Refurbishing of cabins,
- Improved Tuck-shop/Gift shop,
- Plant Nursery and Orchid House,
- Increased space and facilities for retreats/workshops,

Facilities and services to be developed and improved over the next one to three years include:

- Interpretive and other Signage – a series of signs providing information and direction,
- Additional special events,
- Holywell Visitor Pavilion – to be located in the main picnic area for information, interpretive signs/exhibits, merchandise,
- Amphitheatre and permanent stage,
- Additional gazebos and benches,
- Dormitories – additional space for accommodating large groups.

### ***Visitation***

The majority of visitors are Jamaican and there are a number of foreign nationals, resident in Jamaica and a few tourists who come by taxi or occasionally by tour buses. There are a wide variety of visitors such as school groups, church groups, youth clubs, families, couples, tourists who come to picnic, hike, camp, relax outdoors or in the cabins, bird-watch or conduct research.

Holywell currently receives about 10,000 visitors per annum including approximately 2,000 who visit on one day for the annual *Misty Bliss* celebration. The remaining 8,000 visitors come throughout the year mainly on weekends (especially holiday weekends) during the summer and winter months. The rainy months of May and October have the least number of visits. On average, 154 persons visit the site per weekend. There are also days when there are about 200 persons on the property, including overnight guests in cabins or tents.



**Mento at Misty Bliss**

Although record keeping has improved significantly since 2002, prior to this it was not well maintained. According to Goodbody and Smith (2002), visitation increased from 5,000 per year to 30,000 per year between 1964 and 1994. With the introduction of an entry fee in 1999, numbers decreased significantly, particularly the number of tour buses. Prior to this, entry was free of charge.

With increased efforts at marketing since late 2002 such as sending information to schools and companies, *Misty Bliss*, and improved management, Holywell has seen an average of about 50% increase in income between 2002 and 2003 and about 60% increase in visitors. As at July 2004, there has been an increase in income of 60% and 45% increase in numbers over the same period in 2003. Despite these improvements, total operating expenses are estimated at \$3.5 million while income remains at about \$2 million.

**Table 2.2 – Number of Visitors to Holywell (2002-2005)**

<b>Year</b>	<b>Total Number of Visitors</b>	<b>No. of Resident Adults</b>	<b>No. of Resident Children</b>	<b>No. of Foreign Adults</b>	<b>No. of Foreign Children</b>
2002	4,471	not available	not available	not available	not available
2003	7,299	5,363	1,540	330	66
2004	8,550	6,258	2,101	181	6
2005*	2,521	1,868	614	39	0

Figures do not include visitor numbers of about 2000 for the annual cultural event (*Misty Bliss*).

\*Figures are for January to May only.

The income generated from Holywell is derived mainly from user (entry) fees, guided tours and the rental of site facilities (campsite, cabins etc).<sup>1</sup> In addition, annual events such as *Misty Bliss* held at Holywell, also help to raise funds for the park. Annual operational costs for Holywell equal approximately \$2.6 million, with average annual income of approximately \$1.4 million.

In order to meet its goal of supporting management of the BJCMNP, Holywell must improve its earnings. Based on the industry and market analysis, these improvements must be made firstly, to cover all expenses including administrative overheads, and secondly, to begin to make a profit that can be used for JCDT's conservation work in the BJCMNP. This forms the basis of a five year business plan which, among other things, proposes the hiring of a Recreation Area Officer, making a capital investment of about J\$20 million in the first three years and improving the site's management and marketing to achieve these goals. The investment of a further J\$19 million is proposed in the final two years. However, much of the latter amount is not essential to the income projected but rather, is more related to fulfilling social/educational objectives through the construction of dormitory facilities.

<sup>1</sup> See details of fees overleaf.



It may be possible to generate more income with expenditure of fewer funds through the construction of additional cabins or a café, possibly as a concession. This decision will need to be taken by the end of year 2.

Holywell is listed by the Jamaica Tourist Board (JTB) as a site of special interest. However, very little additional information is provided because the site has not been recommended for a JTB licence by the Tourism Product Development Company (TPDCO.). The JCDT has been working with the TPDCO and other agencies to make improvements in order to licence Holywell as both a nature attraction and an accommodation. The main criteria have been met,

### ***Fees***

**As at January 2005, the fees charged for facilities and services are as follows:**

#### **Entry (User) Fee**

This allows for the use of picnic areas, gazebos, bathrooms, Visitors' Centre, and trails.

<b>Type of Person</b>	<b>Residents</b>	<b>Non-residents</b>
Adult	J\$100.00	US\$5.00
Child	J\$50.00	US\$2.00

It should be noted that the amendments to the BJCMNP Regulations (June, 2003) stipulate higher non-resident fees of (US\$10 and \$5 respectively). JCDT and tour operators consider these too high for what is currently offered, and the JCDT has indicated to NEPA that it will not be possible to raise these fees.

#### **Guided Trail Tours**

<b>Type of Person</b>	<b>Residents</b>	<b>Non-residents</b>
Adult	J\$200.00	US\$5.00
Child	J\$100.00	US\$2.50

#### **Tent Sites**

The fees are charged per person/night in addition to the Entry Fee for the first night.

- Adults – J\$100/night
- Children – J\$50/night

#### **Tent Rental**

- 2-3 persons – \$500/night plus \$700 refundable deposit
- 4-6 persons – \$700/night plus \$700 refundable deposit
- Up to 20 persons– \$2,500 plus \$700 refundable deposit

#### **Cabin Rental**

Cupressus – a 2 bedroom, self-contained cabin	J\$3,500/night
Hot-Lips – a 1 bedroom, self-contained cabin	J\$2,500/night
Mountain Yacca – a self-contained studio	J\$2,500/night

for example obtaining public liability insurance and a lease. However, there are a number of areas for example, lighting, communications and security that need to be addressed in order to obtain the licence. It is anticipated that if a manager can be employed in 2005, it should be possible to make these improvements by the end of the year in order to obtain certification.

In addition, through the Environmental Audits for Sustainable Tourism (EAST) Project, an environmental audit has been conducted, and the next steps prior to Green Globe certification are being taken with assistance from EAST. These steps include benchmarking and the preparation of an Environmental Management System for the site.

### ***SWOT Analysis***

The following analysis was adapted from a study conducted in 2002 by Mitzue Gayle, a Tourism Major from UTECH.

<b>STRENGTHS</b>	<b>WEAKNESSES</b>	<b>OPPORTUNITIES</b>	<b>THREATS</b>
<b>Product</b> Unique atmosphere of cool, clean, fresh air.  Cabins enhance rural feel.  Entrance fee affordable.	<b>Product</b> People may expect a park “like those in the movies”.  People think it is far and difficult to access (need 4WD).  Cabins need some improvement .  More activities needed.	<b>Competition</b> Land available for expansion.  Possibility for new concept development e.g. honeymoon cabin.	<b>Competition</b> With increasing interest in this market, competition may increase in the form of businesses with more capital and funding.
<b>Corporate position</b> Good relationship with the Ministry of Industry & Tourism and its agencies, the community and tertiary institutions.	<b>Organisation</b> Insufficient funding.  Income less than expenditure.  Lack of sufficient technical and management level staff at location (tourism/hospitality).	<b>Economic</b> With improved planning and implementation – the site has the potential to become profitable.	<b>Economic</b> Potential visitors may be scared because of crime in Kingston.
<b>Existing market</b>	<b>Marketing</b>	<b>Political</b>	<b>Natural</b>

<b>STRENGTHS</b>	<b>WEAKNESSES</b>	<b>OPPORTUNITIES</b>	<b>THREATS</b>
Not age specific.  Can attract domestic and foreign visitors.	Not widely marketed.  Needs additional signage leading to site.	Increasing interest in eco- and other alternative tourism at level of institutions e.g. WTO.	Heavy rainfall and possibility of access being blocked by natural disasters.
<b>Operation</b> Team-work strong in organisation.		<b>Social</b> Trend towards environmental awareness/friendliness.  Special Events in Jamaica likely to increase tourist arrivals and lengthen their stay.  TPDCO can train staff.	

A listing of the competitive advantages of Holywell in a draft Business Plan (Laidley, 2002) included the following:

- Proximity to Kingston and the North Coast,
- Good roads,
- Established good-will,
- Unique product,
- Broad appeal – variety of activities,
- Few competitors,
- Proximity to JDF base and Irish Town Police Station for security and emergency services.

### ***Accessibility and Surrounding Community***

Holywell is easily accessible by road using an average motor vehicle - that is, a 4WD is not necessary. Although winding and narrow at some points, the road is generally in good condition having been rehabilitated through a European Union funded project in 2001. From Kingston via Papine and Irishtown, the journey is approximately an hour (34 km or 21 miles from Papine). From Port Antonio via the Buff Bay Valley, the journey will take about two hours from Port Antonio. From Ocho Rios via Oracabessa and Port Maria through the Buff Bay Valley, the journey will take about three hours. The Jamaica Defence Force has its training depot at Newcastle (about 15 minutes drive from Holywell, going towards Kingston) with a medic and ambulance on duty 24 hours per day, 7 days per week and helicopter access.

There are land lines for telephone only as far as Newcastle, and cellular access beyond. Holywell has a fixed cellular phone and mobile phones have reception in most parts of the park. Electricity and water are available to most communities and at Holywell, where the water is from a reliable catchment. Public transportation beyond Redlight/Irishtown on the southern slope and beyond Cascade on the northern slope is very limited, so access to Holywell is generally by private vehicles or hiking.

The neighbouring communities are:

- Irishtown/Redlight/Middleton – Irishtown is about half way between Papine and Holywell. Redlight and Middleton are satellites of Irishtown, and closer to Holywell. These are basically farming communities (although many persons work in Kingston). There are a number of trails in the Redlight/Middleton area, including one to Holywell and another to Gordon Town.
- Woodford/Freetown/Jack Allen – Woodford is a town located about 16 km from Manor Park via Norbrook and 19 km from the Irishtown Road via Maryland. Woodford is connected to Holywell via Freetown/Jack Allen and a coffee farm road. Farming on own land or as employees on other farms is the main livelihood for the residents of the area.
- Section/Cascade – These communities are located in Portland at the top of the Buff Bay Valley. Section is a very small community about 3 km from Holywell, with only a few families while Cascade is another 6.5 km away from Holywell. Both are farming communities. Two tourist attractions in this area are the coffee processing plant established by the Parnell family at Section and a beautiful waterfall that can be seen on the way to Cascade. Along the main road between Holywell and Section are a few houses including the Institute of Jamaica's *Green Hills*. *Green Hills* is currently out of use but there are plans for its use as a guest house and research station.
- Greenwich is a residential community – mainly occupied by Kingston-based business people. It is approximately twenty minutes walking distance from Holywell. A feature of the community is the *Gap Café and Bed & Breakfast*, located near to the entrance to the Greenwich Road and about five minutes from Holywell.
- Newcastle – This is the main training depot of the Jamaica Defence Force and is occupied all year round. It is about 2 miles below Holywell and takes less than fifteen minutes by car. A little beyond Newcastle, along the main road back to Irish Town is the Cold Spring area, with a number of summer cottages such as the *Barbecue Heritage Gardens*. The Catherine's Peak Spring Water Bottling Plant owned by Peak Bottlers Limited is also located there.
- Coffee Farms – There are a number of coffee farms in the area. Some of the largest include those belonging to Douglas Graham, Richard Sharpe and Alex Twyman. Closer to Irishtown is the Craighton Coffee Estate owned by Ueshima Coffee Company. All three of the former have, or are establishing processing factories, while

the latter has its coffee processed at Mavis Bank. At Section, a family of coffee farmers from the area have established a community-based coffee tour. In the Silverhill Gap - beyond Section, but in the opposite direction to Cascade - is the Wallenford Coffee Estate and processing plant that is partially abandoned. There are also joint reforestation projects facilitated by the Forestry Department, the JCDT and other organisations. A road that accesses coffee farms - the Oatley Road - runs through the back of Holywell but is only suitable for 4WD vehicles or trucks. It is excellent for bird-watching and can be used to access the small waterfall at the end of the Waterfall Trail. The Lancaster community in Buff Bay Valley is planning to start a trail from their community that will eventually link with this road, thus providing access to Holywell.

### ***2.3.4 Industry Analysis***

The tourism industry is one of the most important industries in Jamaica, comprising 7.7% of GDP, 7.6% to employment, and a foreign exchange equivalent of up to 56% of the other inflows (Res and Co, 1999). However, many persons are pessimistic about the industry continuing to be the hub for development because of some of its glaring weaknesses. The 2002 Master Plan for Sustainable Tourism recognises these concerns and highlights the need for increased support for environmental management, community involvement and benefits, and product diversification. The Master Plan identifies the general trend in the global industry, led by an increasingly environmentally and socially conscious market, towards nature, culture, adventure, community and ecotourism, amongst other types of tourism. These approaches are all being initiated in Jamaica through government, private sector and civil society activities.

Another important trend supporting the development of outdoor recreational opportunities is the increasing need to provide Jamaicans with such opportunities. This is particularly important to persons who reside in Kingston who may need a retreat from the stressful conditions of city life such as crime and unemployment.

### ***Figure 2.1 Jamaica Travel Statistics for 2003***

In 2003, total stopover arrivals were 1,305,285 with 88,177 of those being non-resident Jamaicans. 71.8% of these arrivals were from the USA, 16.2% from Europe (mainly from the UK, Italy and Germany) and 7.1% were from Canada. Fifty-four percent (54%) of the foreign nationals were first-time visitors. “Intended Resort Area of Stay” for stop-over arrivals was 30.9% for Montego Bay, 21.9% for Ocho Rios, 20.4% for Negril, 20.4% for Kingston, 14% for Mandeville and the South Coast, and 1.1% for Port Antonio. Total cruise ship passengers was 1,132,596 but over 95% of these embarked at Ocho Rios or Montego Bay, with the resuscitation of the cruise ship industry in Port Antonio expected to begin in 2004. *(Annual Travel Statistics 2003, Jamaica Tourist Board)*

Gross visitor expenditure was US\$1,351,000 with US\$92 million from cruise passengers and US\$41 million from Non-Resident Jamaicans. Foreign nationals spent an average of US\$95 per person per night while cruise passengers spent US\$80 per person. In terms of distribution of expenditure for foreign nationals, accommodation accounted for 57.9%, entertainment 10.2%, shopping 9.6%, food and beverage, transportation and miscellaneous the remaining 22.3%. For cruise ship passengers, 58.5% was spent on shopping, 11.5% on attractions and the remaining amount on food and beverage, transportation and miscellaneous. *(Annual Travel Statistics 2003, Jamaica Tourist Board)*

Average length of stay for foreign nationals depends on nationality, with those from the USA averaging 8.4 nights, from Canada – 14.1, UK – 18.7, Europe – 11.5, Latin America – 9.4 and the Caribbean – 10.9 nights. Hotel stays were usually shorter on average for foreign nationals – averaging 6.4 nights while non-hotel stays e.g. villas and private homes averaged 19.1 nights. Non-resident Jamaicans averaged 40.5 nights staying mainly in private homes. *(Annual Travel Statistics 2003, Jamaica Tourist Board)*

***The majority of these figures increased over 2002.***

### ***2.3.5 Market Analysis***

#### Market Surveys

The Research Technical Bulletin Series T-141 of the Agricultural Research Program, North Carolina A&T State University (NCA&T) is a report on “Ecotourism in the Blue and John Crow Mountains National Park” and describes the results of studies conducted by that organisation in 1995 in conjunction with the JCDT. The NCA&T study surveyed seventeen local Jamaican Tour Operators to estimate usage of, and expenditure in the BJCMNP by tourists, and to elicit opinions from the industry regarding the potential for ecotourism in this

area. The study also surveyed a sample of 171 local Jamaicans who visited sites in the Blue Mountains and 398 international tourists at Sangster International Airport in order to better understand the demand for visits to the Blue Mountains.

The results of the NCA&T study indicated the following for tour operators, international tourists and local Jamaicans:

### Tour Operators

Tour operators reported taking a total of 34,853 foreign tourists to the Blue and John Crow Mountains National Park in 1994. The average price per person, per trip charged was US\$58 for the Kingston-based operators and US\$66 for the north coast-based operators. While the data are not specific, the areas apparently reported on were Holywell and Portland Gap/Blue Mountain Peak Trail. At the time of the study, an entry fee to Holywell was not being charged and the tour operators suggested fees of between US\$1-5 for foreigners (with an average of US\$3.54) and US\$0.30 – 3.75 for Jamaicans (with an average of US\$1.66).

The tour operators felt that there were several limitations with the destination, particularly the road condition, lack of infrastructure, substandard accommodation, food/restrooms at Holywell and Portland Gap. They were also concerned about security and garbage collection at these sites. Suggestions were made for improved trail maintenance, better guides, hosting more events at Holywell and introducing more activities such as horse-back riding, guided photography, ecology and village life tours.

### International Tourists

The average tourist was a college-educated, 33 year-old from the USA (87% of sample) with an average household income of US\$61,500, travelling with one family member. They spent on average US\$1,380 for a seven-day trip to Jamaica. Sixty seven percent (67%) of the sample stayed at all-inclusive hotels in Montego Bay, Ocho Rios and Negril. Only 6% spent at least one night at a location other than their primary destination. While the primary purpose of 85% of respondents was to enjoy the sun, sea and sand, 58% visited at least one nature tourism site with 46% visiting Dunn's River Falls, 9% visiting YS Falls and 7% visiting the Black River Safari. These were mainly day trips during which persons spent an average of US\$66. Although 28% had previously heard of the Blue and John Crow Mountains National Park, only 4% had actually visited sites within the park. The study reported that international tourists would be interested in one day or over-night trips and wanted a medium-level (not rustic) level of development with well-marked but not paved trails and activities. The average willingness to pay for trips to the park was US\$52 for a day trip, and US\$103 for an over-night trip. The average willingness to pay for entrance fee to the park was US\$11.9 million which should include facilities for hiking (day and multi-day), bicycling, bird-watching and sight-seeing, a large Visitors' Centre with information and exhibits, and a wide range of nearby accommodations.

Visitors' statistics for Holywell indicated 5% foreign visitors/international tourists in 2003 and 2% in 2004.

### Local Jamaicans

Sixty percent (60%) of the sample was interviewed at locations associated with the Blue Mountain Peak Trail and the remainder at Holywell. Thirty eight percent (38%) had visited sites in the park once in the previous 12 months, 14% had visited twice, and 13.2% had visited between 5 to 9 times. About 60% of persons visited either Portland Gap or Blue Mountain Peak, 48% visited Holywell and 10% visited Clydesdale. The average visitor was between 18 – 24 years old with an income of between J\$200,000 – 300,000. The average total cost for the trip to the park was J\$965, the majority being spent on food and transportation. The average recommended entrance fee (with improved facilities including a multi-media Visitors Centre) was J\$116 but the majority (35%) said they would pay between J\$20 – 50. With respect to recommended improvements, 68% wanted improved accommodation, 10% better trails, and 6% each wanted better landscaping and better roads.

The information from this survey was most relevant to hikers who were students at tertiary-level institutions or those who had only recently started working. These are the majority of persons who go to the peak rather than Holywell. Since this study was conducted, there have been improvements at Portland Gap. Currently renovations are also being made to the Peak trail and the Peak. There is a lot of interest in hiking to the Blue Mountains. However, this study showed that hikers are not willing to pay very much to enter the park, even with improved facilities. This continues to be an issue particularly for the Blue Mountain Peak Trail.

A more recent survey (Jamaica Conservation & Development Trust, 2003) among 70 Jamaicans (in Kingston) found that of that sample, 88.6% had heard of Holywell; however, only 46% had actually visited. Ninety five percent (95%) of persons who had visited Holywell were interested in returning, and 25% of the sample had visited once or twice within the last year. There was a low response rate to the question about interest in visiting Holywell from persons who had never visited, and some persons indicated a need to know more about the site or a need for transportation. This data suggest that the Jamaican market (particularly Kingston) is still not fully tapped.

### Analysis of Information from Surveys and Observations

An analysis of the industry data, with respect to the existing and potential market, indicates that for sites in the BJCMNP:

- International visitors show:
  - An increasing interest in visiting the hinterland and experiencing/learning about Jamaica's natural and cultural heritage,



- Familiarity with using the national parks (persons often visit these types of areas in their own countries),
- Knowledge of, and interest in Blue Mountain Coffee.

Despite this interest:

- Tourists are not aware that Jamaica has any national parks or similar attractions because the hotels, tour operators and tour guides do not generally have any information on these sites. Furthermore, the existence of national parks is not promoted in the marketing of the island's tourism product.
- Tour operators tend not to market Kingston as a destination for touring due to the fear of crime. Additionally, business visitors to Kingston often depart on weekends because they are unaware of attractions that exist on the outskirts of Kingston.
- Attempts by the JCDT to attract international visitors through the existing tour companies have proven futile. This is partly because the tour operators feel that additional attractions are needed to attract tourists to the Blue Mountains as well as improved facilities at Holywell and other sites. In addition, many of the tour operators do not understand the concept of sustainable nature tourism or ecotourism and therefore exclude these types of attractions from their marketing strategies. Finally, the cost of travelling to the Blue Mountains (even Holywell) is significant and therefore in order to make a profit, the tour operator would require significantly reduced entry fees to Holywell – US\$2 for adults has been recommended (although the tourist is willing to pay more). The other option for the tour operator would be to sell a high-end package that would require significant improvement at Holywell. Generally it is hard to target the international market for visits to the park, at least through local channels.
- Domestic visitors

Although many persons have heard of Holywell:

- they are not certain where it is located or how to get there (some assume a 4WD vehicle is needed),
- they believe it is probably in poor condition (many persons visited when they were children in the 1970s and 1980s before the improvements made in the late 1990s),

Generally, once residents visit Holywell, they keep returning. Return visitors have, however indicated a need for improvements. They believe that Holywell cannot continue to rely on goodwill and its wonderful ambience to maintain its local market for very long.

Return visitors tend to bring family and friends.

In summary, there is a need to get information out to the public and to maintain a reasonable level of presence.

## Competition

Holywell has virtually no competition. Comparable attractions are located mainly on the north coast and the distance from north coast resorts makes it expensive to access for most tour operators. In the vicinity of Kingston and within the Irishtown to Buff Bay Valley area there are no comparable attractions. The attractions in these areas are mainly accommodation and restaurants (Table 2.3).

There are a variety of trails in the area; however, there is no charge and most are either not maintained or managed because access is difficult to monitor. In addition, some coffee farms offer tours but mainly on an ad hoc basis. These other trails and tours include:

- Trail from Gordon Town to Redlight to Greenwich/Holywell,
- Hike from Manor Park through Norbrook, through Woodford and Freetown to Holywell Trail,
- Twyman’s Coffee Farm,
- Ueshima Coffee Company – Craighton Great House,
- Section Coffee Processing Tour,
- Charlestown Maroons.

Unlike other sites, Holywell offers several opportunities for recreation in one location. However, improvements to the tuckshop/restaurant and gift shop are needed, as well as the proposed Coffee Exhibit. In addition, stronger links must be made with the other attractions in the area to take advantage of opportunities for joint marketing. For example, guests staying at Starlight Chalet and Strawberry Hill often come to Holywell for hiking, and guests staying at Holywell sometimes have lunch or dinner at the Gap Café.

**Table 2.3 Attractions in Holywell and its Environs**

NAME	LOCATION	ENTRY FEE	FACILITIES & SERVICES	ADDITIONAL ACTIVITIES
Strawberry Hill	<i>Irishtown</i> 30 min from Kgn. 2 1/2 hrs. from Port Antonio	N/A	Accommodation Restaurant	Spa - US\$110–160 Trails
Crystal Edge Restaurant	<i>Irishtown</i> 30 min from Kgn. 2 1/2 hrs. from Port Antonio	N/A	Restaurant	-
Heritage Gardens at Cold Spring	<i>Greenwich</i> 40 min from Kgn.	N/A	Accommodation	Special Events

NAME	LOCATION	ENTRY FEE	FACILITIES & SERVICES	ADDITIONAL ACTIVITIES
	2 1/2 hrs. from Port Antonio			
The Gap Café and B&B	<i>Greenwich</i> 50 min from Kgn 2hrs. from Port Antonio	N/A	Restaurant B/fast - \$550 – 750 Lunch - \$600 – 800 Bed &B/fast - \$5,000/night	
Starlight Chalet	<i>Silver Hill Gap</i> 1 1/2 hrs. from Kingston 2 hrs. from P/Antonio	N/A	Accommodation Single - \$2,600/night Double - \$3,600/night  Restaurant	Hiking – US\$20/person with tour guide and light snack  Spa/Yoga – US\$75

The north coast beaches and other attractions, while not strictly considered as competition, do provide an alternative choice for both domestic and international visitors. For the latter, the beaches and other attractions are within their immediate area. However, as indicated below, for domestic visitors these are more costly than Holywell and therefore are likely to be once-a-year visits as opposed to Holywell, which can be visited more often. For international visitors staying on the north coast – distance becomes the main negative factor, in addition to the general lack of marketing of the Blue Mountains and Kingston.

**Table 2.4 Comparison of Holywell with other Attractions Islandwide**

NAME	LOCATION	ENTRY FEE	FACILITIES & SERVICES	ADDITIONAL ACTIVITIES
Holywell	1 hr. from Kingston. 2hrs from Port Ant. 3hrs from Ocho Rios	RA – J\$100 RC – J\$50 NRA – US\$5 NRC – US\$2	Picnic areas w/ gazebos Nature and hiking trails Stream with waterfall	Guided Tours RA – J\$200 RC – J\$100 NRA – US\$10 NRC – US\$5
White River Valley	2hrs from Kingston 1 1/2 hrs from Port Antonio ½ hr from Ocho Rios	RA – J\$300 RC – J\$200 NRA – US\$8 NRC- US\$6	Swimming in river River tubing	Kayaking Horse-back Riding Hikes/Nature Walk: RA – J\$1000 RC – J\$750 NRA – US\$28 NRC – US\$22
Cranbrook Flower Forest	2hrs from Kingston ½ hr from Ocho Rios 1 1/2 hr from Port Antonio.	RA – J\$200 RC – J\$100 NRA – US\$4 NRC – US\$2	River Picnic areas	Horse-back riding
Dunn’s River Falls	2hrs from Kingston Ocho Rios 1 1/2 hrs from Port Antonio	RA – J\$250 RC – J\$100 NRA–US\$10 NRC – US\$8	Beach Climbing and swimming in the Falls	
Green Grotto Caves	2 1/2 hrs from Kingston 1 hr from Ocho Rios	RA – J\$500 RC – J\$200 NRA- US\$20 NRC- US\$10	Guided Tour of Cave System	
Clydesdale & Cinchona*	1 1/2 hrs from Kingston 2 hrs from Port Antonio	None	Botanical Gardens River	
Castleton	1 hr from Kingston 1 1/2 hrs from Port Antonio		River Botanical Gardens Shaded areas Large playing areas Snack Counter	
Hope Gardens	Kingston	None	Botanical Gardens Shaded areas Large playing areas	Vegetarian Restaurant with reasonably priced meals

\*Currently out of operation.

Key: RA – Resident Adult  
RC – Resident Child  
NRA –Non-resident Adult  
NRC – Non-resident Child

## 2.4 Marketing Plan

### Target Market

Based on the analysis of the industry information, “competition”, surveys, observations and discussions with industry personnel, the target market for Holywell can be divided into two main groups: Jamaican residents and non-residents/tourists, and these are described in table 2.5.

In the short to medium term, the emphasis should continue to focus on residents (both Jamaican and expatriate) as this group is not yet fully tapped, and has the potential for increased growth, with relatively little expenditure. Firstly, the surveys indicate that many people do not know about Holywell and therefore with direct or events marketing, the number of visitors could be increased. Secondly, residents are likely to bring family and friends visiting from overseas, and these visits may be during the week. Finally, through product diversification residents can be repeat visitors e.g. as family groups for picnics on week-ends, but also during the week e.g. as businesses for retreats or schools for field-trips.

Although an effort must be made to target non-residents – particularly to fill the gaps in visitation during the week, it seems that improvements need to be made first with regard to product development and marketing to these groups directly rather than through the tour companies. This can be done relatively inexpensively through the Internet (improved website and links), direct mail, meetings/presentations and information in guidebooks.

Despite attempts to be more specific, the reality is that there are several target markets, as indicated in the table below.

**Table 2.5 – Holywell’s Target Markets**

GROUP/DEMOGRAPHICS	MOTIVATIONS	PURCHASING PATTERNS
<b>Jamaicans/Residents</b>		
Families/Friends <ul style="list-style-type: none"> <li>• Groups of 4 – 20</li> <li>• Middle income professionals</li> <li>• Expatriates</li> </ul>	<ul style="list-style-type: none"> <li>• Outdoor recreation suitable for all ages</li> <li>• Escaping the heat of Kingston and beaches</li> </ul>	<ul style="list-style-type: none"> <li>• Day visits mostly</li> <li>• Weekends especially in the summers and public holidays</li> </ul>
Hikers/Walkers/Fitness Enthusiasts <ul style="list-style-type: none"> <li>• Early 20s to mid 40s</li> <li>• Middle income professionals</li> </ul>	<ul style="list-style-type: none"> <li>• Exercise – using nature trails for walking/hiking</li> <li>• May require trails of various lengths</li> </ul>	<ul style="list-style-type: none"> <li>• Day Visits</li> <li>• Special Events e.g. walk-a-thon</li> <li>• Camping weekends</li> </ul>
Church Groups <ul style="list-style-type: none"> <li>• Variety of age-groups and income levels</li> </ul>	<ul style="list-style-type: none"> <li>• Spiritual reflection – using quiet places in beautiful, natural settings for retreats</li> </ul>	<ul style="list-style-type: none"> <li>• Day visits mostly</li> <li>• One night for retreats</li> </ul>

GROUP/DEMOGRAPHICS	MOTIVATIONS	PURCHASING PATTERNS
	<ul style="list-style-type: none"> <li>or prayer</li> <li>• Fun days</li> </ul>	
Youth Groups (13-22 years) <ul style="list-style-type: none"> <li>• Variety of age-groups and income levels including students without income.</li> </ul>	<ul style="list-style-type: none"> <li>• Outdoor recreation</li> <li>• Hiking challenges</li> </ul>	<ul style="list-style-type: none"> <li>• Day visits</li> <li>• Possible camping</li> </ul>
Staff Associations <ul style="list-style-type: none"> <li>• Companies of all sizes</li> </ul>	<ul style="list-style-type: none"> <li>• Outdoor recreation for fun days</li> <li>• Retreats/workshops</li> </ul>	<ul style="list-style-type: none"> <li>• Day visits mostly</li> <li>• May require package to be arranged</li> </ul>
Primary/Secondary schools and Tertiary institutions <ul style="list-style-type: none"> <li>• Particularly preparatory and high schools</li> </ul>	<ul style="list-style-type: none"> <li>• Field trips e.g. for science, geography</li> <li>• End of term fun days</li> </ul>	<ul style="list-style-type: none"> <li>• Day visits</li> <li>• Require package to be arranged e.g. bus, lunch, tour and educational activities</li> </ul>
<b>Non-residents/International Visitors</b>		
Accompanied by a Jamaican family/friends	<ul style="list-style-type: none"> <li>• Relaxation</li> <li>• Socialising</li> </ul>	<ul style="list-style-type: none"> <li>• Day visits</li> <li>• Overnight</li> </ul> Note - This group would be targeted through their resident counterparts.
Tourists in Jamaica staying in resort areas	<ul style="list-style-type: none"> <li>• Change of scenery</li> <li>• A different Jamaican experience besides sand, sea and sun</li> </ul>	<ul style="list-style-type: none"> <li>• Day visit with special package, for example, a tour</li> </ul> Note – The tour is likely to be part of a longer tour to other sites.
Ecotourists/Bird-watchers <ul style="list-style-type: none"> <li>• Middle to high income</li> <li>• Professionals</li> <li>• Well-educated</li> </ul>	<ul style="list-style-type: none"> <li>• Purpose-driven e.g. to see specific birds</li> <li>• Willing to learn about Blue Mountains natural and cultural heritage e.g. mist-forests and coffee</li> </ul>	<ul style="list-style-type: none"> <li>• Day visits with a purpose e.g. hiking, birdwatching</li> <li>• Overnight, possibly in community</li> </ul>

### ***Product Strategy***

The unique features and comparative advantages of Holywell will be the product marketed:

- Tropical, montane mist-forest
  - cool, fresh air and swirling mist,
  - lush forest vegetation with unique species of plants e.g. bromeliads, tree ferns and orchids,

- wildlife especially birds like the Jamaican white-chinned thrush (hopping dick) and the rufous-throated solitaire with its haunting whistle,
- beautiful scenery, spectacular views.
- Relative ease of access, especially from Kingston – “Take a break from the heat and hustle/bustle of city life – to relax and rejuvenate your body and soul!”,
- Opportunities for out-door activities e.g. hiking, camping, picnicking,
- Opportunities to learn about the natural and cultural heritage of the BJCMNP.

### Jamaicans

There is a growing recognition of the importance of recreation for health, and with:

- the ease of access from Kingston,
- the current low level of foreign visitors/interest from tour companies,
- the need for additional product development for the latter market (e.g. Gift Shop).

The marketing focus will continue to be Jamaicans until the product is further enhanced and a marketing plan specific to foreign visitors is developed and can be implemented.

For Jamaicans and other residents, particular product focus will be on:

- outdoor recreation opportunities for families, youth and other groups,
- cool, peaceful setting for retreats e.g. companies, churches,
- educational opportunities e.g. schools.

### Non-Residents

Although this market is currently low, there are opportunities to tap into:

- business tourists in Kingston (e.g. attending conferences) and their families,
- tourists in the typical resort areas, especially Port Antonio, and
- potential tourists in the US, UK and Europe e.g. nature lovers, hikers, members of environmental organisations, bird-watchers.

The product focus would be to invite visitors to experience the natural and cultural heritage of the tropical, montane mist-forests of the Blue and John Crow Mountains National Park.

The main product strategies will be to:

- improve appearance of existing facilities e.g. covering garbage bins, new curtains, paint,
- improve delivery of existing services,
- introduce additional facilities, activities and services.

The aim is to enhance visitor experience and customer satisfaction, and to provide additional opportunities for spending money that will accrue to park management.

## 1. Improve the appearance of existing facilities

A number of relatively low cost steps can be taken including paint, re-upholstery, provision of new curtains etc. Many of these things are currently being done (e.g. bamboo enclosures for the garbage bins) under the supervision of the Station Chief. However, partly due to the limited funding and lack of a management-level staff member at headquarters (HQ) with direct and targeted responsibility for Holywell (and the other recreational areas) even minor improvements take an inordinately long time to be implemented.

In the interim, while funds are being sourced for a Recreation Area Officer, the JCDT will need to make a concerted effort to implement the activities that have been identified. Damage from Hurricane Ivan is likely to set back the implementation plans. However, it may be an opportunity to access new funds e.g. to replace furniture that was old, but now is also wet and mildewed. The postponement of *Misty Bliss* due to damaged roads - which would make the shuttle bus system hazardous - is a good target to set for accomplishing these activities. For example:

- Painting of cabins (inside)
- Bamboo garbage bin enclosures
- Planting of native flowering species for landscaping
- Installation and maintenance of additional bird-feeders
- Improved retreat/workshop/meeting facilities – Education Centre
- Improved facilities for entertainment – stage and amphitheatre
- Provision of Holywell brochure to visitors – one per group/car

## 2. Improve service delivery

Significant training has taken place over the last year such as the TPDCO Tour Guide Training and the HEART/NTA Hospitality Management training. While the presence of a Recreational Area Manager will definitely enhance and ensure maintenance of service delivery improvement, there are steps existing management and staff can take to improve this area. Training and increased professional supervision will still be needed to bring Holywell up to world-class standards.

## 3. Introduce additional facilities, activities and services

Some of this will focus on the construction of additional buildings, as per the Development Plan. However, while funds are being sourced, there are a number of activities that can be implemented with little additional funding such as the:



- Rental or Sale of “Things to Do” and Useful Items e.g. TV, dominoes, ludo, umbrellas, flashlights
- Children’s Discovery Zone
- Gift Shop
- Tuck Shop

Other additions will be more costly and will be undertaken under the Development Plan.

Two components of most attractions in protected areas are local craft/gift items and guided tours. Although community groups can provide some of these products and services, they are not able to package and market them effectively. This is potential niche market that the JCDDT can tap into - to act as an “incubator” for local businesses. The areas include:

- Skills training e.g. hospitality, Team Jamaica, tour guiding, community tourism, etc.
- Product development, including packaging
- Capacity building for community groups and members to offer services and products
- Business planning
- Marketing – directly at Holywell and otherwise
- Administrative and other services

### ***Pricing Strategy***

The user or entry fee for Holywell is set by legislation through the National Environment and Planning Agency through the Natural Resources Conservation Authority Act, National Park Regulations Amendment 2003. Although the fee for residents (J\$100 for adults and J\$50 for children) remains the same, the fees for non-residents have been doubled to US\$10 for adults and US\$5 for children. These regulations also set rates for concessions and other uses e.g. filming. All of these newly set rates are considered too high by the JCDDT and other tourism experts unless a guided tour or some other activity is included as part of the entry fee. This view was confirmed by comparing rates at Holywell with other attractions, and the 1995 survey results. Currently all rates at Holywell are very reasonable in comparison to other attractions, and there is scope for an increase in entry fees once the major developments are in place, particularly the Entry Portal, Welcome Booth, Holywell Pavilion, Children’s Discovery Zone and Holywell brochure.

The rates for cabin accommodation are also very reasonable in comparison to other locations. However the cabins need significant improvements in appearance e.g. painting, lamps, kitchen utensils, water heaters and interior décor. Once these are in place, it is anticipated that customer satisfaction will be improved significantly, which should translate to increased cabin rental. These increases would only affect the rentals of smaller cabins (during the week in particular). The larger cabin is usually booked every weekend of the year except during the rainy season. The rental of tent-sites (J\$100 for adults and J\$50 for children per night in addition to the entry fee for the first night) is very reasonably priced.

Guided tours are approximately one hour and usually include a slide or other audio-visual presentation. The rate for residents (J\$200 for adults and J\$100 for children) is reasonable in comparison to other attractions. Group rates are available and special packages for school groups. The rate for non-residents (US\$10 for adults and US\$5 for children) may need to be reviewed, particularly in light of the user/entry fee set under the new legislation.

In general, pricing is very reasonable and increases should not be considered until the product has been improved. It will be difficult to increase the entry fee for residents, particularly local residents, and consideration should be given for some kind of local resident pass –(provided for a small fee) because many of these persons are regular visitors.

The pricing strategy should be to maintain the reasonable rates, particularly for entry, while increasing the opportunities for purchasing additional products and services. There is scope for higher prices for events and new accommodation that targets the high-end of the market.

### ***Distribution Strategy***

The JCDT office in Kingston acts as the booking office for direct booking by visitors or indirect bookings by tour operators. Bookings can be made in person, on the phone or by email, and payment is required before the bookings are confirmed. Payment by cash, cheque (for companies) or wire transfer is accepted. Payment by credit and debit cards can be investigated if the demand is high enough to cover the charges incurred with the provision of these types of payment methods.

For accommodation, a two-week notice is normally enough to book rooms. However, during the summer and other holiday periods, booking weeks in advance is necessary. For special packages requiring educational and other tours, two weeks to a month's notice is required (depending on the services required).

Currently, despite the development of a variety of packages and family tours conducted by some local tour companies, tour operators generally do not sell tours of Holywell. Until the interest increases, using tour operators for bookings is unlikely to be viable. JCDT needs to improve its website and increase the use of this and other tools for marketing and sales.

### ***Promotional Strategy***

Several approaches have been used to promote Holywell over the last two years, with significant success. There has been over 30% increase in the number of visitors and over 50% increase in the income from 2003 to 2004. These approaches have included contracting a marketing consultant, hosting *Misty Bliss*, having a television quiz, making direct mailings to schools, churches and companies, placing advertisements, and participating in exhibits. In addition, the JCDT has become involved in the Jamaica Exporters Association's Jamaica

Cluster Competitiveness Project (JCCP) that is promoting nature, culture and adventure tourism. The approaches found to have most success in increasing visitation include advertising, articles in the media, exhibits and special events. The promotional strategy should, therefore focus on the following:

#### For Domestic Visitors

- Include Holywell in JCDT brochures/information
- Seek funds to print Holywell brochure
- Include Holywell photos in the media releases JCDT sends out as part of the national park's Education and Communication Programme
- Advertisements should be placed at least once a month, and more frequently in the summer and holiday periods
- Add at least one special event to the annual calendar – preferably a smaller, all-inclusive event targeting the high-end of the market

#### For International Visitors

- Improve the packages offered and send brochures/information to tour operators
- Improve website (especially links and user-friendly access to information)
- Work with JHTA for presence in Kingston hotels
- Work with JTB, TPDCO, JHTA, JEA-JCCP to assist in promotions e.g. website links, participation in tourism expositions etc.
- Send media releases or special articles to relevant tourist/traveller magazines (research will need to be done to identify these magazines)
- Explore more direct marketing approaches

## **2.5 Management and Operations**

### ***History***

Holywell was established by the Forestry Department as a nursery and reforestation site in the 1950s and converted to a recreational area in the 1960s. In 1996, when the JCDT first signed a delegation agreement for management of the BJCMNP, it began to be much more involved in the management of Holywell. This included a number of improvements to the site including re-construction and interpretation of the Oatley Mountain Trail, funded by the RARE Tropical Bird Conservation Programme. In 1999, the JCDT began charging an entry fee (entry had been free under the Forestry Department) and running the site on a more commercial basis. This actually resulted in a decline in numbers because many local visitors and tour operators had become used to the “free-for-all”. On the other hand, the large numbers of visitors

without an entry fee had resulted in an inability to maintain the site. Other improvements were made during 2001 to 2002 including the construction of a new picnic gazebo and campsite area, the extension of the Ranger's office to form the Visitors' Centre, and improvements to the Ranger Station.

### ***Current Management***

Holywell is managed by the JCDT – a non-government, not-for-profit, registered charity that manages the BJCMNP under delegation and collaborative management arrangements with the Government of Jamaica. All income is used for implementing the organisation's activities for the public's benefit.

The JCDT was granted a long-term (25 years) lease of Holywell because of its co-management of the BJCMNP in association with the National Environment and Planning Agency and the Forestry Department. The purpose of the lease is to allow JCDT to generate revenue from visitors' use of the area in order "to defray operational costs of managing the BJCMNP" (Holywell Underlease, 2002). The use of these funds for this purpose is very important because currently the GOJ does not provide a management fee, or significant financial contribution to management of the national park. For 2004, the GOJ's direct financial contribution amounted to only about 2% of the BJCMNP's budget. It is important to note however, that currently Holywell does not generate enough income to take care of its expenses. Holywell's expenses are subsidised by projects and the JCDT. On the other hand, activities conducted at Holywell e.g. environmental education and sustainable livelihoods skills training for community members contribute to meeting other park management objectives.

### ***Staff***

There are currently eight (8) positions on staff at Holywell – the Station Chief and an Assistant (Ranger), a ticket clerk, night watchman, one housekeeper and three grounds staff. In addition, at JCDT's office in Kingston, there is a receptionist/bookings clerk, administrative officer, administrative manager and executive director who each spend between 15% - 25% of their time dealing with site development and management e.g. marketing, fund-raising and project management. Further, the Environmental Education Officer conducts tours and other educational packages, and is responsible for the Interpretive Programme for the area. Currently, the ticket clerk position is shared by two persons who work on alternate weeks, and the housekeeper and grounds staff work three days per week. This casual labour is supported by two additional persons twice per week, paid for by Peak Bottlers Ltd. (Catherine's Peak Spring Water). In addition there are two trainee rangers who are paid a stipend through a variety of project funding sources. Daily activities of the site staff include monitoring and assisting visitors, giving guided tours, making slide presentations and providing site maintenance.

Ms. Herma Nathan (a senior Ranger) is the Station Chief assigned responsibility for Holywell. Ms. Nathan is generally responsible for maintenance of the property, preparation for events e.g. workshops and visitor management. In addition, a nursery is maintained at Holywell for landscaping, sales and reforestation. Ms. Nathan also supervises the other Ranger (Mr. Roger Thompson), ticket clerks, casual labourers, the housekeeper and the watchman. Every other weekend, Ms. Nathan is off-duty and the other Ranger is on visitor management duty. Either one of these two individuals collect and record the entry fees received by the Ticket Clerk and provide reports on the findings. Ticket stubs have three sections. The visitor and Holywell retain one each and the other is returned to the JCDT office with the money.

Bookings for accommodation, group visits, educational tours and other special packages e.g. workshops are made through the JCDT office. Logistical arrangements are made with the officer on duty for the relevant day, and if additional personnel such as tour guides are required, arrangements are made. A security deposit is required for cabin rentals. Records are kept and a monthly report is prepared detailing the numbers of visitors (resident and non-resident, adult and child) and the income from entry fee, accommodation, special packages etc. The JCDT's receptionist also acts as the BJCMNP Bookings Clerk, answering queries, taking bookings and sending out invoices. JCDT's Administrative Officer checks the records, prepares the monthly reports and otherwise supervises and assists the Bookings Clerk. JCDT's Administrative Manager provides assistance and direction, particularly with respect to billing for special packages.

The Station Chief is supervised by the Administrative Manager and JCDT's Executive Director provides technical advice and is responsible for raising funds to support the attraction. The Executive Director and the Environmental Education Department are often involved in marketing the property e.g. participating in exhibits and producing brochures.

Significant training has been conducted over the past two years through the HEART/NTA Hospitality Management and the TPDCO Tour Guiding programmes. However, there are several areas that need improvement and will require a wider level of supervision in addition to the training, in order to ensure effective follow through. Several of the casual staff have worked at Holywell for many years and feel that their salaries are low. They only continue to work at the site because they love Holywell. There is a need for motivation from a management level staff member who should be on-site more often than is currently the case.

An analysis of the current management of Holywell and the other recreational areas within the park indicates that many inadequacies continue to exist because there is no management level, professional staff member responsible for the site. This results in poor supervision of staff and programme implementation, with the result that some improvements are not instituted and many issues go unresolved. Further, the chain of command overlaps and with so many persons involved, the likelihood of miscommunication is high.

## *Proposed System*

### Management

A Recreation Areas Officer (RAO) should be employed as soon as possible in order to effect the successful implementation of the Development and Management Plan. This is the only way Holywell can be managed and marketed professionally, its standards raised and income generation increased. This person should have a diploma or degree in tourism management and at least two years experience working in the hospitality field preferably at an attraction or accommodation. In addition, the person should have an interest in nature and the environment and ideally should have been exposed to environmental management e.g. through Green Globe.

The RAO would be responsible for all of the park's recreational areas. For example, the opportunities to market tours of the park will not only include Holywell but other areas and aspects of the park including community-based attractions. At least 75% of the RAO's time however should be dedicated to Holywell for at least the first two years of this plan. His/her responsibilities will include product development, management, and marketing. The RAO will be expected to work at least two days per week at Holywell, and some weekends. The remainder of the RAO's time will address improvements to the other recreational areas both in terms of product development and management, as per the Recreation and Tourism Programme in the BJCMNP's Management Plan 2005 – 2010.

The RAO would report to the Park Manager (who is currently JCDT's Executive Director) and liaise with other park officers such as the Conservation Science Officer regarding environmental management issues and the Environmental Education Officer regarding issues related to interpretation e.g. signs/exhibits for Holywell.

The RAO would supervise the Holywell Station Chief who would continue to supervise the line staff. With respect to bookings, the receptionist/bookings clerk would continue to carry out this function with assistance from the RAO for pricing of special packages. The collation of visitor statistics and reporting of income would continue to be done by the Administrative Officer.

### User Fee System

As prescribed by legislation, JCDT reports to NEPA regarding the user (entry) fees. The details of this reporting system are found in the User Fee System Manual.

## *Operations*

The main operational activities can be summarised below:

1. Grounds – picnic areas, cabin area, Administrative and Education Centre, main walking trails including Blue Mahoe:
  - a. Bushwhacker used to trim grass and keep trails open
  - b. Raking of grass, fallen leaves and trimmings (should be composted and also used to fill areas)
  - c. Improvement and maintenance of landscaping
  - d. Collection of garbage and appropriate disposal
2. Hiking Trails
  - a. Bushing
  - b. Maintain rails, steps etc.
3. Cabins/Administrative and Education Centre/Gazebos/Toilets/Showers
  - a. Cleaning – Cabins are normally cleaned thoroughly after guests leave and before they arrive. Toilets and bathrooms are also cleaned regularly, especially on weekends.
  - b. Laundry - Presently laundry is given out to a business in the community, however this is costly. Once there is an appropriate location and system in place, a washer and dryer should be purchased, if the increased use of electricity is not too high)
4. Educational and Guided Tours – as per bookings or on request

## *Inputs*

- Personnel – The company's policy is to employ personnel mainly from local communities around Holywell. Most of the staff are part-time - three days per week. Training is provided in order to improve the delivery of services.
- Equipment and Supplies – These are generally purchased wholesale and stored at headquarters (HQ) in Kingston and taken up to Holywell in smaller amounts. Storage at Holywell is limited and the cold, damp weather tends to degrade materials rapidly.
- Maintenance and Repairs – Some equipment such as fire extinguishers, require regular servicing. Others require repairs at intervals e.g. plumbing and electrical repairs. Local service providers are used as much as possible.
- Uniforms – JCDT provides oxford and polo shirts with logos to be worn with jeans or other casual pants for rangers and ticket clerks. The groundsman are provided with overalls and waterboots and the housekeeper with a dress and apron.

- Quality Control – The Station Chief tries to maintain quality standards but limited funds make this difficult. Kingston-based management staff visit Holywell at least twice per month. However, when problems are identified they are often unable to address them due to lack of funds and human resources.
- The inventory of equipment and materials at Holywell is to be updated and maintained with this Plan.

## **2.6 Financial Plans**

Up to 2004, Holywell generated about 7% of the park's budget. However, all of this expenditure was associated with Holywell itself – mainly paying casual labour, ticket clerks and maintenance. Annual income from Holywell for 2003 was \$1,309,500 and for January to September, 2004 was \$1,310,522. After Hurricane Ivan on September 11 income declined because the roads were blocked, the picnic areas and trails had to be cleared and the cabin that visitors requested most, had to be closed, resulting in an income of \$1,398,851 for the year. Annual expenditure however, was \$4,008,512 for 2003 and \$4,084,546 for 2004 (excluding Hurricane Ivan repairs). Operation of Holywell is substantially subsidised by project funding accessed by JCDT.

An analysis of the market indicates that Holywell could earn significantly more money by improving marketing as well as the product, in terms of both development and management. This would be done mainly by:

- increasing the number of visitors on week-ends – during the summers and holiday peaks
- increasing the number of visitors during the week (tourists, retreats and educational groups)
- increasing the spending per person by providing additional services and facilities
- improving supervision and management to decrease losses

In addition, improved management and supervision would ensure improved accountability and financial management. See the following tables below:

Income and Expenditure Statement (2003 and 2004)  
Income and Expenditure Projections for 2005 – 2009  
Capital Expenditure for 2005 – 2009

Analysis of this information suggests that with some critical improvements and development, Holywell could become totally self-sustaining and begin to provide a source of income for park management by the end of 2008. These improvements include hiring a professional Recreational Area Officer to enhance management/supervision and marketing and to coordinate major developments e.g. Holywell Visitors Pavilion and the Administration/Education Centre.



**Table 2.6 Holywell: Income and Expenditure Statement – 2003/2004**

<b>INCOME</b>	<b>2003</b>	<b>2004</b>
Entrance/User Fee	396,840	561,663
Camp fee/tent site	25,688	31,570
Trail Tours	94,234	54,080
Tour packages	-	-
Rental of Grounds (parties/filming etc.)	-	-
Tent Rental	-	18,700
Concession- food & Gift (7 months @ \$8,000/mt)	-	-
Cabin rental	479,237	466,868
Special packages	296,710	300,465
Grants	2,699,012	2,600,260
Misc./Other (merchandise, donations etc.)	16,791	50,940
<b>TOTAL</b>	<b>4,008,512</b>	<b>4,084,546</b>

<b>EXPENDITURE</b>	<b>2003</b>	<b>2004</b>
<b>Personnel</b>		
Field and Admin staff time	2,300,498	2,365,498
Ground Staff	518,400	615,846
Security (watchman/caretaker)	210,574	228,122
Staff Training	25,000	15,000
Subsistence	26,000	21,216
Uniform	15,000	20,000
<b>Sub-total</b>	<b>3,095,472</b>	<b>3,265,682</b>
<b>Marketing</b>		
	100,000	150,000
<b>Site Maintenance</b>		
Lease for Holywell	1,500	1,500
Utilities - Electricity	48,000	56,184
- Water	-	-
Ground/equipment/building maintenance etc.	202,894	238,699
Public Liability Insurance	20,000	20,000
<b>Sub-total</b>	<b>272,394</b>	<b>316,383</b>

<b>EXPENDITURE</b>	<b>2003</b>	<b>2004</b>
<b>Office Equipment, Supplies &amp; Services</b>		
Communication - phone, fax, etc	30,000	46,598
Special packages	69,795	60,691
Laundry Service	97,451	84,740
Security Deposits/Cabin Refund	74,250	67,500
Domestic fuel	60,597	55,088
Printing and Stationery	25,357	28,174
Cleaning/Office supplies	20240	22,489
Audit	37000	45,000
Bank charges	700	811
Pest Control (4 per yr)	29,256	33,600
<b>Sub-total</b>	<b>444,646</b>	<b>444,691</b>
<b>Vehicle/Bikes Maintenance</b>		
Maintenance (parts and repairs)	30,000	50,000
Fuel	36,000	48,000
Insurance	30,000	30,000
<b>Sub-total</b>	<b>96,000</b>	<b>128,000</b>
<b>TOTAL</b>	<b>4,008,512</b>	<b>4,084,546</b>
<b>Surplus/Deficit</b>	-	-

**Table 2.7 Holywell: Income and Expenditure Projections 2005–2009**

<b>INCOME</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Entrance/User Fee	617,829	710,503	923,654	1,108,385	1,219,224
Camp fee/tent site	51,376	64,727	750,000	900,000	990,000
Trail Tours	59,488	71,386	142,872	171,446	188,591
Tour packages	60,000	72,000	93,600	112,320	123,552
Rental of Grounds (parties/filming etc.)	100,000	115,000	230,000	276,000	303,600
Tent Rental	20,570	24,684	49,368	59,242	65,166
Concession- food & Gift	21,000	42,000	96,000	105,600	116,160
Cabin rental	513,555	641,944	1,604,860	1,925,832	2,118,415
Special packages	330,511	396,613	515,597	618,716	680,588
Grants/donations	3,102,517	4,102,517	3,282,013	2,625,610	2,100,488
Events	-	200,000	240,000	288,000	316,800
Gift shop/Misc.	56,034	64,439	161,098	193,318	212,650
<b>Total</b>	<b>4,932,880</b>	<b>6,505,813</b>	<b>8,089,062</b>	<b>8,384,469</b>	<b>8,435,234</b>

<b>EXPENDITURE</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Personnel</b>					
Field and Admin staff time	2,673,548	3,438,548	2,420,738	1,452,443	1,597,687
Ground Staff	677,431	745,173	819,690	901,659	991,825
Security (watchman/caretaker)	316,934	348,627	383,490	421,839	462,923
Staff Training	16,500	18,150	19,665	21,632	23,795
Subsistence	23,338	26,839	29,523	32,475	35,723
Uniform	22,000	25,300	27,830	30,613	33,674
<b>Sub-total</b>	<b>3,729,751</b>	<b>4,602,637</b>	<b>3,700,936</b>	<b>2,860,661</b>	<b>3,145,627</b>
<b>Marketing</b>	165,000	398,000	437,800	481,580	529,738
<b>Sub-total</b>	<b>165,000</b>	<b>398,000</b>	<b>437,800</b>	<b>481,580</b>	<b>529,738</b>
<b>Site Maintenance</b>					
Lease for Holywell	1,500	1,500	1,500	1,500	1,500
Utilities - Electricity	61,802	71,072	92,394	101,633	111,796
- Water	-	-	-	-	-
Ground/equip./Blgd. maint.etc.	286,439	315,083	409,608	450,569	495,626
Public Liability Insurance	22,000	24,200	26,620	29,282	32,210
<b>Sub-total</b>	<b>371,741</b>	<b>411,855</b>	<b>530,122</b>	<b>582,984</b>	<b>641,132</b>
<b>Office Equipment, Supplies &amp; Services</b>					
Communication - phone, fax, etc	51,258	56,384	62,022	68,224	75,046
Special packages	66,760	73,436	95,467	105,014	115,515
Laundry Service	93,214	46,607	23,304	25,634	28,197
Security Deposits/Cabin Refund	74,250	85,388	170,776	187,854	206,639
Domestic fuel	60,597	66,658	73,324	80,986	89,085
Printing and Stationery	30,991	34,090	37,500	41,250	45,375
Cleaning/Office supplies & Equip.	24,738	127,212	32,654	35,919	39,511
Audit	49,500	54,450	59,895	65,885	72,474

<b>EXPENDITURE</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Bank charges	892	981	1,079	1,187	1,306
Pest Control (4 per yr)	36,960	40,656	44,722	49,194	54,113
<b>Sub-total</b>	<b>489,160</b>	<b>585,862</b>	<b>600,743</b>	<b>661,147</b>	<b>727,261</b>
<b>Vehicle/Bikes Maintenance</b>					
Maintenance (parts and repairs)	55,000	60,500	66,550	73,205	80,526
Fuel	52,800	58,080	63,888	70,277	77,305
Insurance	33,000	36,300	39,930	43,923	48,315
<b>Sub-total</b>	<b>140,800</b>	<b>154,880</b>	<b>170,368</b>	<b>187,405</b>	<b>206,146</b>
<b>Total</b>	<b>4,896,452</b>	<b>6,153,234</b>	<b>5,439,969</b>	<b>4,773,777</b>	<b>5,249,904</b>
<b>Surplus/Deficit</b>	<b>36,428</b>	<b>352,579</b>	<b>2,649,093</b>	<b>3,610,692</b>	<b>3,185,330</b>

\*\*07 camp fee =\$300 per person per night \* 25 nights 100/per yr.

**Table 2.8 Holywell Proposed Capital Expenditure – 2005 – 2009**

<b>ITEMS</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Childrens' Discovery Zone	200,000				
Admin/Education Area (minor improvements)	160,000				
Signage	1,300,000				
Entry Portal	300,000				
Welcome Ticket Booth	500,000				
Roads/parking Areas	1,000,000	1,200,000			
Visitors' Pavilion	1,000,000	1,750,000			
Admin/Ed Centre and Ranger Station Dev.			4,050,000		
Amphitheatre/Stage		3,000,000			
Dormitory Facility with Dining and Kitchen				17,040,000	
New Gazebos (2)		300,000			
Waterfall Trail Base		500,000			
Fire Exits for Cabins	100,000				
Outdoor Lighting	250,000	250,000			
Marketing/Business Development	700,000	2,700,000	2,700,000	500,000	500,000
<b>TOTAL</b>	<b>5,510,000</b>	<b>9,700,000</b>	<b>6,750,000</b>	<b>17,540,000</b>	<b>500,000</b>

# Chapter 3 – Holywell Development Plan



## 3.1 Zoning

Zoning, according to Drumm and Moore (2000) is the division of a site into different zones or areas for specific or the most appropriate use. It is a means of assigning overall management objectives and priorities to different areas (zones) within a site. Each zone is managed to achieve a particular setting in which ecotourism and other activities can be carried out and each zone has its own rules and regulations. The number and types of zones depend on the:

- Management objectives and priorities of the site
- Quality and variety of the cultural and natural resources and the degree of alteration that has taken place
- Types of land use that have been planned (many types of land use conflict with each other and must therefore be separated geographically).

### **Holywell Zones**

Holywell is being developed for public use and enjoyment in order to generate support for the park because it is a recreation area within the BJCMNP. Further, much of Holywell is actually disturbed and re-forested areas, with the Oatley Mountain and some of the other long trails passing through natural forest. It is understood therefore that there will be some damage to the natural resources within the boundary of this site, which is less than 1% of the national park's total area.

### **Intensive Use Zone**

The aim of the intensive zone is to provide education and recreational opportunities within a semi-natural environment concentrating on customer satisfaction, educating visitors and providing opportunities for local people. The areas within this zone are:

- Car park/road
- Main picnic area with gazebos, camping sites and associated trails to Administrative area and cabins
- Cabins

- Secondary picnic area “Mystic Grove”
- Some trails – Oatley Mountain Trail, “Blue Mahoe Trail” (trail from Visitor centre to cabins)

### Rules/Regulations

- Visitors are allowed to responsibly make use of the above facilities once the park is open and the relevant fees have been paid
- Campfires are permitted in designated areas
- Firewood collection is not permitted
- Pets must be kept on leashes
- The trails/paths provided must be used
- Plants or animals may not be removed from the park
- Vehicles must be parked in the designated areas



*A Holywell Cabin - Cupressus*

## **Moderate Use Zone**

This zone will provide education and recreation in a relatively natural environment with a lower concentration of visitors

- Other trails e.g. Waterfall Trail, Shelter, Wag Water/Dick's Pond
- Paths e.g. the lower trail from the Cabins to the Main Picnic Area

### Rules/Regulations

As above, but no fires.

## *3.2 Infrastructure Design*

Materials, construction methods and environmental impact must be taken into consideration in order to meet ecotourism goals. Infrastructure must blend in with its surroundings, and environmentally appropriate designs e.g. that promote energy conservation should be used

Much of the infrastructure that presently exists at Holywell was not built with the most environmentally friendly practices in mind. These facilities were built in the 1960s and 1970s when environmental considerations were not given the same attention as currently given. Any future development must be as environmentally considerate in its design, construction, and operation.

Infrastructural design at Holywell should consider:

- Site conditions e.g. weather conditions (often damp, rainy, windy and with poor light) drainage, soil type (shale-based)
- Best practices e.g. water and energy conservation, soil conservation
- Blending with the surrounding forest ecosystem and use of materials from the area e.g. shale
- Taking advantage of scenic views
- Using existing infrastructure – mostly wood

## *3.3 Visitor Site Planning*

Visitor site planning deals with the management of sections of a site where visitor use is concentrated. These locations are called 'visitor sites'. The designation of these sites helps to manage and limit the impact of visitor use on the natural environment. The main goals in visitor site planning according to Drumm and Moore (2000) deal with:



- The efficient use of space by locating infrastructure in places where it will be most easily, safely and effectively used by visitors and staff.
- The minimal impact of visitor use and infrastructure development upon the surrounding environment.
- The planning of infrastructure in accordance with the determined capacity of the natural area to receive a defined number of visitors (e.g. building a set number of cabins for the maximum allowable number of visitors).

### *3.4 Site Development Plan*

This Development Plan has been made, bearing in mind the current volumes and flow of visitors at Holywell, and the plans for increasing volume – primarily by increasing numbers during week-days (international tourists, school groups and retreats/workshops). Further, it considers the tendencies of visitors e.g. people want to park close to the picnic areas, don't want to sit on the grass/open areas and tend not to move from areas where there are major facilities. For example, although there was a large space at Mystic Grove, it was not used until a gazebo and toilet/showers were built nearby. One of the aims of the Development Plan will be to encourage people to move out of the main picnic areas and gazebos by providing them with other areas to experience, and with information that directs their access to these areas.

The proposal for the development of Holywell over the next three years is provided as a map in the appendices and described in detail below. Drawings or architect's impressions for much of the proposed new infrastructure are provided in the appendices. The interpretive and other signage components are described in greater detail in the Holywell Signage Plan.

#### 1. Entry Portal

The entrance to Holywell needs to be remodeled. This new feature would provide a sense of relaxation and comfort on arrival. It will be the visitors' visual cue that they have reached their destination and that once they cross the 'portal' their experience at Holywell begins. The Entry Portal should consist of:

- A portal design element made of natural materials that reflect the area's character and heritage. A good choice is a carved and brightly painted, wooden banner overhead structure with the name "Holywell" incorporated into the name. Visitors would drive under this structure as they enter.
- Lighting illuminating the entry portal, for a greater sense of security at night and to add a measure of formality

- Landscaping and beautification of the whole area at the entrance will continue and should include a climbing plant e.g. Jamaican rose/cup and saucer (*Blakea trinervia*) typical of the area on the posts of the entry portal sign.

Currently, there are several signs, a gate and two huts associated with the entrance. All, except one sign would be removed. The gate should remain, allowing for the option of closing it if the decision to do so is made. The larger structure would be removed and the wood used for other renovation purposes. The existing structure nearest the gate would be retained, but it would be refurbished to make it more welcoming and comfortable for ticket sales. A sign would be placed inviting visitors to proceed straight ahead for the “Welcome Ticket Booth”.

## 2. Welcome Ticket Booth

The Welcome Booth (Ticket Sales Booth) would be located further down the driveway from the entry portal just before the “Y” in the road, on the left. This location is considered better than the location of the existing, dilapidated booths closer to the entrance, for safety and security purposes as well as to allow for greater control of traffic and visitor interaction. The existing wooden ticket booth will be removed and the sentry box close to the entrance will be retained for use during major events e.g. *Misty Bliss*.

The Welcome (Ticket) Booth would be a simple structure that provides shelter for the Ticket Clerk or other staff, and would give the visitor an opportunity to interact with a person who will greet them with a smile, provide information and answer any questions they may have. The booth provides a point of sales for tickets and a place to distribute simple orientation maps with the site's recommendations for safety and security. The booth itself should:

- Be made of similar materials and be of similar character to the entry portal (It is not just a utilitarian structure, but another medium for the Holywell message)
- Incorporate the word 'welcome' which should be visible to the visitor approaching the booth.

The architect's concept is for a small house-like structure with a little verandah from which the Ticket Clerk can lean out or step down. Using the slope of the land in this location, there would be a lower level accessed by a few steps, where the Ticket Clerk can sit, sheltered from the wind but still see approaching vehicles, and store tickets, brochures, etc. A notice board would be incorporated into the structure to provide information on the ticket prices and upcoming events.

### 3. "Y" in the Road (Decision Point for Visitors)

A Visitor Facility – Directional sign is necessary here to help the visitor decide which way to proceed. The sign would point to the right for the trailhead, administrative centre/workshop facility, main parking and the “Mystic View” picnic and accommodation area or straight ahead to the main picnic area, the cabins, the visitor pavilion (new), the Children's Discovery Zone (new), and the new Interpretive/Scenery Trail.

*If visitors make a right turn they will access the following:*

### 4. Parking Area

This is where the main parking currently exists and would serve multiple functions. It would be the designated parking space for overflows from the main picnic area, administration centre, trailhead and Mystic View – secondary picnic area and accommodation

The area would consist of a:

- hardened, well defined parking area (graded for proper drainage and compacted with gravel base) for as many vehicle sites as conditions allow
- trailhead kiosk - Holywell Hiking Centre. The signs here will have a more fully developed hiking emphasis than other signs in the park. Kiosk signs would include the following information:
  - Orientation maps that include both short loops and long distance trails (use topographic lines to depict longer trails)
  - Trail network information and trail descriptions (what a person can experience along this trail, its difficulty, distance, and hiking time)
  - Recommendations e.g.. ‘Lock Car’, ‘Take Water’, what else to bring
  - Administration Centre Information (e.g. services available, items for sale)
  - Toilet facilities

From the trailhead, access will be clear to the longer trails in the area:

- along the Oatley Road for birdwatching in the early morning, to get to the Stream/Waterfall, or to the hiking trail to Lancaster (under development)
- past the Administration Centre to the Blue Mahoe Trail to access the Oatley Mountain, Waterfall (“Stream”) Trail, Wag Water/Dick’s Pond Trail
- towards Mystic Grove for the Shelter Trail

## 5. Education/Administration Centre

The current visitor centre would become the Education/Administration Centre and would serve as the hub for management and administration of Holywell, in addition to providing space for education, training and retreats. It would consist of:

- A hardened driveway and parking area (graded for proper drainage, compacted, gravel base) to reduce erosion and parking for two park vehicles only, to reduce adverse impacts to the site. These parking spaces would be located away from the edge where views towards Kingston and picture taking are enjoyed.
- An administration office/workshop facility (existing visitor centre). The Station Chief or other personnel on duty will be stationed in this building and the Ranger Station will be mainly for living purposes. This location will ensure that visitors approaching from the main parking area will easily be able to find personnel. Information/Interpretation will still be available in this building but it will be used primarily for meetings, workshops and educational functions. Flexibility will be increased through the use of:
  - Rollaway carts with storage/display drawers or roll-up banners
  - Easily-stored interpretive trunks (associated with specific species, issues or resources such as butterflies, parrots, coneys, watersheds) to use in the centre, lend out or take to schools

To improve the workshop facilities and general management at Holywell, the main building within the Administration Centre will be upgraded by:

- adding a small verandah to the entrance near the trailhead (for visitors/workshop participants to relax)
- adding a long verandah joining this building to the Ranger Station (to allow for eating meals at this location or for break-out groups during workshops)
- adding a new, larger kitchen between the Administration Centre and the Ranger Station to provide better conditions for meal preparation for workshops, school groups etc.
- providing a passageway in order to access both toilets from inside the Administration Centre
- plumbing and electrical work to allow for the installation of a washer and a dryer
- improvements to storage areas
- improving a sales area for spring water and simple packaged foods. This service is primarily for those who arrive at the trailhead.
- improving access to existing toilet facilities
- improving conditions of the Ranger's Station (shelter and office)

- improving facilities for equipment and materials storage, including the laundry
- removing and/or replacing existing signs in the area e.g. for Oatley Mountain Trail.
- rebuilding a picnic gazebo directly across from the Administration Centre. This will provide an additional breakout group space as well as picnic area for visitors seeking a quiet spot outside the main picnic areas.
- creating a trail from the Administration Centre to the road on to the main picnic area. This is an area which often confuses visitors because they can see the main picnic area when they approach the site from the main car park or sit on the benches to enjoy the view towards Kingston. However, it is not clear how to get to the main picnic area. Visitors can take the trail past Oatley Mountain Trail or past the Ranger Station down to the “Y” in the road; however, these options are not as obvious or appealing to the less adventurous visitor. Constructing a trail along the path that is now informally used would help the “lost” visitor and reduce erosion by current use of a path that is not properly established.

#### 6. Mystic Grove (in the area of the new gazebo)

This area will serve as the main gathering area for school and other large groups staying for a day or longer. Visitors can park at the main parking area and walk to the site. The “Mystic Grove” site will consist of:

- Existing Picnic and Camping Facilities e.g. gazebo, toilets and shower, tent sites and open space for games, etc. A larger tent may be pitched, if required.
- Mystic Grove Kiosk. This wooden three-sided kiosk will provide a Holywell Orientation Panel and Interpretive Panels.
- A new dormitory constructed east of the gazebo. This facility will consist of about three buildings:
  - Two, two-storey dormitories – each floor/room sleeping ten in bunk beds, plus a single bed for a “camp counsellor”
  - A large dining/meeting area with kitchen facilities (optional)

*If the visitor continues straight ahead at the “Y” in the road, they will access the following:*

#### 7. Picnic Parking Area

This area is located outside the main picnic area and is currently being used for visitor parking. When Holywell was first established, the two flat areas within the picnic area were used for parking. However, these areas are no longer considered suitable for this purpose, and will be used for the Holywell Visitors’ Pavilion, the amphitheatre and stage. The site for the parking area will be better defined and hardened (graded for proper drainage, compacted, gravel base) to reduce erosion and parking spaces will be marked according to

the site limitations. An appropriate turning radius for small school or tour buses will also be defined.

Only persons booked to stay in the cabins will be allowed to drive their vehicles into the main picnic area in order to drive up to the cabins. No more than two vehicles per cabin will be allowed access.

#### 8. Welcome Orientation Kiosk

A three-paneled kiosk will be placed just inside the gate/turnstile to the main picnic area. It will provide a map of Holywell indicating all features/facilities (Holywell Orientation Panel) in addition to interpreting the watershed functions of the national park.

#### 9. Holywell Visitors' Pavilion

This would be an open structure similar in design to the gazebos but significantly larger (about 40 ft. in diameter). A large sign would identify it as the 'Holywell Pavilion'.

Simplicity and flexibility will be the hallmarks of this open multi-use area. This will be the place visitors come for information either posted on interpreted panels or given by a staff member. Some of these panels will be located on the inside and some will be outside so information can be obtained even when the building is closed. This will also be the location for sale of park merchandise e.g. hats, craft from local community etc. The pavilion can be used for live interpretation for groups. Other materials needed for interpretation and special programs would be stored and locked in a small structure located discretely nearby. Seating would be provided on concrete benches (like the ones already in place).

The pavilion should include a large overhang to protect visitors from the elements. This verandah could then be used for special events like weddings, regional meetings, educational activities, and other functions.

#### 10. Kids' Discovery Zone

This would be a children's play area and adventure trail incorporating features that appeal to various ages including a play area and an adventure trail. Structures that will be used for fun will be made of natural materials and possibly cast concrete, which also tells a story and provides environmental lessons. Constructed elements would include:

- Messages about animal adaptation associated with the trail. These could include low hanging tree-house and stepped platforms that can safely be climbed
- A swinging bridge, and "natural" style climbing opportunities

- A play area with a wooden border to separate from other areas and at least 8-12 inches of wood chips for safety
- Thematic play experiences/children's wildlife challenge trail. Each 'challenge' could have a small interpretive sign associated with the species and an overall:
  - *Lizard hang* - a line of individually suspended ropes of varying heights like vines
  - *Worm squirm tunnel* - concrete "hollow log" structure for crawling through, could be buried for a short distance
  - *Bird balance* - line of successively smaller logs for balancing and walking
  - *Frog leap* - set of flat "leaves" differing distances and heights for jumping from one to the other, probably best in large wood "tree cookies"
  - *Mongoose charge* - mongoose is introduced species, object will be to run from a starting point and leap up to smack the mongoose cut out
  - *Coney crawl* - same as worm squirm
  - *Parrot climb* - rope netting for climbing some comparable rock experience

United States Forest Service safety guidelines will be used for design and construction.

### 11. Interpretive Trails

There should be two trails: a long trail such as the existing *Oatley Mountain Trail* with refurbished signs and a short trail such as the *Blue Mahoe Trail*, with new signs. The latter would be short and fully accessible, whereas the former would be more strenuous. Their purpose is to provide for easy walks with opportunities to view scenery, contemplate nature, and learn through the use of interpretive signs. These trails would incorporate the best views and experiences available in the vicinity, and should incorporate the following:

- Hard surface (boardwalk, gravel or coloured concrete with stamped or rough surface)
- Overlooks/Viewpoints/Photo opportunities with Vista identifier (watershed features, villages, Kingston area, etc)
- Simple interpretive signs
- Benches
- Interesting little 'ahas'

### 12. Amphitheatre

This would serve as a forum for a variety of public, cultural presentations (*Misty Bliss*, among others), outdoor classrooms and additional seating. The amphitheatre would include:

- An identity sign with thematic name
- A stage

- Seating on steps built into the hillside, and simple tree trunks
- Lighting (for evening programs)

### 13. Sales Areas - Tuck Shop and Gift Shop

Initially the gift shop will be at the Administrative Centre and later in the Holywell Pavilion. Food, drinks and snacks will be available at the tuck shop.

These facilities would serve the demand for simple packaged food, water, coffee, tea, snacks, postcards, calendars, and local arts and crafts. Items could include:

- hard plastic bird id cards (printed front/back)
- wooden birds (like those displayed in the current Visitors' Centre – (both three-dimensional and flat)
- picnic, camping and out-door supplies
- coffee, hot chocolate, soup and bread
- other food items

### 14. Cabins

Each cabin will have two clearly delineated parking areas – one for the larger cabin, with two parking spots and one for the smaller cabins with four parking spots. Hardened walkways that lead to cabins with simple directional signs will also be constructed. Each cabin should be identified with a thematic name, with corresponding colourful icon plaque attached to cabin (see Holywell Signage Plan for diagrams). A vista identifier should also be located at a nearby viewpoint.

A cabin area “Welcome” kiosk adjacent to the parking area may contain:

- welcome orientation map with cabin names and logos
- water location
- housekeeping information - the ‘hows’ and ‘whys’ of staying at Holywell Park
- visitor opportunities
- short trail loops
- possibly an interpretive sign
- brightly coloured wood cut-outs of cabin identifiers



## 15. Picnic Shelters/Gazebos

Each gazebo will be identified by a thematic name. This can be reflected in a brightly coloured wood cut-out icon plaque attached to the gazebo, with the same symbol keyed on park maps. A hardened path to each gazebo will be constructed with stairways in consistent style.

*The gazebos near to the beginning of Waterfall Trail and across from the Administrative/ Education Centre will be repaired.*

## 16. Trails

The base of the Waterfall Trail should be enhanced so that hikers can easily enjoy the stream and waterfall.

- Make loops out of short and medium length trails (some can join together). On shorter trail loops, incorporate some fun features - like bridges. The Buff Bay/Pencar Local Forest Management Committee is opening a trail from Lancaster through to the Oatley Road (the coffee road that passes along the edge of Holywell). The maintenance, management and marketing of this trail in addition to the Woodford Road and the trail from Redlight to Greenwich should be explored and developed with the local communities. Consideration can also be given for a possible trail extending to Clydesdale.

Trail markers can be thematic icons tied to trail names and maps, and should be placed at intervals and wherever the trail direction is unclear in order to reassure hikers that they are still on the right trail.

## 17. Lighting

Street lights should be installed at strategic locations including parking areas, at the corners/bends of main roads and at the bottom of the main picnic areas.

## 18. Plans for Further Development (Years 4 – 5)

These are not identified on the map but are to be further explored in year 3:

- A large gazebo-style gathering place overlooking the view towards Hermitage near to the Kids' Discovery Zone. This would have a covered area with a small kitchen and space for meetings and a large open verandah that would be on stilts overhanging the slope at the edge of this area.

- Possible locations for additional small, studio-type cabins are:
  - off the Shelter Trail
  - under the pine trees near Mystic Grove
  - off the Dick's Pond Trail
  
- Possible expansion of area under lease beyond current 10 hectares (25 acres)

**Table 3.1 - Five Year Holywell Development Workplan**

ACTIVITY	COST (J\$)	FUNDING SOURCE	DEADLINE	RESPONSIBILITY SOURCE FUNDS & IMPLEMENT	COMMENTS
Finalise priorities for development (the plans below indicate recommended priorities)			Dec. 31, 2005	ED	The preparation of the BJCMNP Mgmt Plan and JCDT Strategic Plan will guide
Source funds for salary of RM and major components of Plan through Proposals			Dec 31, 2005	ED	Possibly EFJ, BLCF
Children's Discovery Zone	500,000	JIC	July 31, 2005	EEO	
Admin. Centre (minor improvements):					
• Laundry – electrical/plumbing work and washer/dryer purchased	80,000		Dec 31, 2005	AM/SC	
• Improvements to storage areas	15,000		Dec. 31, 2005	AM/SC	
• Gift Shop established	25,000		Dec 31, 2005	AM/ED	
• Trail from Admin Centre to Road	40,000		Dec 31, 2005	SC	
Interpretive Trails					
• Refurbish Oatley Mtn. Trail - signage/trail	30,000		Dec. 31, 2005	ED/EEO	
• Blue Mahoe Trail – signs	90,000		Nov 30, 2005	ED/EEO	
Signage – Implement Plan (all signs)	1,200,000		May 31, 2006	ED/EEO	See details in Signage Plan
Entry Portal incl. Landscaping	300,000		Dec 31, 2005	ED/SC	
Welcome Booth (Ticket Sales Booth)	500,000		Dec 31, 2005	ED/RAO	Seek funds e.g. CHASE
Roads & parking Areas (main picnic area, cabins, Admin. Centre, Mystic View)	3,200,000		Dec 31, 2006	ED	Seek funds e.g. JSIF

ACTIVITY	COST (J\$)	FUNDING SOURCE	DEADLINE	RESPONSIBILITY SOURCE FUNDS & IMPLEMENT	COMMENTS
Holywell Pavilion (Visitor Information)	2,750,000		June 30, 2006	ED/RAO	Seek funds e.g. CHASE
Trails – Organise links for longer hikes e.g. Redlight/Gordon Town, Lancaster, Woodford	Staff-time/ Marketing		Dec 31, 2005	ED/RAO	Work with CBOs; Buff Bay/ Pencar LFMC started already
Admin. Centre/Ranger Station (renovation including verandahs, new kitchen, access to toilets, gazebo)	4,050,000		Dec 31, 2007	ED/RAO	Seek funds
Amphitheatre	3,000,000		Jan 31, 2006	ED/RAO	Seek funds e.g. CHASE
Dormitory Facility & Dining/Kitchen	17,040,000		Dec 31, 2008	ED/RAO	Seek funds
Build new Gazebos	300,000		Jun 30, 2006	ED/RAO	
Waterfall Trail – enhance base near falls	500,000		Dec 20, 2006	ED/RAO	Seek funds
Explore possibility of further development as described above			Dec 20, 2006	ED/RAO	Develop plan
Construct additional cabins, gazebos			Dec 31, 2009	ED/RAO	As per plan developed above

**KEY:**

ED – Executive Director

AM – Administrative Manager

SC – Station Chief

RAO – Recreation Area Officer

EEO – Environmental Education Officer

# Chapter 4 – Environmental Management



## 4.1 *Environmental Management Systems*

An Environmental Management System (EMS) is a management tool through which an attraction (or other establishment) can evaluate and improve its environmental performance and establish, achieve and sustain its environmental performance objectives. Potential benefits of an EMS are numerous and include economic and operational benefits, as well as environmental benefits (Brown and Shipman, 2003).

A government policy on Environmental Management Systems was prepared by NEPA through the Coastal Water Quality Improvement Project (CWIP) in 2002, and this encourages all enterprises to adopt EMS. The trend in the tourism industry is towards the development and implementation of environmental management systems for properties as opposed to ad hoc attempts to reducing environmental pollution and degradation.

The JCDT is in the process of adopting best environmental practices for Holywell as an ecotourism attraction. At present however, though efforts are made towards good environmental practice, this has not been a major focus for management of the site. This is primarily because the focus has been on management and conservation of the wider national park – which is mainly a natural resources management focus (reforestation, trail maintenance and reduction of visitor impact), rather than an environmental management focus (water and energy conservation, use of chemicals).

In 2002 an environmental audit of Holywell was conducted through the Environmental Audits for Sustainable Tourism (EAST) Project. A document summarising findings and recommendations was presented to the JCDT in early 2003. Efforts have been made to implement some of the recommendations. However, it is clear that if major changes are to take place a management level representative is needed to oversee the implementation of the plans for development and management of Holywell. Efforts to obtain such services on a voluntary basis were unsuccessful. It was also recognised that for effective implementation of this plan a full-time, paid professional is required.

EMS is a tool related to the operations of an establishment. Its focus is on reducing environmental impact and allowing for the monitoring and evaluation of targets set. An Environmental Impact Assessment (EIA) is often conducted before the development of a site, particularly for ecotourism. In addition, while generally not a major focus for environmental management systems, the issue of “carrying capacity” and now “limits of acceptable change” are of significant concern for tourism in protected areas.

The EAST Project is providing assistance to the JCDDT to develop and implement an EMS, with the objective of obtaining Green Globe Certification for the site.

## *4.2 Environmental Impact Assessment*

An Environmental Impact Assessment (EIA) is an assessment carried out on a site to establish the likely impacts (negative and positive) and levels of these impacts on the site and its surroundings that can be expected if a proposed development is carried out. Both environmental (ecological) and social impacts are considered. Recommendations are made regarding mitigating actions, and a monitoring plan is usually designed to help guide these. An EIA allows decision-makers to determine whether proposed plans are appropriate for a specific site.

An EIA was not conducted for Holywell because the concept didn't exist when the site was developed. Further, the site was originally used by the Forestry Department as a nursery and reforestation depot and prior to that, it was part of a coffee plantation. Holywell is less than 1% of the area of the BJCMNP and therefore, current management considers that continued use of the site as a major recreational area is justified by the existing development and the importance of the park's Recreation/Tourism (and related) Programmes. An Environmental Impact Study (which is less extensive than an EIA) will need to be conducted for any major, new developments proposed for Holywell – namely the dormitory facility, in order to properly develop appropriate mitigating actions, to reduce possible negative impacts.

Regarding recreation and tourism, the environmental impact is related, amongst other factors, to the susceptibility of an area or resource to visitor impact, i.e. the ability of the site or resource to absorb visitor impact. This impact can be measured in relation to the site's "carrying capacity"

## *4.3 Carrying Capacity*

The carrying capacity (C.C) of a site may be defined as the number of persons which the site can sustain without an excessive, negative impact to the resources of the site. This capacity considers not only the number of people but also the time in which a certain number of people are allowed to utilize the site. A daily C.C. and an annual C.C. can be calculated. However, it may not be wise to calculate the annual C.C. from the daily C.C simply by multiplying by the number of days in a year because there are several factors to be taken into consideration in order to maintain accuracy e.g. weather, public holidays.

Mason (1990) proposes two related components of carrying capacity – environmental and ecological:

- **Environmental carrying capacity** refers to the maximum level of tourism use of an area before tourists note a decline in the attractiveness of the area, and move on to other destinations. This capacity will vary according to the type of tourist activity, weather conditions and seasonal factors.
- **Ecological carrying capacity** refers to the maximum level of tourist activity that a destination or resource can stand before change to plant and animal habitat occur. The nature of the physical landscape, particularly its vegetation, soils and topography is important in terms of ecological impact.

There are presently no restrictions on the number of people allowed into Holywell at one time, because other than the annual park celebration – *Misty Bliss*, the volume of traffic has not exceeded the park’s ecological carrying capacity. Regarding the environmental carrying capacity however, it is clear there is a need for more seating areas (preferably covered). For example, during *Misty Bliss* the majority of persons are concentrated in the main picnic area - which has two sections that are used for entertainment because of their gravel surface and open, treeless nature. These were originally the designated parking for the recreational areas, however parking is no longer allowed within these areas.

Although a formal carrying capacity study has not been conducted (and is recommended along with development and implementation of a limits of acceptable change system) estimates have been made of a maximum of 2,500 people for occasional, special events such as *Misty Bliss* and about 300 people maximum, per day. These estimates are based on actual counts and observation for example, at *Misty Bliss*, and also on the following:

### **Parking at Holywell**

- Main parking area – about 30 vehicles
- Picnic area parking – about 10 vehicles
- Cabins – 6 vehicles
- Mystic Grove area parking – about 10 vehicles

This totals 56 vehicles. Assuming there are 50 cars with 4 persons each, and 6 buses with 16 persons each, this is a total of 290 persons. For special events parking is also provided at Newcastle and Papine and shuttle buses are used to transport patrons.

### **Toilet Facilities**

- Cabins (3) – 1 bathroom each
- Main picnic area – two sets of 4 toilets and 1 wash-basin (there are other water pipes in picnic area)
- Mystic Grove Picnic Area – 2 toilets and 1 shower and wash-basin
- Administrative/Education Centre – 2 bathrooms (toilet and wash-basin)

This is a total of 12 public toilets (not counting those in the cabins or the bathroom in the Ranger Station). For special events portable toilets are brought in for the day.

## Seating Areas

There are currently eight (8) gazebos in the main picnic area, six (6) of which can seat about 20 persons each and two (2) of which can seat about 10 each. Mystic Grove Picnic Area has a gazebo that can seat about 20 persons. There are about six (6) benches that all together can seat about 12 persons. There is seating for at least 20 in the cabins and 30 in the Education Centre. Many persons spread blankets and towels on the ground or pitch tents and these spaces can accommodate at least 100 persons. Excluding persons walking the trails, this suggests space for about 322 persons. Refurbishing and replacement of the gazebos along the Waterfall Trail and across from the Administration/Education Centre will enhance this. The area in front of the current stage can accommodate at least five hundred standing and the other flat areas above and around, another five hundred. However, this would only be for special events e.g. *Misty Bliss*. The development of the amphitheatre with step-like seating will be a vast improvement on the current facilities as it will allow the seating of most of these persons and allow other persons to stand.

This carrying capacity depends on the type of activities being held. For example, if people come for retreats/workshops they will occupy the Visitors' Centre. For tours they will be mainly on a trail and stop in the area only a short time. The assumption is made that all the visitors will not be in the park at the same time. Several years ago, park management took the decision as part of its Recreation/Tourism policy to close Holywell on Mondays as a recovery day, and this situation continues.

The carrying capacity theory has its limits because a measure of environmental impact is not only related to the number of persons and the susceptibility of the resources, but also to:

- activities and behaviour of the visitors
- length of time a visitor stays
- infrastructure provided, and
- management of the visitors.

Managers of recreational areas within protected areas have therefore identified other management tools including implementing environmental management systems and visitor impact monitoring and management systems to address this issue.



## 4.4 Visitor Impact Management

Visitor impact management deals with the negative impacts visitors have on a site through their visits. Visitor impacts are inevitable and cannot be avoided; however, steps can be taken to minimize these impacts. Visitors also have positive impacts and the goal of management, through visitor impact management strategies, is to ensure that the positive impacts outweigh the negative impacts. Visitor impacts are not only on the natural environment of the site but also on surrounding communities.

Holywell has been reasonably fortunate with regards to negative visitor impacts. Though impacts have been cited, they are minimal. The main concern expressed by staff was about the impact visitors have on some plants along trails (trampling and widening of trails) and the removal of plant life.

### Limits of Acceptable Change

The Limits of Acceptable Change (LAC) is a specific system that deals with measuring and monitoring tourism impacts. It can be applied to assess whether objectives for reducing or mitigating tourism impacts are effective (Drumm and Moore, 2002). LAC acknowledges that change is inevitable, but it dictates the level of change that is acceptable. It therefore provides an acceptable measurement of degradation or change and deals with the ideal condition of a site that takes into consideration, unavoidable change.

Once the acceptable condition of a site or sites has been ascertained, it is then necessary to develop indicators to measure the change that takes place. With indicators changes can be monitored and the necessary steps taken. Drumm and Moore (2002) state that the LAC process will indirectly provide information which can help management in the further development and improvement of a site. They suggest that some of the more common indicators which may be used to provide managers with data concerning their progress in implementing more direct interventions such as visitor management, infrastructure development and environmental education programmes are:

- Visitor satisfaction with facilities or services
- Numbers of specific species of wildlife found in a given site
- Number of E. coli bacteria found in water near an area of visitor concentration
- Incidence of illegal activity

Essentially, the LAC methodology involves the following steps:

- Identify concerns e.g. damage to vegetation, disturbance to wildlife, soil erosion
- Define the specific activities causing these concerns e.g. hiking, camping
- Select indicators (whether bio-physical, socio-cultural, experiential, economic)
- Establish standards and thresh-holds for indicators

- Develop a set of possible management actions that are likely to reduce the impact
- Monitor the conditions so that management is alerted when indicators are above threshold levels
- Take appropriate management action
- Continue to monitor

#### *4.5 Environmental Management Strategies for Holywell*

In January 2003, an environmental audit was carried out on Holywell to “provide an objective assessment to recommend practical actions the attraction can take to improve its environmental performance” (PA Consulting, 2003). The main areas of concern in an environmental management system (particularly linked to the Green Globe Certification Programme) are:

- Energy use
- Water use
- Wastewater management
- Solid waste (generation and handling)
- Use of chemicals (kitchen, housekeeping, grounds etc.)
- Health and safety (buildings and recreational areas e.g. trails)
- Nature conservation
- Community development

#### **Main Findings of 2003 Environmental Audit**

- Holywell operates by rules expected of a protected area - no littering, no plant or animal life is to be removed from the park, etc.
- Visitors are encouraged to take their garbage with them on leaving the site
- There is a sign, upon entry to the park with rules of the park, educating the visitor of the ‘dos’ and ‘don’ts’
- Most products are purchased from surrounding communities, working in tandem with that aspect of ecotourism, which dictates supporting and involving local communities.
- All buildings use natural ventilation as opposed to air conditioning
- Energy efficient lighting is used in some areas of the park
- Energy saving practices are carried out- turning off appliances when not in use
- The kitchen avoids the use of disposable items
- The kitchen purchased most goods in bulk to decrease the quantity of waste from the kitchen

As expected, given the context of Holywell (within a national park and managed by a non-government organisation/registered charity), the audit found Holywell to have excellent best practices in the areas of nature conservation and community development. Water use, wastewater handling (grey water specifically) and use of chemicals were areas for improvement. In addition, the audit indicated a need for a stronger management approach e.g. with respect to formalising policies and systems, training, carrying capacity issues and educational/interpretive signage. The following summarises the current status at Holywell, with respect to each area (aside from Nature Conservation and Community Development) and the strategies or specific actions recommended:

## Energy Use

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Electricity supplied from the JPSCo. system is the principal source of energy at Holywell. Electricity consumption consists of lighting (indoor and outdoor) and refrigeration units for cabins and the ranger station.

- It was found that some of the buildings were dark, as they had not been designed to take natural lighting into consideration. All new construction, must take natural lighting and ventilation into consideration.
- Although fluorescent lighting was used in some areas, it was not in general use. This situation exists because of voltage fluctuations at the site that seems to have damaged the fluorescent lighting installed previously. A thorough check of the electrical system at Holywell was conducted, and repairs conducted as indicated. The voltage problem was reported to the JPS Co. and they replaced the transformer, which seems to have solved the problem.
- All four refrigerators were found to be in need of repair or replacement, and this was done. Maintenance e.g. dusting of the coils is however required.
- Liquefied Petroleum Gas (LPG) is used for the stoves in the cabins and Ranger Station kitchen. With respect to safety, fire extinguishers are in place and regularly maintained. In addition however, the Fire Dept. recommends having an additional escape door in the two smaller cabins and Ranger Station. Cost estimates were obtained for the former and for the latter, the addition to the Ranger Station of a large kitchen and storage area between the Ranger Station and Retreat Centre (currently the Visitors' Centre) would result in the addition of other doors.
- Lack of hot water in the cabins is a particular issue of concern (it is a comment many guests make, or an excuse for potential guests). The discussion has been about the energy source for heating the water – electricity will be expensive (both capital and operational), LPG is considered dangerous for these wooden cabins. However there is some debate regarding the efficacy of solar heaters at Holywell and whether it would be economically viable. This situation should be dealt with urgently.
- Limited outdoor lighting has been noted as a concern, and some specific locations (about 6 – 8) were identified where large “street” lights would be appropriate mainly in the car parks and along roads (at bends/forks). It was generally agreed, that there should not be too much lighting at night because this would disturb wildlife. There continues to be a debate regarding the efficacy of solar lighting, and a more thorough research of this issue needs to be conducted. In the mean time, JPSCo. was approached for assistance with the installation of lights, and they provided funds for one street light to be installed. This hasn't been done yet because of the difficulty in determining the priority location.

## Water

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The water supply for the site is gravity fed and the source is a spring found in the park. This source is used by at least two other sites: Mr. Graham's coffee farm and the Gap Café. This is an area of increasing conflict because there are others who are interested in using the water source (which is also the source of the water to the falls at the end of the Waterfall Trail). It has been agreed by the various parties that a meeting, coordinated by the JCDT, needs to be held to discuss the matter. The Water Resources Authority and the Forestry Department should also be consulted.

Water is used for kitchen operations and all bathrooms in and outside of the cabins. The sites source of water is safe and mostly reliable (though there are times when there is no water coming from the pipes). This is usually caused by increased take-off by other users of the source, blocking up of the catchment (often after heavy rain) and low water pressure.

- The issue of protecting the water source for Holywell must be dealt with soon.
- Any new toilets must be water-saving and the shower-heads or faucets must be low-flow with aerators
- Although the water source is high enough to be considered safe from contamination, some form of regular check should be considered.

## Wastewater

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All wastewater is directed to wastewater/soakaway septic tank systems on the property. The septic tank receives the wastewater and provides treatment through sedimentation and the soak-away absorbs the small volume of effluent that is occasionally discharged from the septic tank. For the relatively small volume currently visiting Holywell, this system is sufficient, but a new system will need to be designed for the proposed new dormitory accommodation.

The grey-water disposal, particularly from the Ranger Station kitchen was the main concern with respect to wastewater, mainly because of aesthetics. Rather than diverting it as suggested, the area is to be landscaped to hide it in the short term. The addition to the Ranger Station/Retreat Centre will result in a new system being constructed to the back of the buildings.

A recurring problem at Holywell is the growth of tree roots into the septic systems causing blockages. Rather than cut the trees, the plumber has installed barriers that should help keep tree roots out of those systems that were repaired.

## Solid Waste

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The majority of the solid waste generated is from visitors, e.g. plastic plates and cups, tins and plastic bags. The garbage produced from the site is collected by a Ranger twice weekly, and taken for disposal in garbage skips in Papine. While this situation is not ideal, the municipal system does not travel to Holywell or surrounding areas, and private collectors have proven to be very unreliable. Landscaping waste e.g. grass cuttings and leaf litter, is left in the forest to decompose or used on trails/roads to reduce erosion. Much of the kitchen waste is taken home for dogs.

- Generally, visitors use the garbage bins provided and the grounds are kept litter-free except when there are large groups for example during *Misty Bliss*. At these times, special efforts are made to collect the additional garbage, however these systems have not worked very well. There is a need for additional bins to be strategically placed on the compound. Attempts have been made to obtain plastic bins. However, these have to be bought. Concerns about the alternative metal bins that are donated, are that they are unattractive and the strategic locations (near gazebos) are aesthetically displeasing. The recommendation is to build enclosures (most likely out of bamboo and wood) with covers to hide these bins. This is currently being implemented.
- There are no recycling facilities in the park and garbage is not separated and therefore all the garbage produced (except landscaping waste and left-over food) is disposed of in the skips in Papine or at the Riverton City Dump. A set of interpretive signs relating to Recycling is being designed and will be placed along with a system for recycling, in the main picnic area.
- Waste grease and oils from the kitchen is a concern because it is mainly disposed of in the drain. Oils and greases from the kitchen should be collected e.g. in a bottle or tin and disposed of with the solid waste. Grease traps should be installed and maintained in all new kitchen construction.

## Use of Chemicals

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Currently, there is no environmental purchasing policy, and while attempts are made to ensure that the chemicals used are not environmentally unfriendly, the emphasis has been mainly on cost. This means that generally, chemicals are bought in bulk and dispensed into smaller containers. Information has been obtained from at least one company regarding environmentally friendly chemicals but a cost comparison and cost-benefit analysis has not yet been done. EAST personnel suggest that based on the limited amount of chemicals used at Holywell, there is no need to purchase more expensive chemicals from a speciality company, but rather to examine labels and source the most appropriate chemicals.

- Research about the types of chemicals used needed for cleaning, pest control etc. is required. The possibility of making some of the cleaning agents from ingredients that are readily available should also be explored.
- There is also a need to address and improve the storage and labelling of chemicals.

## Health and Safety

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The audit made a number of recommendations with respect to health and safety particularly regarding the storage and use of chemicals, fire extinguishers, fire drills, maps showing emergency routes, first aid kits and training and improved lighting. Some of these concerns have been dealt with. For example, there has been an improvement in fire extinguisher maintenance; maps have been placed in the cabins; and a first aid refresher course was held.

### 4.5.1 General Strategies for Environmental Management

Based on the goal for this Plan to provide guidance for environmental management at Holywell, and the importance of this for ecotourism, there are three main strategies:

1. Begin implementation of simple environmental management activities including those recommended in the environmental audit and those discussed in staff meetings related to visitor management.



2. The Conservation Science Officer and the Recreation/Tourism Manager work with the EAST Project to develop and implement an EMS, obtain Green Globe certification, design and implement a Limits of Acceptable Change system and, investigate the International Ecotourism Standards for implementation.
3. Seek funds for a Recreation/Tourism Manager who will be responsible for ensuring the implementation of all the necessary activities.

The following table indicates the activities that need to be put in place in the short term, recognising that the Recreation Manager, with further investigation and professional assistance, may make changes in the formal EMS and other systems.

**Table 4.1 Five Year Holywell Environmental Management Workplan – Environmental Management**

ACTIVITY	COST (J\$)	FUNDING SOURCE	DEADLINE	RESPONSIBILITY SOURCE FUNDS/ IMPLEMENT	COMMENTS
Source funds for salary of RAO and seek student assistance from UWI for studies.	Staff time off: ED		April 30, 2005 Aug 31, 2005	ED	Possibly M.Sc. in Tourism Management
<p>Implement minor environmental management actions based on recommendations:</p> <p><b>Energy Use</b> JPSCo to conduct check and action to be taken based on recommendations:</p> <ul style="list-style-type: none"> <li>• Install fluorescent lighting in all areas</li> <li>• Maintain fridges, etc.</li> </ul> <p><b>Water Use</b> Address water source/use issue.</p> <p><b>Wastewater</b> Landscape greywater discharge in front of Ranger Station.</p> <p><b>Solid Waste Management</b> Make enclosures for bins. Stop pouring oils down kitchen sink.</p> <p><b>Use of Chemicals</b> Improve storage and labelling.</p>	Staff time of persons responsible.	Generally these costs involve staff time which is already covered from several sources.	<p>Oct 31, 2004</p> <p>April 30, 2005</p> <p>Ongoing</p> <p>April 30, 2005</p> <p>April 30, 2005</p> <p>April 30, 2005 April 30, 2005</p> <p>April 30, 2005</p>	<p>AO/SC</p> <p>SC</p> <p>SC</p> <p>ED/CSO</p> <p>SC/R</p> <p>SC</p> <p>SC</p> <p>SC</p>	These are activities that it should be possible to implement with few, if any additional resources.
Conduct Carrying Capacity Study			Dec 20, 2006	RAO/CSO	Possible UWI Postgraduate Project.
Develop Visitor Impact Management System – VIMS (to include LAC).	Staff time		Dec 20, 2006	RAO/CSO	Possible UWI Postgraduate project.

ACTIVITY	COST (J\$)	FUNDING SOURCE	DEADLINE	RESPONSIBILITY SOURCE FUNDS/ IMPLEMENT	COMMENTS
Develop an Environmental Policy & EMS.	Staff time/TA		Dec 20, 2005	CSO/RAO	EAST - Technical Assistance
Implement EMS and VIMS.	Staff time		From Dec 20, 2005	RAO/SC/CSO	
Obtain and maintain Green Globe Certification.	Staff time & TA		June 30, 2006	CSO/RAO	EAST will provide Technical Assistance.
Any new equipment purchased to be energy efficient, etc.			As purchased	AM/RAO	
Any new construction to be environmentally friendly re: lighting, etc.			As constructed	ED/RAO	

**KEY:**

AM – Administrative Manager  
AO – Administrative Officer  
CSO – Conservation Science Officer  
ED – Executive Director  
R – Ranger  
RAO – Recreation Area Officer  
SC – Station Chief  
TA – Technical Assistance

## Chapter 5 – Safety, Disaster Preparedness and Emergency Management



A plan detailing operations regarding safety, security and measures to be taken in case of emergency is important. Currently, while there are several safety and security precautions taken, as well as preparations made for disaster and emergencies; these are not all formally recorded and provided neither in the Ranger Station nor at the head office. The approach to this area is based on:

1. Training received by staff e.g. First Aid and CPR, Search and Rescue
2. Information e.g. numbers to call in various emergencies are listed
3. A number of draft, unfinished plans
4. Safety features e.g. rails, maintenance checks of structures, presence of St. John's Ambulance at major events and security features e.g. watchman and good relationship with the police and JDF

The assumption is made that staff will know what to do in the event of a safety or security problem, a disaster or an emergency. While there have never been any incidents that would create a cause for concern, if Holywell is going to be marketed as major attraction, these areas must be planned for. Further, the plans should be written and available for staff at the location, as well as for visitors (with respect to certain components e.g. emergency numbers). Finally, the necessary actions must be implemented and checks made to ensure that systems are maintained in order to be ready for any situation that may arise.

This section gives details of the concerns and possible solutions to problems that may arise with respect to the safety and security of visitors, the safety of the facilities, and the ability of management and staff to respond and deal effectively with disasters or emergencies of any kind. The recommendations put forward under each category are the result of meetings and consultation with relevant bodies and interested parties.

***Many recommendations will be applicable under more than one heading. It should also be noted that this is another area where the presence of a manager will ensure that plans are developed and implemented, drills executed and systems maintained to avoid and mitigate against any threat to the safety of visitors and the facilities.***

## **5.1 Safety and Disaster Preparedness Strategies for Holywell**

### **Safety**

The main concern is the possibility of visitors falling and hurting themselves. Most likely, this may involve children or older persons slipping or tripping and this could result in cuts of varying severity, sprains or the breaking of bones. On advice from TPDCO, Rails and steps have already been placed in several well-used areas.

- Rails should be placed along trails where there are drop-offs or where the ground may be slippery, or along steps. Rails should be maintained so that nails or splinters do not pose a threat and there is no risk of the rail collapsing.
- Surfaces in the intensive use zones should be easy to walk on – hard, well drained, and with steps where necessary.
- Warning signs should be placed in probable danger areas, against running e.g. in loose or rocky terrain and against Smoking (which can easily cause fires).

Staff should not use equipment that can be dangerous or materials that may be hazardous. All staff should be properly trained with respect to the use of any equipment or materials they use, and encouraged to use all safety practices to reduce the risk of injury. In addition, staff must be trained in First Aid and CPR, with refresher courses implemented at least annually, and a fully equipped and maintained First Aid Kit readily available.

### **Managing Fires in Buildings and Enclosures**

The first step in fire management is to prevent accidental fires and to reduce the likelihood of managed fires e.g. campfires from getting out of control. The next step is to ensure that persons can be warned of fires and can take action before they spread. Currently, all buildings are equipped with fire extinguishers, which are serviced regularly by an approved agent. The Jamaica Fire Brigade inspected Holywell and provided a report that has been used to guide this section. The Station Chief and staff will be trained in the maintenance of smoke detectors, fire extinguishers and their use.

The following are to be implemented (some are already in place):

- All buildings will be equipped with fire extinguishers (4.54 kg, installed near main entrance), smoke detectors (over the bedroom areas), fire exits and directions in the use of equipment and procedures in the case of fire. The buildings or areas include all three cabins, Rangers' Station, Visitors' Centre (2), tuck shop, bulk storeroom and gift shop.
- Information (including a map of the area) on the procedures will be provided on signs in the cabins and other buildings.

- In case of a fire, all occupants are to quickly proceed to the nearest exit and gather at the meeting points identified in maps made available in the cabins and other buildings.
  - Occupants are not to stop for any belongings before exiting, but are to exit calmly and quickly.
  - No one is to return to the building, until the ranger-in-charge announces that it is safe to do so.
  
- All staff will be trained in fire-fighting, fire prevention and management and emergency procedures
- All staff will have first aid training and refresher courses will be carried after suitable periods e.g. annually.
- Regular fire drills will be conducted.
- On arrival, overnight visitors will be given a short demonstration on the use of fire extinguishers and advised on park rules and practices.
- Fire extinguishers should be checked regularly and serviced as needed.
- Any cracks in fireplaces should be sealed with concrete and insulate area where chimney passes through the roof with a fire resistance rated fire stop in Cabin 1
- A trickle-charge emergency battery lamp will be installed on a wall in Cabin 1 that will illuminate both exits in the event of a failure of the primary supply of electricity
- Ensure that all Panel boxes are labelled and each Circuit Breaker should state which device or circuit it controls.
- A safety manual with checklist is to be prepared for use on-site, and should be located in the Ranger Station – available for use by anyone on duty.
- An Emergency Procedure Plan should be developed for the entire premises and a copy placed in each cabin, including the emergency exit route (which should be affixed on the back door of each cabin.
- An alarm system should be installed that can be activated from any of the three (3) cabins and be audible at the Rangers' Station.

## **Natural Disasters and Disaster Preparedness**

The natural disasters that are most likely to affect Holywell are tropical storms and hurricanes. If a storm or hurricane hit is imminent, the park will be closed. The major concern in these events would be how the wet conditions may prevent people from leaving cabins, the possibility of leaking, the loss of roofs, the possibility of falling trees, the difficulty driving on roads, and possible landslides. Lightning strikes are also possible during heavy rain and may cause a loss of electricity. Emergency battery lamps and candles will be available.

- Weather patterns and weather forecasts must be closely monitored particularly during hurricane season and rainy seasons. Note should be taken of storm and hurricane watches and in the case of a warning, all guests booked into cabins should be notified and advised to either leave Holywell or remain there, based on the situation.

- The access road to Kingston may be blocked in the event of a disaster because the area is particularly prone to landslides. Supplies of canned foods, water, batteries, a flashlight, a two-way radio, an AM/FM radio (battery operated), and a first aid kit should be available for emergencies.
- Heavy rain – Visitors are advised to avoid steep hillsides and precipices because these become more slippery than usual during and after rainfall.
- Any future development will take into consideration, soil erosion, the slope of the land, fire retardant measures etc.
- Procedures should be posted in buildings, in the event that a natural disaster may unexpectedly affect Holywell or its environs.
- Staff should be trained in procedures to deal with natural disasters.
- If visitors are in the park at or before the time of a hurricane or any other natural disaster warning, they will be warned of such dangers as well as any other concerns, and advised to return home.
- Most of the furniture is not conducive to toppling during earthquakes; however, where objects or furniture such as storage shelves may be of a dangerous height, they ought to be fastened to walls to avoid toppling. The heaviest objects should be placed on lower shelves.

## **Illness or Accidents**

The most likely accident is a fall resulting in a sprain or cut. This will require the use of bandages, disinfectants, anti-biotic creams and band-aids etc. In addition, arrangements should be made for more serious cuts or accidents e.g. broken bones. Persons may also suffer from headaches stomach ailments, and diarrhoea. Sore muscles and asthma attacks may also occur because of over-exertion. Most importantly, the possibility of someone having a heart attack should not be overlooked.

- In terms of precautions, persons booking accommodation should be advised to bring their medications, particularly for asthma and heart conditions, as well as comfortable walking shoes and a sweater/jacket, hat, umbrella, raincoat or other covering in case of cold or rain.
- A well stocked First Aid Kit will always be available in the Ranger Station in case of illness or accidents.
- Rangers and some staff are already trained in first aid and CPR. Refresher courses will be provided on a continuous basis.
- JDF Newcastle depot has a medic, ambulance and communications available 24 hours/day, 7 days/ week, and can be contacted at 944-8414/5 – 9 in case of an emergency.

- Special events require additional precautions:
  - A special first-aid unit e.g. St. John's Ambulance
  - Free passage through identified exits must be maintained in case of an emergency
  - Crowd management to avoid incidents. Staff will need to be trained in crowd management.

## **Search and Rescue**

It is relatively unlikely that a search and rescue operation will need to be carried out at Holywell, because the area is relatively small, and trails are short and most loop back or are one-way. Getting lost is much more common on the Blue Mountain Peak Trail and rangers have significant experience with search and rescue operations there. Regardless, the staff at Holywell will be trained and prepared to conduct such an operation, if necessary. First, it must be ascertained that the report is accurate, and then information must be gathered with respect to the last place the individual was seen. The Station Chief or other ranger on duty must organise a team and carry out the search in the prescribed manner, performing any rescue or first aid/CPR as necessary. The JDF has a medic on duty at Newcastle 24 hours/day 7 days/week, if urgent medical attention is required. An incident report must be prepared, signed by relevant persons and submitted to HQ. While there is an understanding between the JDF and the JCDT as regards these issues, a more formal agreement or Memorandum of Understanding should be seriously considered.

## **Security**

Typical of rural areas in Jamaica, Holywell is located between communities that have a very low level of crime – mainly petty theft. The JCDT has a close relationship with all the surrounding communities – providing employment, job opportunities, training and maintaining a recreational area that is used by the community. Despite this, security is not an issue that should be left to chance, particularly as there is a thoroughfare from the main gate through to Woodford and Norbrook, although it is mainly used by coffee farmers between 6:00 am to 6:00 pm. In addition, the area is large and unfenced, and there are several trails that may provide access from areas further afield.

Currently, a watchman is on duty from 6:00 p.m. to 6:00 a.m. Sundays through Thursdays and at least one male ranger on Friday and Saturday nights. Whoever is on night duty is responsible for check-in guests (visitors often arrive late on Friday night) providing them with relevant information e.g. regarding the fire extinguisher and emergency numbers. In addition, the person on duty should walk the grounds, particularly the cabins at least twice during the night/early morning to check on things. This kind of presence will make it less likely for any theft to occur, and is important in light of the distance between the Ranger Station and the cabins. An alarm system should be installed that can be activated from the cabins and heard in the Ranger Station.



Although bookings for accommodation are made at the Kingston office, the day-visitors pay on entry. Money is therefore collected at Holywell, particularly over weekends and during special events. For *Misty Bliss*, the services of a security firm are hired and includes armed and unarmed guards and a secured deposit.

Communication within Holywell is fair, as cellular phone service providers are accessible in most locations. The phone at Holywell is a stationary cell phone. Radios (“walkie-talkies”) are used by key personnel at the site.

- Lighting should be improved –with “street-lights” placed in at least two locations near the cabins, including along the road to the cabins. Further, lights should be placed in the lower picnic area and along the road to the picnic area and in the main car park. Between six to eight lights are needed, and lights could be placed at the corners of buildings e.g. cabins and the tuck-shop and Visitors’ Pavilion. These lights should be photo-sensitive so they turn on and off according to the level of ambient lighting.
- Further investigation regarding the possibility of photo-voltaic lighting should be conducted.
- The issue of the night watchman and patrols of the grounds should be improved. The risks involved in getting an armed guard are high and as there has been no real threat of security in general, it is not necessary at this point.
- A trained dog could be purchased for the site, however staff etc. would have to be trained to work with the dog, and campers may be fearful of a dog. The reasoning behind the addition of a dog to the security features is that it would be relatively inexpensive, and a dog would remain alert at night and help the person on duty at night to feel less alone and somewhat more secure.
- TPDCO requires suitable security arrangements – as vetted by the Jamaica Constabulary Force. In the past TPDCO has required registration with the Private Security Regulation Authority, in addition to specialised training. Although no longer required for tourism licensing, these should be further investigated.
- Access control should be improved. While there have been a number of recommendations e.g. closing the gate and/or road, there are numerous implications for any action, and these must be considered before a final decision is taken and implemented. In particular is the fact that while the road may originally have been a private road, the loss of the parochial road years ago due to land slippage, and the constant use of the existing road without regular closure means that it is now essentially a public thoroughfare.

As there is a considerable amount of money passing through Holywell on given days, an ‘in the ground’ safe would be useful in which to store the day’s earnings.

**Table 5.1 Five-Year Holywell Environmental Management Workplan – Safety, Disaster Preparedness & Emergency Management**

ACTIVITY	COST (J\$)	FUNDING SOURCE	DEADLINE	RESPONSIBILITY SOURCE FUNDS/ IMPLEMENT	COMMENTS
Complete safety manual and place copy at Holywell, HQ and all locations.	Staff Time		Sep 30, 2005	RAO	
Posting of Procedures Summary and Contacts at Ranger Station and HQ.	Staff Time		Sep 30, 2005	RAO	
<b>Safety</b> <ul style="list-style-type: none"> <li>Secure rails established and maintained along drop-offs.</li> <li>Build steps used to break steeply sloping trails.</li> <li>Reduce slippery surfaces with gravel in main areas.</li> </ul>	Staff time of persons responsible	REA	Ongoing	SC	
<b>Illness/Accidents</b> <ul style="list-style-type: none"> <li>Visitors are told to take medications and other necessities e.g. warm clothing.</li> <li>Stocked First Aid Kit available.</li> <li>Staff trained in First Aid and CPR.</li> <li>Access to medic/ambulance – JDF.</li> <li>Crowd management for prevention.</li> </ul>	Staff Time of: SC SC AM/\$15,000/yr SC SC		Ongoing	RAO/SC/AM	Training & Refreshers done 08/04

ACTIVITY	COST (J\$)	FUNDING SOURCE	DEADLINE	RESPONSIBILITY SOURCE FUNDS/ IMPLEMENT	COMMENTS
<b>Fire Prevention/Management</b> <ul style="list-style-type: none"> <li>• Fire extinguishers in buildings and maintained.</li> <li>• Smoke detectors in buildings.</li> <li>• Visitors instructed regarding use of extinguishers.</li> <li>• Fire exits and directions in buildings.</li> </ul>	Staff time/\$ Staff time 100,000		Ongoing	RM/SC	
<b>Disaster Preparedness</b> <ul style="list-style-type: none"> <li>• Supply kit at Ranger Station.</li> <li>• Hurricane warning – prepare buildings, secure contents, close site.</li> </ul>	Staff time/\$ Staff time		Ongoing	RM/SC	
<b>Security</b> <ul style="list-style-type: none"> <li>• Outdoor lighting improved at site.</li> <li>• Night watchman trained.</li> <li>• Improve access control.</li> <li>• Improve security of cash.</li> </ul>	500,000 20,000 Staff time Safe		Nov 30, 2006 Oct 31, 2005 Oct 31, 2005 Sep 30, 2005	ED AM RAO AM	Seek funds

KEY:

ED – Executive Director  
 AM – Administrative Manager  
 AO – Administrative Officer  
 SC – Station Chief  
 RAO – Recreation Area Officer  
 R – Ranger

## Chapter 6 – Hospitality Management



Hospitality, as defined by the Concise Oxford Dictionary (7<sup>th</sup> edition), is the “friendly and generous reception of guests and strangers”. All persons coming to Holywell – whether unexpected or with a booking, should be made to feel welcome and comfortable. They have been invited directly or indirectly to visit Holywell, and it is hoped that their visit will stimulate interest and support of the site. Therefore it is essential that they have a positive, satisfying experience. Customer satisfaction is critical, as if customers are not satisfied with their visit, they will not return, and they will not encourage others to visit. It has been said that, “a good experience is shared with two people, but a bad experience is shared with eight”.

For an attraction, welcoming, friendly and helpful attitudes are important, as is the provision of easily accessible information and the opportunity for a variety of recreational activities – ranging from quiet and reflective to more vigorous.

### *6.1 Hospitality Management at Holywell*

Any entity in the recreation and tourism industry, whether it is an accommodation or an attraction, must have a strong hospitality focus if its customers are to be satisfied. Holywell is no exception, and in general, questionnaires and informal interviews indicate that there is a high level of customer satisfaction. This however, is partly due to the ambience of the area and the interest/love of the job exhibited by staff, and is more of a reflection of service standards as opposed to product or physical standards. Visitors who overnight have more concerns than day visitors as the cabins are old and in need of some improvements. Several of these improvements are fairly minor and the lack of attendance to these areas, despite a number of internal plans and discussions, seems to be an indication that there is need for a full-time manager.

In addition to facilities, customer service and interaction are also important components of good hospitality. Low staff numbers is a concern because this may pose a challenge if visitors at different locations on the property need staff presence for help or information. This situation has recently been addressed through the involvement of interested youth from neighbouring communities initially under a UNESCO funded skills training project and later under a Canada/Jamaica Green Fund Community Education Project that allowed a stipend to be paid to youth taken on as trainee rangers. While there has been some improvement in the

level of interaction of park staff with visitors, there is still a tendency for staff to gather among themselves rather than to mix with the visitors.

Bookings and sales as well as marketing activities are based in Kingston at the park's headquarters at JCDT. Customer service is particularly critical in the area of bookings or reservations because this is often the client's first meeting with the park and its management. Further, if there are queries or complaints, this is usually the place where such issues are addressed.

Training is an important tool for addressing the need for improvements in hospitality management, and short training programmes are occasionally organised for staff. For example, with EFJ funding during 2003, customer service, housekeeping and food preparation training was conducted by HEART/NTA. This training however may need to be more intensive and conducted on a more regular basis. In addition, there is a need for monitoring and a higher level of supervision in order to motivate staff to continue to maintain the high standards they have learnt rather than to return to old habits shortly after training has been completed.

Despite the fact that the Tourism Product Development Company and others have conducted inspections and made recommendations for improvements, in general there are still several areas which have not been sufficiently addressed by Holywell staff in the area of hospitality.

## *6.2 Hospitality Management Strategies for Holywell*

### **Management**

As identified earlier, in order for significant improvements to be made at Holywell (to take the attraction to the next level) a manager is required to put systems in place, set standards, facilitate improvements and provide a higher level of supervision. There are several areas that require improvements and the various components of the product and services at Holywell are addressed below with respect both to current status and plans for improvement. The specifics are not detailed as the manager will need to conduct his/her research in order to make final decisions. If there are minor improvements that staffs have committed themselves to, which require little or no additional funding, efforts will be made to implement these even before a manager is sourced.

### **Information**

Information must be readily available and easily accessible to potential and actual visitors, many of whom have never been to Holywell and are not aware of the cold and damp atmosphere, or the facilities/services available.

- Marketing opportunities can be used to provide information about Holywell through advertising, tourism fairs/exhibits/meetings, articles in the media, electronic interviews and a website.
- Various forms of information should be available at every location from the JCDT office where bookings for accommodations are made through to the picnic grounds at Holywell.

## **Bookings**

- Information should be available (and highly visible) at the JCDT office in Kingston – where people come to make bookings or visit for other, unrelated purposes. This should include brightly coloured and attractive posters and brochures in addition to more detailed information. All persons who make bookings should be provided with relevant information e.g. in the form of a flyer or brochure, and certain critical points should be highlighted by the Bookings Clerk e.g. weather conditions.
- Relevant personnel should be knowledgeable enough to provide answers to a variety of questions, as well as to point out important facts that visitors should be aware of.

## **Ticket Office**

- The tent currently used as the ticket office is inappropriate. The ticket clerks are far removed from the main area when they occupy the existing ticket office near the entrance. This building is in disrepair and the Development Plan has earmarked for demolition. The construction of a new ticket office - the Welcome Ticket Booth - will be closer to the Ranger Station and Administrative Centre (just before the fork in the road). This new location allows the Ticket Clerk to see approaching vehicles from a distance so that she can be prepared for their arrival at the Welcome Ticket Booth. This development should be a high priority.
- The Ticket Clerk should welcome visitors to Holywell and the Blue and John Crow Mountains National Park, and should be knowledgeable enough to answer a variety of questions. The two persons who share the Ticket Clerk position at Holywell are now TPDCO certified tour guides having participated in UNESCO funded training under the Youth PATH project. Other in-house and external training e.g. HEART/NCTVET should be explored.

- There is a need for a brochure with information about Holywell including the services that are available and a map for orientation. The Environmental Education Officer designed a brochure and funds are being sought for printing it. The Ticket Clerk will hand out one brochure per car along with tickets.

## **Interaction with Staff on the Grounds**

An informal survey shows that visitors to Holywell have little interaction with staff and no informational brochures are available. Therefore, they have little knowledge of the site and its services. Any interaction with staff is always highly appreciated and commendations have been made in writing to management. It is clear from these positive reactions that this personal touch is very important to visitors.

Due to the limited number of staff, the new brochure will be a very important tool for making visitors feel welcome and comfortable. However, steps must be taken to increase the level of interaction with personnel.

- Staff on duty **MUST** walk the picnic and other areas and monitor visitors, ensuring their comfort and enjoyment.
- The Development Plan describes the Holywell Visitors' Pavilion in the main picnic area. This is a very important hospitality feature as it will be a location for visitors to find information and other services.

## **Picnic Areas**

- Visitor facility signage (mainly directional) is needed in these areas. Many visitors are only aware of the picnic areas and consequently do not explore other attractions such as the guided and unguided trails. For the new visitor, it is not obvious where the bathrooms are located. Under the new Signage Plan – three welcome kiosks will be constructed: at the entrance to the main picnic area, at the second picnic area, and the other in the main car park. These kiosks will have three signs each: the central one welcoming the visitor and providing a map for orientation, and the other two providing interpretation of the area.
- Bathrooms and other common areas should be checked regularly for cleanliness and materials replaced, as necessary.
- Additional benches or seating areas and gazebos are needed. Although some people will sit on the ground, when it rains, appropriate accommodation is needed. The Development Plan identifies additional uncovered seating in the amphitheatre, as well

as places for additional gazebos and benches (including under the Visitors' Pavilion). Benches could also be moved from the Oatley Mountain Trail to areas where they will be used more.

### **Visitors' Centre/Meeting Area**

- Currently, the signs in this area are not clear or easy to understand. The new signage plan will address this problem because persons approaching this area must pass one of the welcome kiosks.
- The Development Plan proposes use of this area mainly for meetings, workshops, school groups etc., and the improvements described will enhance the sense of hospitality. Some of the new features will relate to the use of the meeting facilities e.g. improved bathroom access and a larger, refurbished kitchen and dining area while other features will assist all visitors e.g. trail down to the road, new gazebo and the signage and interpretation of the Blue Mahoe Trail which can be used to access the cabins and main picnic area.

### **Cabins**

Most of the funds budgeted annually for cabin improvements are spent on repairs e.g. plumbing rather than the enhancement and development of the park's product. The cabins that required significant improvements needed painting, new curtains, bedside tables and/or wall-mounted lamps reupholstered furniture, roof repairs and hot water for bathing. Some of these issues are currently being dealt with because the passage of Hurricane Ivan made these facilities worse. Hurricane repair funding was accessed through the EFJ, the Caribbean Tourism Organisation, through the Ministry of Industry and Tourism and the USAID/EAST Project.

Although the cabins are generally clean and fairly well equipped, there are often small shortfalls in the standard of quality. There are areas that need improvement that are difficult to describe and that only someone with experience and exposure to the hospitality and tourism industry would be able to recognise and improve.

Many of the improvements required (physical and aesthetic) have been identified (sometimes supported by feedback from guests) but are often not implemented because of lack of resources. In some cases these are financial resources. However, analysis of the operation of Holywell suggests that one of the main problems is the lack of a management level staff with responsibility for the site. Existing management level and senior administrative staff have several other duties that take their time and attention away from Holywell. In addition, these persons only visit Holywell two – three times per month, and usually for a specific activity unrelated to management or operation of the site. If Holywell is meant to be a major source of income then it must be given the attention it needs to achieve its potential.



**Table 6.1 Five Year Holywell Environmental Management Workplan – Hospitality Management**

ACTIVITY	COST (J\$)	FUNDING SOURCE	DEADLINE	RESPONSIBILITY SOURCE FUNDS/ IMPLEMENT	COMMENTS
Source funds for salary of RM	Staff Time of: ED		Mar 31, 2005	ED	Possibly M.Sc. in Environmental Management or Hospitality Management and experience.
<b>Information</b> <ul style="list-style-type: none"> <li>Increase visibility of Holywell by making use of marketing and Public Relations opportunities e.g. fairs, website, media releases and <i>Misty Bliss</i>.</li> <li>Ensure Holywell information is visible at JCDT HQ and at Holywell.</li> </ul>	800,000  Staff time of persons responsible.	Misty Bliss sponsorship	Ongoing – Misty Bliss is major cost (\$550,000) plus advertising.	ED  SC EEO/AEO	Seek funds from EFJ.
<b>Bookings</b> <ul style="list-style-type: none"> <li>Finalise improvements to system.</li> <li>Staff training.</li> <li>Information available at front desk.</li> </ul>	Staff time of: AM/AO ED BC		Sep 30, 2005	ED/AM	ED to seek assistance for training from JHTA.
<b>Ticket Office</b> <ul style="list-style-type: none"> <li>Construction of Welcome Booth (as per Development Plan).</li> <li>Holywell Information brochure printed and distributed.</li> </ul>	500,000  60,000		Nov 30, 2005  Jun 30, 2005	ED	Seek funds.
<b>Interaction with staff on grounds</b> <ul style="list-style-type: none"> <li>Improve level of interaction.</li> </ul> Construction of Visitors' Pavilion (as per Development Plan).	Staff time and training. 2,750,000		From Jan1, 2005  June 30, 2006	SC  ED	Seek funds.

ACTIVITY	COST (J\$)	FUNDING SOURCE	DEADLINE	RESPONSIBILITY SOURCE FUNDS/ IMPLEMENT	COMMENTS
<b>Picnic Areas</b> <ul style="list-style-type: none"> <li>• Signage (Interpretive/Signage Plan).</li> <li>• Bathrooms clean and equipped with supplies.</li> <li>• Add benches and G/bin enclosures.</li> </ul>	1,300,000 Staff time “ “		Dec 20, 2005  From Nov 1, 2004 Mar 31, 2005	ED/EEO  SC SC	
<b>Visitors’/Admin/Education Centre</b> <ul style="list-style-type: none"> <li>• Additions (Development Plan)</li> <li>• Bathrooms clean and equipped with supplies.</li> </ul>	4,050,000 Staff		Dec 30, 2007 From Nov 1, 2004	ED SC	
<b>Cabins</b> <ul style="list-style-type: none"> <li>• Repair roofs.</li> <li>• Refurbish e.g. paint furniture.</li> <li>• Ensure proper cleaning and maintenance.</li> </ul>	700,000 100,000 Staff time		Mar 31, 2005 Mar 31, 2005 From Nov 1, 2004	AM/SC AM/SC SC	

**KEY:**

EEO – Environmental Education Officer

AEO – Assistant Environmental Education Officer

BC – Bookings Clerk

ED – Executive Director

AM – Administrative Manager

AO – Administrative Officer

SC – Station Chief

RAO – Recreation Areas Officer

R – Ranger

## Chapter 7 - Interpretation

Interpretation involves providing information to visitors in such a way that they will be stimulated to learn more and gain more appreciation of the park. It is not only the presentation of data and facts, but includes weaving them together in such a way that visitors come to understand, and appreciate the values associated with the establishment of the park (Eagles et al., 2002). Interpretation is essential in a national park, particularly in the recreational areas, because it seeks to help visitors make the connection between their enjoyment and the conservation of the site. Interpretation can be implemented in a variety of ways – mostly through signs with pictures and other graphics during a guided tour (lead by a tour guide) or a video or other audio-visual equipment.

Signs are very useful and cost-effective, and allow some level of interpretation in the absence of a tour guide. Tours, on the other hand, are costly based on the funding needed to retain a tour guide at all times regardless of whether there is a need or not. In many cases, persons also prefer to wander around recreational areas on their own as long as there is a good signage system. Further, with large numbers of visitors, it will be impossible to have enough tour guides or persons to provide information at all locations. Interpretation is an important component of the Education and Public Involvement and Recreation/Tourism Programmes for Holywell and the BJCMNP.

### *7.1 Interpretive Programme at Holywell*

The park's Environmental Education Officer has developed an Interpretive Plan for Holywell and some aspects of this plan have been implemented e.g. botanical signs and exhibits in the Visitors' Centre. However, with the help of the US Forest Service Heritage Design Team through a USAID/TNC funded project, a revised plan that focuses on signage is being prepared.



**Visitors Centre**

## Goals of the Interpretive Plan for Holywell

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- Raise visitor's awareness, appreciation and understanding of the area
- Encourage visitors to protect forest ecosystems
- Improve and expand the recreation and tourism programme
- Increase knowledge of the Holywell and BJCMNP

## Components of the Interpretive Plan

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- Exhibits and interpretive boards
- Visual aids
- Gift shop
- Interpretive and directional signage plan
- Botanical signs
- Guided tours and slide presentation
- Resource library for rangers
- Student activities/educational tours

## Components of the Interpretive Plan

### **Exhibits and Interpretive Boards**

Currently, the majority of these are located in the Visitors' Centre, however, because of the location of this centre, few visitors see these exhibits. Under the Development Plan, the Visitors' Pavilion in the main picnic area will be the focal point for exhibits and interpretive boards.

The current exhibits include:

- A large map of the BJCMNP
- A small map of Holywell
- A three-dimensional model of the BJCMNP
- An exhibit on the management of the BJCMNP
- An exhibit on birds of the BJCMNP
- An exhibit on the "tiny treasures" of the BJCMNP
  
- The existing exhibits will remain in the Visitors' Centre although it will become the Retreat Facility.
- The current exhibits are in need of repairs
- New exhibits will have to be prepared for the Visitors' Pavilion.

## **Visual Aids**

Currently visual aids at Holywell include a slide projector and a set of slides providing interpretation about the BJCMNP. In addition, there are brochures, activity sheets for children and a variety of posters e.g. depicting trees of Jamaica. On occasion, the multi-media projector is taken to Holywell for use in special presentations e.g. for workshops. A television and VCR have also been used for meetings but are no longer functioning and copies of videos from the JCDT office would have to be made.

- The slide show needs to be updated (change old or inappropriate slides) and a script prepared with sub-headings and bulleted points.
- A new TV and VCR need to be obtained (perhaps placed on a roll-away cart) and videos copied for use at Holywell.
- A regular stock of brochures, activity sheets must be maintained at Holywell.

## **Gift Shop**

Although the main aim of the Gift Shop is to provide an opportunity to generate additional income much of the proposed merchandise can be used to help to interpret the site. Informational signs can be prepared to interpret the seeds or other materials used to make craft items. Attempts were made to encourage youth provided with training through the Jamaica Business Development Centre, to start their own businesses, however the youth from the community are very hesitant to do this. Unfortunately, none of the local artisans are willing to sell their craft on consignment. Additionally some youths from the community, who have been trained by the Jamaica Business Development Centre, are hesitant about starting their own businesses using craft.

Organise and implement the establishment of a Gift Shop to include BJCMNP merchandise e.g. ranger hats and T-shirts, useful items e.g. flashlights and batteries as well as locally produced and other items including gifts/souvenirs e.g. coffee, jams/jellies, calabash items, jewellery, soaps and candles e.g. from Blue Mountain Aromatics

## **Interpretive and Directional Signage Plan**

Under the Signage Plan, about 23 different interpretive signs for strategic locations including trailheads have been designed with the assistance of the US Forest Service Heritage Design Team. In addition, there will be several other visitor facility signs providing directional and other information to help visitors find their way around. These are described in some detail in the draft Signage Plan. The intention is to produce this set of signs out of high quality material and processes used for parks in the USA and Canada. These signs are guaranteed for fifteen years minimum. Old signs will be replaced by exactly the same type of sign and any new signs produced will follow the guidelines contained within the Signage Programme.

## **Botanical Signs**

Botanical signs for about twenty different plants were produced and have been mounted at different locations. The designs and layouts were done by the park's Environmental Education Officer and produced in the USA. This was more cost-effective than producing them locally. Unfortunately, regular nails were used to mount the metal signs, and rust has quickly appeared on them. Replacement botanical signs must use galvanised nails or screws.

## **Guided Tours and Slide Presentation**

Tour guiding is an important aspect of interpretation that provides a personal touch to the tour experience. Tour guides must remember to focus on the storytelling approach rather than simply listing facts. The main guided tour is the Oatley Mountain Trail, which is a loop-trail that was refurbished and enhanced specifically for the provision of guided tours, under a RARE Tropical Fund for Bird Conservation Project in 1998. This trail is used for the provision of guided tours to visitors at the site as well as special school or workshop groups. It is often preceded by a slide presentation. .

In 2003, tour guide training was conducted by the JCDT with funding from the UNESCO Youth PATH project at Holywell. The training included presentations on the BJCMNP, flora and fauna of the area, cultural heritage, etc. In addition, a one week course was conducted by TPDCO and about 15 persons including park rangers, education officers, ticket clerks and youth from surrounding communities including the Charlestown Maroons were certified as tour guides. First aid and CPR training have also been conducted with this group. A core group of youth from surrounding communities will receive additional training, including on-the-job training. Training through HEART/NCTVET should be explored.

- A script must be prepared for the Oatley Mountain and Waterfall Trails. The purpose of this script is not for reading during the guided tour, but for use in preparing and refreshing tour guides. In addition, using the script will help to ensure that the quality of the tour is maintained, regardless of the guide as key points should be remembered for sharing with visitors.
- A brochure could be produced based on this script, for sale to visitors who do not wish to have a tour guide.
- A script for the slide show must be produced, and improvements made to the slide selection.
- There are other, longer trails that lead to Holywell e.g. Gordon Town to Redlight to Greenwich and Holywell; Constant Spring through Norbrook to Woodford to Freetown to Holywell, Lancaster (Buff Bay Valley) to Oatley Road to Holywell. The marketing of these longer trails as guided tours linked to the communities they pass through should be considered and investigated.

## **Resource Library for Rangers**

It is important to establish a resource library of reference books for use by the rangers and tour guides. These books must be kept secure. Books from the Resource Library at JCDDT are generally not allowed to leave the office, because many of the books/documents are out-of-print and irreplaceable.

## **Student Activities/Educational Tours**

Activities and activity worksheets have been designed by the Environmental Education Officer, for use by school groups during visits to the park. Training was recently conducted in the use of some of these materials and a toolbox stocked with these activities and work sheets will be developed so they activities can easily be implemented at Holywell, when school groups visit.

- Preparation of “Tool-Box” with activities and work-sheets to be used by school groups at Holywell (particularly primary level schools).
- A manual of educational activities for older students linked to CXC Biology and Geography, and CAPE Environmental Science should be explored with the relevant agencies e.g. Ministry of Education and the Caribbean Examination Council.
- Information and activities for tertiary level students e.g. UWI Life Sciences and Geography Departments, and Universities abroad should also be considered.

**Table 7.1 Five Year Holywell Environmental Management Workplan: Environmental Education – Interpretive Programme**

ACTIVITY	COST (J\$)	FUNDING SOURCE	DEADLINE	RESPONSIBILITY SOURCE FUNDS/ IMPLEMENT	COMMENTS
<b>Exhibits/Interpretive Boards</b> <ul style="list-style-type: none"> <li>Refurbish Education Centre exhibits.</li> <li>Develop exhibits for new Visitors' Centre.</li> </ul>	30,000 Staff time 100,000		Jul 1, 2005 June 30, 2006	EO ED/EO	Seek funds.
<b>Visual Aids</b> <ul style="list-style-type: none"> <li>Update and prepare script for slide show.</li> <li>Obtain new TV/VCR.</li> <li>Ensure brochure stock is maintained.</li> </ul>	Staff time 40,000 Staff time		Jul 31, 2005 Oct 31, 2005 Ongoing	EO EO/ED SC	Seek funds/donation.
<b>Gift Shop</b> <ul style="list-style-type: none"> <li>Maintain stock/exhibit, as appropriate.</li> <li>Develop and implement new plans.</li> <li>Ensure all items have interpretational component e.g. tag.</li> </ul>	Staff time 25,000 Staff time	Income	Ongoing Oct 31, 2005 Ongoing	SC/AM EO/ED/AM EO	
<b>Interpretative &amp; Directional Signs</b> <ul style="list-style-type: none"> <li>Source funds to produce and install newly designed signs.</li> <li>Design/lay-out remainder of signs planned in Interpretive Programme Plan.</li> <li>Source funds to produce and install signs.</li> </ul>	600,000  100,000  600,000		Sep 30, 2005  Sep 30, 2005  Dec 31, 2005	ED/EO  EO/ED  ED/EO	Seek funds.



ACTIVITY	COST (J\$)	FUNDING SOURCE	DEADLINE	RESPONSIBILITY SOURCE FUNDS/ IMPLEMENT	COMMENTS
<b>Guided Tours</b> <ul style="list-style-type: none"> <li>• Prepare scripts for trails – for use by tour guides.</li> <li>• Develop scripts into brochures for sale to visitors for self-guided tours.</li> <li>• Develop longer tours through/to communities.</li> </ul>	Staff time Staff time Staff time		Ongoing	EO EO EO/RAO	
<b>Students' Activities</b> <ul style="list-style-type: none"> <li>• Develop a "Tool Box" of activities for primary and lower secondary level students.</li> <li>• Develop a manual of activities for CXC and CAPE students.</li> </ul>	Staff time 10,000/yr \$600,000		Mar 31, 2005 Jun 30, 2006	EO ED/EO	

KEY:

ED – Executive Director  
EO - Education Officer  
SC – Station Chief  
RAO– Recreation Areas Officer  
R – Ranger  
AM – Administrative Manager

## Chapter 8 – Benefits to Local Communities



While one of the goals of Holywell is to generate income for conservation, the operation of the site using ecotourism principles means that local communities must benefit from the park's activities. In addition, management of the BJCMNP (as with any other national park) must include programmes that promote sustainable livelihoods amongst the communities around the park, who are likely to use or abuse the resources of the park and its buffer zone. The park's Recreation/Tourism Programme ecotourism provides an opportunity to link conservation to income generation and to engender appreciation and support for the park.

### *8.1 Current Status*

In the past, the focus regarding the benefits and income-generating opportunities for local community members and groups has been at the expense of the park management. More emphasis needed to be placed on building Holywell as a strong, successful business enterprise whose benefits would extend to the local communities. Instead, the focus was (and to a certain extent, continues to be) on trying to get local community members and groups to start their own businesses. In spite of the training - both skills training and business development training - and the provision of easy access to low-interest loans and grants, the majority of community members who have attended the park's programmes do not have the entrepreneurial spirit nor perhaps the security needed to take the risk of starting a business. Discussion with community members (including those involved in training) suggests that they are more interested in obtaining waged employment rather than establishing their own businesses.

There are three main communities around Holywell:

- Irishtown/Redlight/Settlement
- Woodford/Freetown
- Section/Cascade

There is also the small community of Greenwich where a number of persons of significantly higher income than the typical rural community members, live or "week-end" in beautiful, well-appointed homes.

Benefits to the local communities from the operation of Holywell as a recreational area are varied and include:

- Recreational facilities (particularly for the youth)
- Entertainment
- Source of community pride (visitors pass through their communities to get to Holywell, and many community members consider Holywell as part of their community)
- Opportunity to meet new people (passing through or staying in the community)
- Income-generating opportunities – visitors to Holywell may stop at a shop and purchase an item or community members may generate income from Holywell through part-time or contract work or participation in *Misty Bliss* – the annual park celebration

The operation of Holywell provides employment and other benefits to several persons from the communities surrounding Holywell. The following is a summary of persons from the local communities benefiting financially from Holywell, as recorded in July 2004.

<i>Job Description</i>	<i>Sex</i>	<i>No. of Persons</i>	<i>Work Schedule</i>
<b>Ranger</b> (Was employed after working as a trainee ranger for about 6 months)	Male	1	5 days/week
<b>Ground Staff</b>	Male	2	3 days/week
<b>Ground Staff</b>	Male	2	2 days/week
<b>Housekeeping</b>	Female	1	3 – 4 days/week
<b>Ticket Clerks</b>	Female	2	15 days/month
<b>Watchman</b>	Male	1	5 nights/week
<b>Trainee Ranger</b>	Male	1	1 - 2 days/week
<b>Trainee Ranger/Tour Guide</b>	Female	1	1 - 2 days/week
<b>Sells Fruit and Traditional Sweets e.g. coconut drops</b>	Female	1	1 day/week
<b>Sell Fruit</b>	Male	2	1 - 2 days/week

A community member currently does laundry. However, this is proving very costly and a decision to purchase a washer and dryer for Holywell is being considered. The snack concession or tuck shop was being run by a restaurant owner in Irish Town. However, it was not proving financially feasible because she had to pay someone to operate the shop. This individual now mainly supplies meals for workshops, school groups, etc. as required.

Every year, booth spaces or table spaces are rented out to community members who sell food/drinks, produce and craft. During *Misty Bliss* there are usually at least 10 persons and their assistants who sell from the surrounding communities. The Station Chief is employed full-time and alternates weekends with the Ranger. Another Ranger assists with work at Holywell one or two days per week. His duties include taking laundry for cleaning, taking the garbage out and making deliveries. The Station Chief and the other Ranger are not residents of the community.

## 8.2 Strategies

The focus for the JCDDT over the next five years with respect to its Recreation/Tourism Programme at Holywell will be to build a thriving business that can help to support and build local communities. These benefits will be derived from:

- Employment
- Purchase of services e.g. plumbing, carpentry, catering
- Purchase of products e.g. craft, coffee
- Provision of opportunities for income generation e.g. at *Misty Bliss*
- Development of tour packages that include community-based products e.g. visit Section coffee tour, Lancaster Trail (Buff Bay Local Forest Management Committee), Woodford and Gordon Town Trails
- Provision of training (through the park's Environmental Education Programme that includes a component that aims to empower local community members to better manage the area's natural resources and to engage in environmentally sustainable livelihood activities)
- Possible establishment of an Incubator Service to assist local community members in product development and marketing
- Provision of recreational opportunities (local community member annual passes at reduced rates)

## Chapter 9 – Holywell: Piloting Ecotourism in the BJCMNP



While recreation and tourism have been practised in the BJCMNP since at least the 1940s, it is only within the last ten years that it has been studied and efforts made to develop policies and establish suitable management and operations systems.

In the BJCMNP Management Plan 2005 – 2010, Recreation and Tourism is recognised as a management programme that contributes to meeting the goal and mission of the national park. Holywell is the largest and most developed recreation area, and the one with the greatest short-term potential in terms of attracting visitors. The park's new Management Plan identifies Holywell as the pilot for the development and management of ecotourism in the BJCMNP. There will be areas where the policies and practices for Holywell will not be appropriate e.g. sites with more community involvement or sites with less infra-structural development. However, Holywell should be used as a pilot project for the BJCMNP and other terrestrial and mountain protected areas.

The implementation of this plan therefore, should be carefully documented and monitored. The lessons learned should be used not only to improve the management of Holywell and the park's other recreation areas, but also to prepare guidelines and other useful, practical resource materials that can be shared regionally and globally.

## Chapter 10 – Implementation and Monitoring: Measuring Success and Revising Strategies

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Good strategies with poor implementation defeat the purpose of the former. Implementing this plan will require determined, experienced persons to carry out the process. It is imperative to make the process of monitoring the impacts of implemented strategies an ongoing process.

After the implementation and monitoring of strategies is carried out, if it is ascertained that standards are or are not being met or thresholds are being surpassed, managers should make adjustments to the plan and their corresponding management activities. Regular revision of strategies or methods is necessary and there needs to be a continuing process of monitoring and improvement.

The Holywell management team should analyse the plan on a quarterly and annual basis. This should include:

- Identifying the objectives that were accomplished, differentiating between those accomplished in the given time and those outside of the timeframe, and identifying reasons for the delay.
- Identifying objectives that have not been accomplished and ascertain why they have not been achieved.
- Determining whether the objectives yet to be accomplished can still be established in the original designated time or whether that time would need to be revised.
- Identifying possible solutions for those objectives that were either delayed or have not been accomplished.

In addition to monitoring activities and their implementation, the impact that Holywell has as an ecotourism attraction is of utmost importance.

Four main goals that should be achieved to ensure the success of ecotourism are:

- Threats to conservation targets are reduced
- Income is generated for conservation
- Awareness and knowledge about the BJCMNP is increased
- Local communities are benefiting

*(adapted from Drumm and Moore, 2000)*

With respect to Holywell, this can only be monitored and evaluated by:

1. Monitoring income and the contribution this makes directly to park management (i.e. income exceeding expenditure).
2. A regular and ongoing visitor survey to collect information on the level of awareness and knowledge among visitors.
3. Tracking the number of local community members benefitting from employment, training and other educational opportunities at Holywell.

All of these should increase over the five years of this plan's implementation.

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# Appendix 1 – Information on the Blue and John Crow Mountains National Park

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## Management

The BJCMNP, located at the eastern end of the island of Jamaica, is about 78,000 hectares (almost 200,000 acres) covering the steep mountain slopes of ten watersheds and sections of the parishes of St. Andrew, Portland, St. Thomas and St. Mary. The national park is managed collaboratively by the National Environment and Planning Agency/Natural Resources Conservation Authority (NEPA/NRCA), the Forestry Department (FD) and the Jamaica Conservation and Development Trust (JCDT). The park was established as a protected area in 1993 on the boundaries of a Forest Reserve established in the 1950s. Following JCDT's involvement in the establishment of the BJCMNP under the PARC Project, management of the national park was delegated to JCDT by the NRCA in 1999. In 2002, a new delegation instrument was signed, as well as a twenty-year lease agreement for Holywell.

The Jamaica Conservation and Development Trust is a non-government organisation and registered charity, established in 1988. Its mission is:

*To promote environmental conservation and sustainable development, with particular emphasis on the Blue and John Crow Mountains National Park, for the benefit of Jamaica and its people.*

The JCDT generates income to manage the national park through grants, sponsorship, fund-raisers, donations and use of the facilities and services in the park's recreational areas e.g. Holywell and the Blue Mountain Peak Trail. NEPA plays a major role in the development of policy, legislation, coordination and the meeting of the requirements of various international conventions. While the Forestry Department is involved in these management areas, it focuses mainly on enforcement.

The management of the BJCMNP is guided by the 2005 – 2010 Management Plan which was prepared during 2004, using a participatory process to involve stakeholders at the government, community, private sector and academic levels.

## Description

The BJCMNP is located in the eastern end of the island, and consists of three mountain ranges, the northern and central sections of the Port Royal Mountains in the west, the Blue Mountains in the centre and the John Crow Mountains in the east. While both Port Royal and John Crow Mountains run mainly north-west to south-east, the Blue Mountains run mainly west to east. The BJCMNP includes the highest land in Jamaica, the majority of which is over 1800 m, the highest point being Middle Peak (Blue Mountain Peak), which is 2256 metres. The ranges of the Blue Mountains are strikingly different from the John Crow Mountains, as the former have a complex geology including both volcanic and sedimentary processes, resulting in mostly shale formations, while the John Crow Mountains are composed of limestone. This feature, along with altitudinal and rainfall differences, results in different types of forest and even fauna occurring in the two mountain ranges. (JCDT, 2005, Kerr et al, 1993).

The forests of the park are:

- one of the two last known habitats of the giant swallowtail butterfly – largest butterfly in the western hemisphere (the other being the Cockpit Country which is less well studied)
- important habitat for all endemic, and many other Jamaican birds, as well as providing winter habitat for many migratory birds
- home to numerous orchids, bromeliads, ferns and other plants that are found nowhere else in the world
- essential for absorbing carbon dioxide and producing oxygen – cleansing the air and reducing global warming
- necessary for conserving the soil of the area – preventing soil erosion and landslides
- vital for providing water – the park is the source of drinking water for about 40% of the population of Jamaica, in addition to supplying water for farming, manufacturing and the tourism industry
- a component of the area's socio-cultural traditions of the Maroons and other mountain villages e.g. foods and craft from local plants and animals. These are highlighted at *Misty Bliss* – the park's annual celebration at Holywell

## Threats

The major threats to the bio-diversity and ecosystem health of the park have been identified as:

- deforestation and degradation of the forest by:
  - clearing of land for agriculture, logging, squatting
  - fires (often started by land-clearing activities)
  - overgrowth of invasive plant species (often in areas cleared of natural forest)
  - collection of plants e.g. orchids, tree ferns and bromeliads
- destruction of wildlife by:
  - loss of habitat
  - hunting
  - pollution

Analysis of these threats indicates that the root causes are:

- Insufficient enforcement e.g. patrols, reporting of breaches, warnings and arrests
- Lack of environmentally sustainable income generating opportunities apart from farming
- Insufficient community knowledge and skills regarding environmentally sustainable practices & income-generating activities
- In addition, uncoordinated and often inadequate government policies, and lack of funding and human resources to deal with these threats and pressures intensifies the problems.

In order to address the problems that are causing degradation and destruction of the BJCMNP, there are programmes that focus on:

- Conservation/Protection e.g. reforestation including native species nurseries, research
- Enforcement and Compliance e.g. through patrols, marking of boundaries, etc.
- Environmental Education and Public Involvement e.g. activities with buffer zone schools and community groups and an Interpretive Programme at Holywell
- Recreation/Tourism – the development and operation of ecotourism attractions

- Administration and management activities include supervision and human resource management, fundraising, project and financial management, and marketing.

## **Recreation and Tourism in the Park**

The BJCMNP was developed under similar notions to national parks in the US tradition – with the expectation that recreation and tourism would play an important role, both in terms of enjoyment of nature by the visitor and generation of income by the park and the local community. The reason for promoting the national park as a site for recreation and tourism is to increase the level of support for the park through direct income generation and other forms of support that may be garnered by allowing people to enjoy the and understand its importance.

The Blue Mountains have been used as a recreational site since the turn of the century (Kerr et al, 1993). Local community members (including the Maroons) have created trails for economic and domestic purposes, and botanists, bird-watchers and naturalists have used these trails and other sites to pursue their hobbies and studies.

Visitor expenditure in 2003 was US\$1,352,000, making tourism Jamaica’s largest foreign exchange earner, and one of its most important industries. Nationally there is a move to diversify Jamaica’s tourism market and promote the nature-culture-adventure experiences the island has to offer. The Master Plan for Sustainable Tourism emphasises this need, as well as the importance of environmental conservation and involvement of local communities.

A survey of tourists (sample size 200) to Jamaica in 1995 indicated that the Blue and John Crow Mountains region is a special site of interest. The increasing numbers of visitors to the park’s recreational areas is testament to this. (The number of visitors in 2003 to Holywell and Portland Gap was 10,168 as compared to 8,072 in 2002). Currently there are opportunities to increase the marketing of the park’s attractions to the local visitor (primarily from Kingston) and the average tourist seeking a break from the “sun, sea and sand”. The alternative tourist including the ecotourist, can also be attracted over time and with appropriate product development and niche marketing.

Ecotourism is viewed by park management as a tool to ensure the park’s recreation areas assist in fulfilling the conservation objectives of the BJCMNP by:

- Providing quality natural and cultural heritage-based recreational opportunities to Jamaicans and visitors

- Raising awareness and knowledge about environmental conservation and tropical forest ecosystems specifically, using the park as an example
- Generating income for management of the park
- Providing income-generating and other benefits to local communities

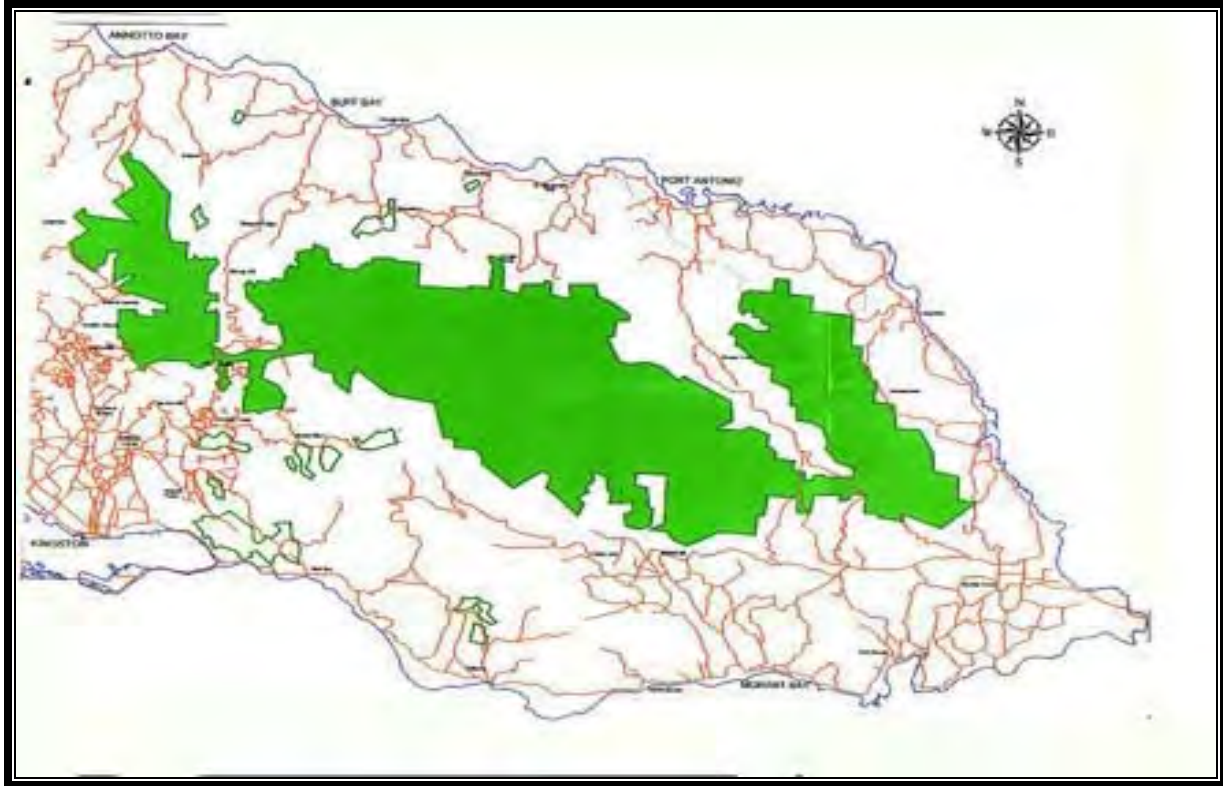
Since these activities would be conducted within the park and its buffer zone, there would be an emphasis on reducing environmental impact and monitoring visitor impact.

There are many opportunities for eco or heritage tourism development within the BJCMNP. Existing and potential sites/trails include:

- Holywell
- Blue Mountain Peak Trail and Portland Gap
- Clydesdale
- Cinchona
- Trails around Holywell/Newcastle
- Trails in and around the Upper Rio Grande Valley e.g. White River Falls Trail, Cunha Cunha Pass Trail

While there are many opportunities, to rehabilitate old trails that are grown over, they should not be developed without careful planning and management. Some sites or trails may not be appropriate for development within the context of a National park, because of their unique ecosystems or because the opening of trails can lead to intrusion by invasive species such as wild coffee (*Pittosporum*). Opening or promoting sites/trails for recreational use without a sound management system can result in environmental degradation and stress on administrative and enforcement programmes, and ultimately, the loss of valuable national assets. The BJCMNP Management Plan 2005 – 2010 addresses this and other related issues under the park's Recreation and Tourism Programme.

*Map of the Blue & John Crow Mountains National Park*



## **Appendix 2 – Maps and Diagrams**

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### **1. Map of Holywell**

### **2. Map of Holywell showing Proposed Signs (from Signage Plan)**

### **3. Examples of Proposed Holywell Signs:-**

- **Orientation**
- **Interpretive – Blue Mahoe Trail**
- **Interpretive - Orchids**

### **4. Architect's Impressions of Proposed new Infrastructure:-**

- **Entry Portal**
- **Welcome Ticket Booth**
- **Visitor Pavilion**
- **Amphitheatre**
- **Education Centre**
- **Dormitories**






*Map of Holywell Showing Proposed Signs (from Signage Plan)*



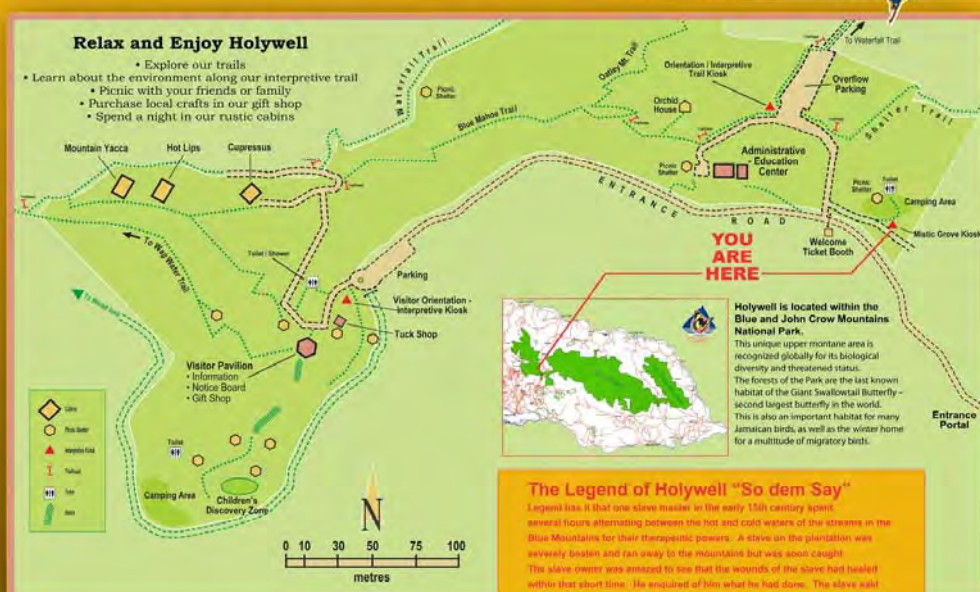
## Orientation Sign

# Welcome to Holywell




### Relax and Enjoy Holywell

- Explore our trails
- Learn about the environment along our interpretive trail
- Picnic with your friends or family
- Purchase local crafts in our gift shop
- Spend a night in our rustic cabins




**YOU ARE HERE**



**Holywell is located within the Blue and John Crow Mountains National Park.**  
 This unique upper montane area is recognized globally for its biological diversity and threatened status. The forests of the Park are the last known habitat of the Giant Swallowtail Butterfly – second largest butterfly in the world. This is also an important habitat for many Jamaican birds, as well as the winter home for a multitude of migratory birds.

**The Legend of Holywell “So dem Say”**  
 Legend has it that one slave master in the early 15th century spent several hours alternating between the hot and cold waters of the streams in the Blue Mountains for their therapeutic powers. A slave on the plantation was severely broken and ran away to the mountains but was soon caught. The slave owner was amazed to see that the wounds of the slave had healed within that short time. He enquired of him what he had done. The slave said that he bathed in a certain spring. The master promised not to punish the slave if he revealed the location of the spring. Today we don't know the exact location of the healing springs at Holywell, however, we do know local persons used to bathe in ponds in the Wapwater stream area.





# Orchids Interpretive Sign

## Tiny Treasures

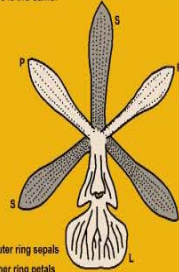
The Blue Mountains are home to many orchids, from the miniature *Lepanthes* to the larger *Phaius tankervilleae* or Nun's Orchid.

Orchids, one of the most dramatic and exotic flowers, find an ideal home in the tropical climate of Jamaica. Our wide range of elevations and exposures, and variable rainfall provide diverse environments for more than 60 genera and 220 species of orchid. The largest genera of native species are *Pleurothallis* and *Lepanthes*. Almost 30 percent of these orchid species are endemic to the island. In the genus *Lepanthes*, virtually every species occurs only in Jamaica, and mostly in areas like the Blue Mountains with over 3000 ft. elevations.

### How Orchids Grow

A very diverse plant, orchids come in a wide variety of sizes and shapes and grow in a variety of different ways. Most orchids in tropical regions are epiphytes. They grow by attaching their roots to some form of support such as a tree limb or even a fence post. Others grow over rocks (lithophytes) and still others root in the soil or find a home for their roots in the leaf litter covering the forest floor (terrestrials).

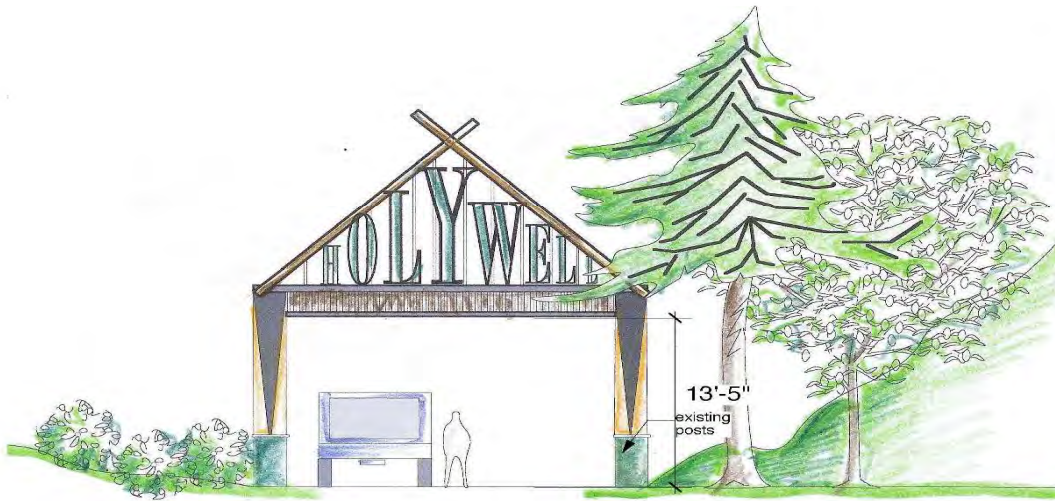
Orchids are usually recognized by their large spectacular blooms, however, one has to search hard for these hidden treasures in the Holywell area because most are from the miniature group of orchids, *Lepanthes*. Even within this one group of orchids, there is a wide variation in shape and form, however the basic structure of all orchid flowers is the same.



S - Outer ring sepals  
P - Inner ring petals  
L - Lip (lower petal)



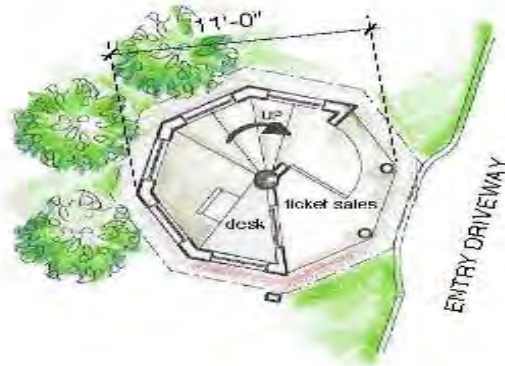
## Entry Portal



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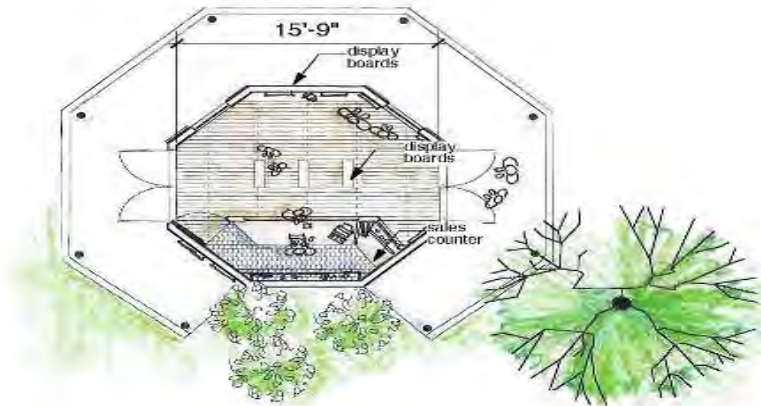
entry portal  
Holywell park  
kingston 10 architects  
46 lady musgrave rd,  
kingston 10

## Welcome Ticket Booth



Ticket/welcome Booth  
Holywell park  
kingston 10 architects  
46 lady musgrave rd,  
kingston III

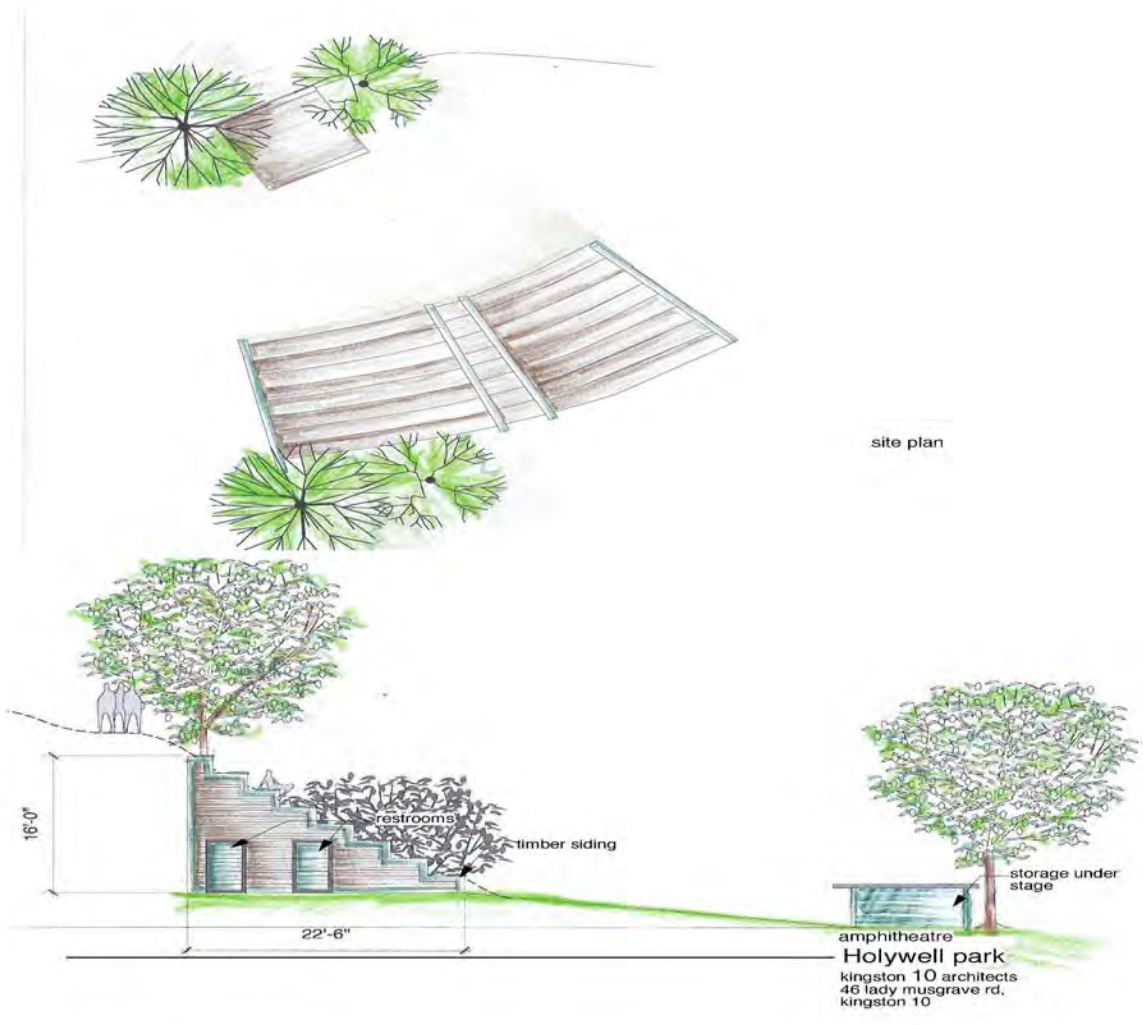
## Visitor Pavilion



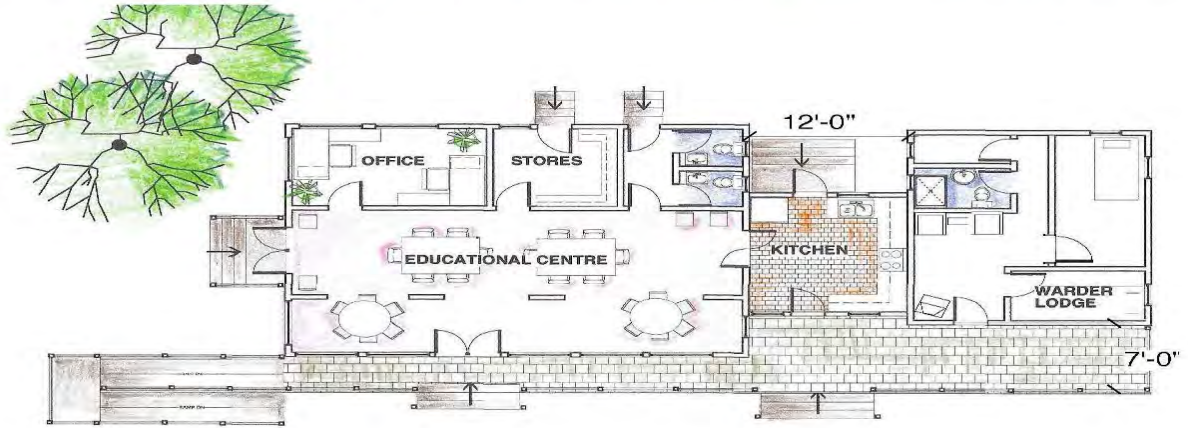
visitors pavilion  
**Holywell park**  
kingston 10 u.s. rta. rd.  
46 lady mungrove rd.  
kingston 10



# Amphitheatre

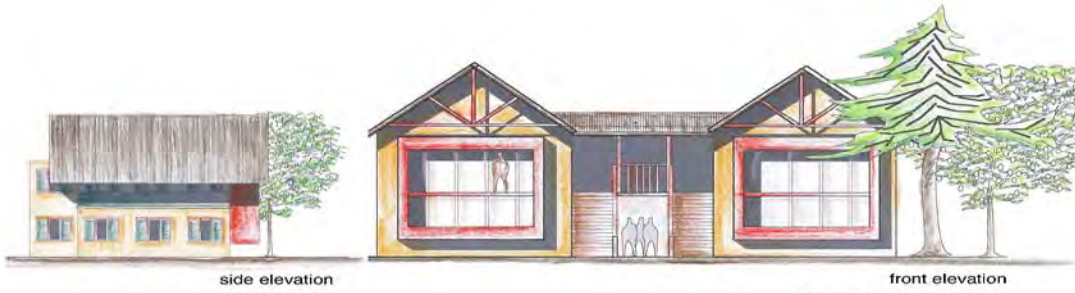
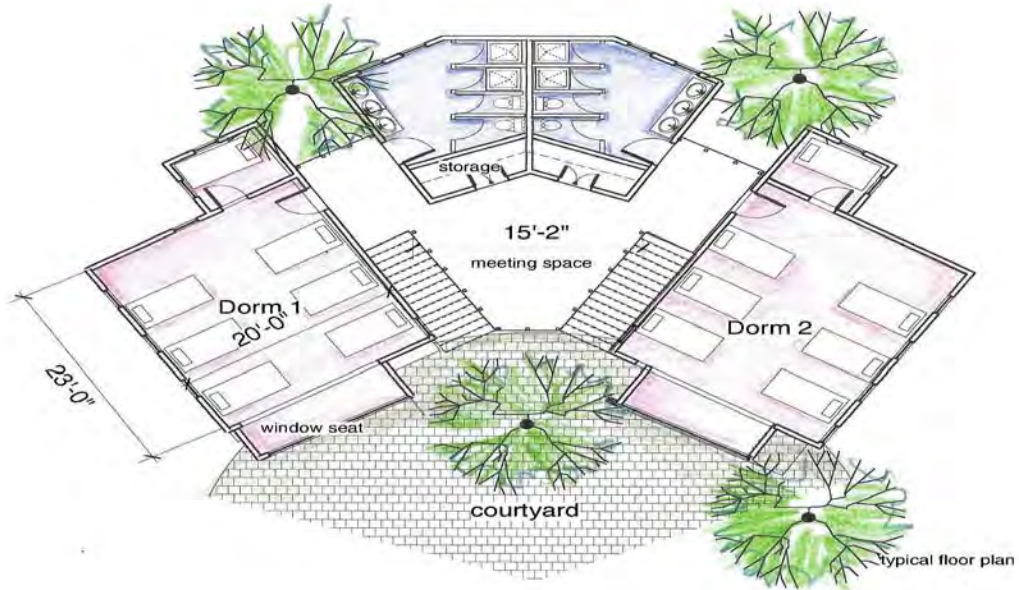


# Education Centre



Holywell park  
kingston 10 architects  
46 lady musgrave rd,  
kingston 10

## Dormitories



dormitory  
**Holywell park**  
kingston 10 architects  
46 lady musgrave rd,  
kingston 10

# Holywell Recreation Area

Blue and John Crow Mountains National Park



## Sign Plan with Graphic Design Guideline and Site Development Vision



May 2004





**Holywell Recreation Area  
Blue and John Crow Mountains National Park**

**Sign Plan  
with  
Graphic Design Guidelines  
and  
Site Development Vision**

Prepared for  
**Jamaica Conservation and Development Trust**

by

**USDA Forest Service Heritage Design  
and  
International Institute of Tropical Forestry**

under agreement with

**The Nature Conservancy  
and  
United States Agency for International Development**



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## **INTRODUCTION**

Signage plays a key role in visitor experience and visitor management for a park. A consistent approach and look to signs can help in developing park brand recognition and sense of place, as well as making for a more enjoyable and rewarding park visit. A well thought out plan, designed for its audience, guides sensible placement of signs that provide visitors with the information and stories they need to know them, when they need to know them. A good signage program can assist resource conservation aims, and build public support for park goals.

This is the basis for the Holywell Sign Plan. This plan is part of a larger effort to further develop Holywell as an educational □  
out needed visitor services, built environment, education and park management needs. This vision sees the park environment as part of the surrounding area, with Holywell being a hub in a larger tourism area . The goal of this strategy is to bring economic and social benefits to watershed residents.

Holywell is visited by local families, groups from Kingston, business travelers, and international tourists who are drawn to the misty coolness and fantastic views offered by the park. They come to escape the heat, to picnic, attend reunions, hike, camp, stay in the park cabins and learn about its tropical cloud forest. The annual ‘Misty Bliss’ celebration attracts thousands for music and relaxation.

Sign planning must address the needs of this varied audience. Visitors have basic information needs. They need directions to reach the park. They need to know what they can see and do here. And then they need the information and stories to experience the unique attributes of each place. This plan addresses the various types of park signs (directional, informational, and interpretive) that together present this information. Recommendations for content and placement of signs are included. A design guide with design elements and standards is presented for all recommended park signs for a cohesive and unified look.

Finally, an integrated signage plan will serve the needs of park management. It will promote conservation awareness and park management goals, foster an attitude of respect and appreciation for all of Jamaica’s natural resources, and build a support base for the park. Interpretive signage can be a valuable tool for local community development. The principles, approach and guidelines contained here should be adopted for all of BJCMNP. This plan should serve as a model for other national parks and protected areas.

### **Sign Planning in a Nutshell**

Place signs to provide visitors with the information they need, when they need to know it, and also to showcase the landscape.

Give signage a unique and consistent look to stimulate interest and reinforce a sense of place.

Orient the visitor in the landscape with maps and illustrations: ‘you are here’ in relation to the world around you.

Use more graphics, less words on signs. Graphics can communicate a complex idea at a single glance. Few people will bother to read long text.

Tell a good story, a bigger story. Interpretation is more than just providing information. This is story-telling that creates connections and an understanding of the world around us.

## Telling the Holywell Story

### Main Theme:

Everything we want visitors to know is tied to this statement.

Holywell is a misty mountain experience at the top of Jamaica. Its lush tropical forest, home to Jamaicans, is a unique world apart at the divide of two major watersheds.. Holywell offers recreational opportunities, ways to learn about the forest and a new perspective on the world below.

### Sub-themes:

The interpretive information and stories told at each site are told on **two levels**: a more focused, **site-specific story**: tropical forest and its ecology, recreation opportunities within the park, conservation aims; and a **bigger, landscape-scale picture**: the role of these mountain watersheds in the natural history of Jamaica and the history of its people; other visitor opportunities in the area, including long-distance trails passing through Holywell; larger conservation aims for the watersheds

### SOME HOLYWELL INTERPRETIVE SIGN TOPICS

The importance of Tropical Rainforest to Jamaica:  
Orient people to the land, its life, and their history

#### What is a mist rainforest?

- elements and niches
- species inter-dependency
- species identification
- conservation message

#### The bigger picture: rainforest watersheds.

- watersheds geomorphology, how they work
- watersheds use to Jamaicans
- watershed roles in Jamaican history
- watershed use today and their economic importance

## Recreation

There are many exciting and educational opportunities at Holywell and the surrounding area that can provide visitors a memorable experience. Signage allows visitors a self-guided experience of the park. Other activities include staying in the cabins, camping, picnicing, special events a relaxed experience of the Blue Mountains, environmental education, an exciting discovery zone, interpretive trail, short walks and longer hiking trails, long distance, cross country hiking, souvenirs, photography, bird watching, plant identification.

## Park Management

Information signs make visitors aware of park rules, special events and learning opportunities. Interpretative signs can educate visitors about the negative consequences of their actions. They can enhance visitor experience while encouraging behaviors that support sustainability. With increasing numbers of people visiting this fragile natural resource, it is important that visitors understand how easily it can be destroyed. Providing education and interpretation as part of an eco-tourism experience can potentially inspire people to become actively involved in environmental issues.

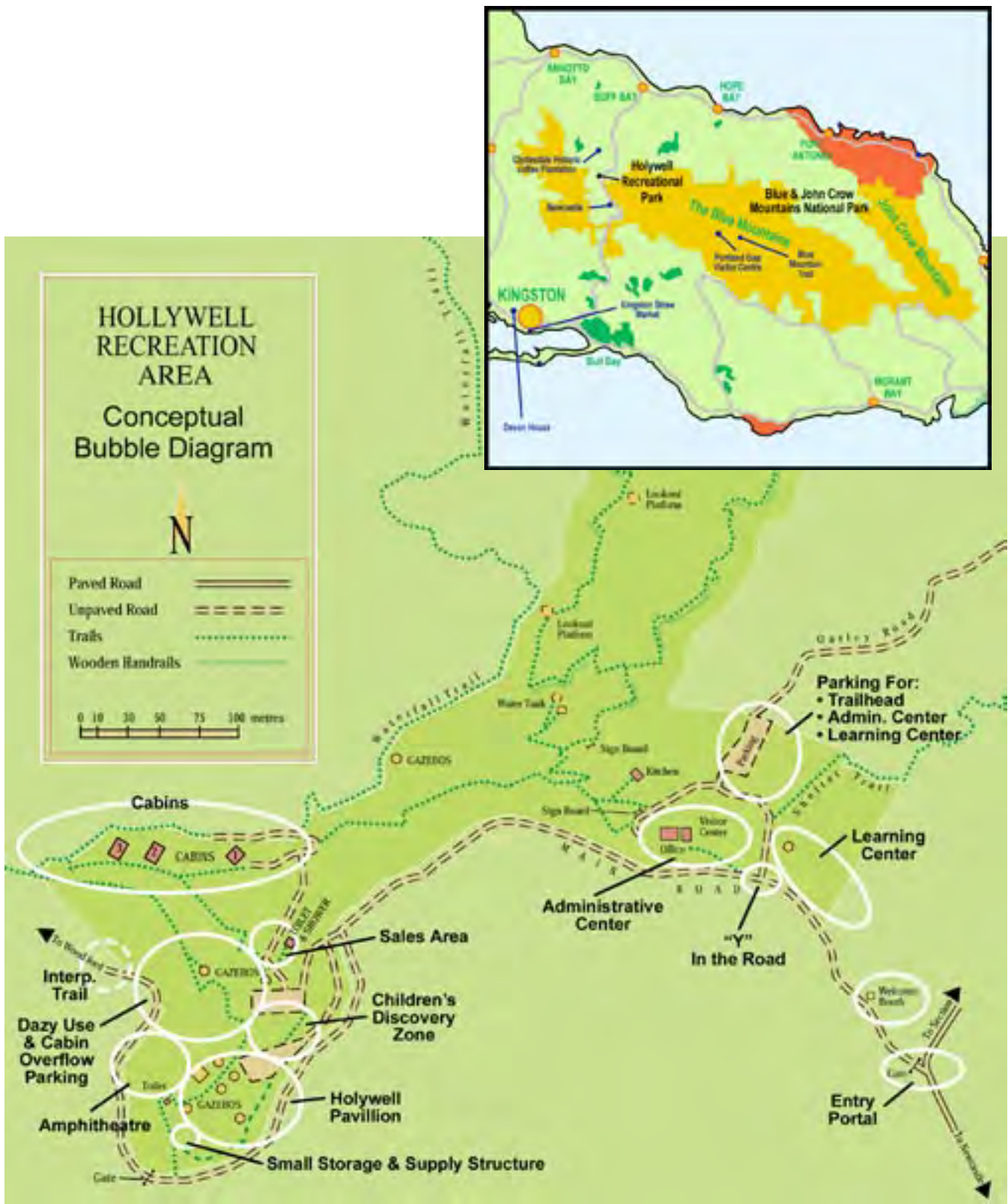


Fig. 1



## SITE DEVELOPMENT CONCEPT & DESIGN NARRATIVE

### Primary Features and Interpretive Elements

The Blue mountain experience is that of Holywell itself (recreation, environmental education), and the ‘big picture’ experience (aided by tremendous vistas) of the role of these mountains as providers of water and life today and throughout Jamaican history.

This signage plan guides the creation of Wayside, Trail, Visitor Facility and Roadway signs. The plan guidelines will insure all signage is designed with a consistent theme, voice and look.

General recommendations for Holywell signage include:

- Concentrate signage in three 3-panel kiosk locations and at specific critical locations.
- Use consistent thematic graphic elements
- Interpret immediate features or locations, in context of a bigger picture (watershed, Jamaica, global)
- Incorporate a colorful handcrafted look

All facilities, including Gazebos and Cabins, should be given thematic names to bring life and interest to the area and support Holywell interpretive stories. This theme would identify the various features and facilities, as well as help the visitors know where they are going.

A general park-wide recommendation is that aerial electrical and telephone lines be buried or moved to where they do not interfere with scenic views, or compromise the area’s natural character. For communications purposes, a satellite dish can be installed at the administrative center.

### The Entry Portal

The entrance to Holywell is just begging for a dramatic entrance structure. This feature provides a sense of welcome and arrival. It is a visitors’ visual cue that they have reached their destination, and that once they cross the “portal” their experience at Holywell begins.

The Entrance Portal should consist of:

- A portal made of natural materials that reflect the area’s character and heritage. A good choice would be carved and brightly painted wood banner that visitors drive under. Landscaping to make the entrance more inviting with indigenous trees and shrubs.
- Lighting illuminating the entry portal, for a greater sense of security at night and to add a measure of formality.



## Welcome Booth

The Welcome Booth should be located a bit further down the road, next to, and on the same side as the existing stone wall. Here there is more room for vehicles to stop. This location would be a more attractive spot. The booth would be a simple structure that provides shelter for the Park Ranger and gives the visitor an opportunity to interact with a live person who will greet them with a smile and answer questions for them. The booth provides a point of sales for tickets and a place to distribute simple orientation maps with the Centre's recommendations for safety and security.

The Booth itself should:

- Be made of similar materials, and be of similar character to the entry portal: it is not just a utilitarian structure, but another medium for your message.
- Incorporate the word “welcome” for the visitor approaching the booth

## “Y” in the Road (Decision Point for Visitors)

A sign is necessary here to help the visitor decide which way to proceed. The sign would point to the right for the Trailhead, Administrative Centre, and the Learning Centre. The sign would indicate to proceed straight to the Day-Use & Picnic Area (Gazebos), the Cabins, the Visitor Pavilion (new), and the Children's Discovery Zone (new), and the new Interpretive/Scenery Trail.

## If the visitor makes a right turn...

... towards Parking Area for the Trailhead, Learning Center, & Administration Centre Overflow.

The existing main parking area would become the designated parking area for a new Trailhead, for the Learning Centre and would also serve as overflow parking for the Administrative Center.

The **Trailhead** would consist of a:

- Hardened, well defined parking area (graded for proper drainage, compacted, with gravel base) for as many vehicles as site conditions allow.
- Trailhead kiosk here is the ‘Holywell Hiking Centre’. The signs here have a more fully developed hiking emphasis than other signs in the park. Kiosk signs include:



- Orientation maps with both short loops and long distance trails (use topographic lines depicting longer trails)
- Trail network information: trail descriptions (what you can experience along this trail), difficulty, distance, hiking time)
- Recommendations (i.e. “Lock Car”, “Take Water”, what else to bring)
- Administration Centre Info (available services, items for sale)
- Toilet facility

### **Trails:**

Make loops out of short and medium length trails (some can join together). On shorter trail loops, incorporate some fun features - like bridges. Longer distance and through-hiking trails offer a real adventure experience. Trail markers can be thematic icons tied to trail names and maps, and should be placed where ever the trail direction is unclear, and periodically to reassure hikers that they are still on the right trail.

### **Administration Center**

What is now the visitor center would become the Administration Center. It would serve as the hub for management and administration of Holywell. It consists of:

- A hardened driveway and parking area (graded for proper drainage, compacted, gravel base) to reduce erosion.
- Parking for 2 vehicles only to reduce the impacts to the site. These parking spaces would be sited away from the edge where views towards Kingston and picture taking is enjoyed.
- An Administration Office (existing interpretive center). This work space can also serve for meetings and Learning Center functions. Flexibility is increased through the use of:
  - Roll-away carts with storage/display drawers,
  - Roll-up banners
  - Easily-stored interpretive trunks to use in the centre, loan out or take to schools. These trunks contain information about specific species, issues or resources (e.g., butterfly, parrots, coney, watershed)





- A sales area for “Catherine’s Peak” spring water and simple packaged foods.
- Ranger’s quarters (shelter and kitchen)
- Equipment and storage

### **Learning Center (in the area of the new Gazebo)**

This facility would serve as the main gathering area for school and other groups. Visitors can park at the main parking area and walk to the site, which would consist of:

- The existing picnic Gazebo.
- The existing toilet.
- A new dormitory constructed east of the Gazebo, in the area where the coffee bean plants were planted (if soil tests permit). The size and capacity of the dormitory depends on anticipated use.
- A tent camping area adjacent to the Gazebo and possibly expanded to the west where there is a flat area with views to the north.

### **If the visitor continues straight ahead...**

Directional signs will be used to direct visitors to the:

### **Day-Use & Cabin Overflow Parking Area**

This will be one main parking area that serves the day-use area. It will be a well defined and hardened (graded for proper drainage, compacted, gravel base) to reduce erosion, and will be sized according to the site limitations and anticipated use. The parking area will include:

- An overflow parking for the cabins (visitors would be provided only one space per cabin near the cabins).
- Larger spaces, with an appropriate turning radius for small school or tour buses.
- Direction signage



The parking area will be in close proximity, and within view of the Visitor Pavilion, Children's Discovery Zone, Interpretive Trail, Amphitheatre, Picnic Area and Campground.

## Visitor Pavilion

This would be an open structure that is of similar design to the gazebos but significantly larger (40 ft. diameter if site permits). A large sign would identify it as 'Holywell Pavilion'. Simplicity and flexibility are the hallmarks of this open multi-use area. It can be used for interpretive signs and live interpretation for groups. Other materials needed for interpretation and special programs would be stored and locked in a small structure located discretely nearby. Seating would be provided on concrete benches (like those already in place). The pavilion could also be used for special events like weddings, regional meetings, educational activities, and other functions. The pavilion should include a large overhang to protect visitors from the elements.

The welcome kiosk here contains the principle orientation to the park. The only permanent exhibit in the facility would be basic park orientation and a few interpretive panels. Welcome kiosk signage would be visible from the parking lot, and include:

- Holywell orientation map, featuring visitor opportunities, immediate trails.
- Orientation map to watersheds north and south of divide.
- Hand-drawn and labeled oblique-view map.
- Geologic, natural, cultural features.
- Hand-drawn art depicting coffee farms, etc.
- Watershed interpretation.
- Cloud forest life interpretive panel: a colorful mural-style painting featuring:
  - Overstory, understory vegetation of forest
  - Insects, birds, fauna including many small details  
(encouraging children to find hidden species)

## Children's Discovery Zone

This would be a children's play area and adventure trail. It would incorporate features that appeal to various ages, and include a play area and an adventure trail. It would use fun structures of natural materials and maybe cast concrete to tell a story and provide environmental lessons.

Constructed elements would include:

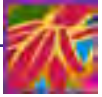
- Low hanging tree house and stepped platforms that can safely be climbed



*Fig. 2. Amphitheatre location*



*Fig. 3. 3-sided Kiosk location*



- A swinging bridge, and “natural” style climbing opportunities
- Play area has a wood border (6”x6”) to separate it from other areas and at least 8-12” of wood chips for safety
- Thematic play experiences/children’s wildlife challenge trail: each ‘challenge’ could have a small interpretive sign featuring species and an overall message about animal adaptation. These could include:
  - Lizard hang-line of individual suspended ropes like tarzan vines, varying heights.
  - Worm squirm tunnel - concrete “hollow log” structure for crawling through, could be buried for a short distance.
  - Bird balance - line of successively smaller logs for balancing and walking
  - Frog leap - set of flat “leaves” differing distances and heights for jumping from one to the other, probably best in large wood “tree cookies”.
  - Mongoose charge - mongoose is introduced species, object will be to run from a starting point and leap up to smack the mongoose cut out.
  - Coney crawl - same as worm squirm
  - Parrot climb - rope netting for climbing
  - Some sort of comparable rock experience

## Interpretive Trail

This trail (yet to be named) would be short and fully accessible. Its purpose is to provide an easy walk with opportunities to view scenery, contemplate nature, and learn via environmental stories on signs. It should incorporate the best views and experiences available in the vicinity.

- Hard surface (boardwalk or colored concrete with stamped or rough surface)
- Overlooks/Viewpoints/Photo opportunities
- Simple interpretive signs
- Benches
- Boardwalk
- Vista identifier (watershed features, villages, Kingston area, etc)
- Interesting little ‘ah-has’ (like rounding a corner and finding a surprise element)
- This is a discovery trail for big people

## Amphitheatre

Serves as an additional and alternative venue for a variety of public presentations (Misty Bliss, among others) and for outdoor classrooms. The amphitheatre would include:

- An identity sign with thematic name
- A stage
- Seating on simple tree trunks
- Lighting (for evening programs)



*Fig. 4. Misty Area*



*Fig. 5. Compost Exhibit location*



### **Sales Area** (maybe use existing gazebo facility, with contracted local concessionaire)

This facility would serve the demand for simple packaged food, water, coffee, tea, snacks, postcards, calendars, and local arts and crafts. Items could include:

- Hard plastic bird ID cards (printed front/back)
- Birds (like those in display case at present interpretive centre)
- Cut-out laminated bird plaques
- Coffee
- Picnic and camping supplies, food

### **Cabins**

Create a central parking area that will serve all three cabins, with one parking spot per cabin (overflow parking will be at central day-use parking lot). Provide hardened walkways to cabins with simple directional signs. Each cabin should be identified with a thematic name, with corresponding colorful icon plaque attached to the cabin. A vista identifier should be located at a nearby viewpoint. A Cabin Area Welcome kiosk adjacent to the parking area can contain:

- Welcome orientation
- Map with cabin names and logos, water location
- Housekeeping info: the hows and whys of staying here
- Holywell park visitor opportunities, short trail loops
- Possibly an interpretive sign
- Brightly colored wood cut-outs of cabin identifiers (birds would be good)

### **Picnic Shelters/Gazebos**

Identify each gazebo with a thematic name. This can be reflected in a brightly colored wood cut-out icon plaque attached to the gazebo, with the same symbol keyed on park maps. Provide a hardened path to each gazebo, with stairways of consistent style.

### **Campground**

If compaction or dampness become a problem, raised tent platforms are a possible solution. These can be as simple as a wood 2x4" frame filled with shredded bark. Assigned campsites are another management feature.

## **Holywell Sign Locations**

(Keyed to Holywell Map)

### **Welcome Orientation Kiosk**

1. Holywell Orientation Panel
2. Watersheds Orientation Panel
3. Tropical Mist Forest

### **Visitor Pavilion**

4. Information / Notice Panel

### **Campfire Circle**

5. Overlook Interpretive Panel

### **Recycle Exhibit**

6. Recycling Panel (Exhibit)
7. Plastics Panel (Exhibit)
8. Compost Panel (Exhibit)

### **Wag Water Trail**

9. Trailhead Panel

### **Waterfall Trail**

10. Trailhead Panel (2 panels)

### **Blue Mahoe Interpretive Trail**

11. Trailhead Panel (2 panels)
12. 'Creepers and Hangers' Interpretive Panel'
13. 'Heart of the Forest' Interpretive Panel
14. Oatley Mountain Trailhead Panel
15. Orchids Interpretive Panel

### **New Stairway (access to trails, parking lot, administrative center)**

16. Overlook Interpretive Panel

### **Trail Orientation Kiosk**

17. Holywell Orientation Panel
18. Trail Network Panel
19. Trail History Interpretive Panel

### **Shelter Trail**

20. Trailhead Panel

### **Misty Area Kiosk**

21. Holywell Orientation Panel
22. Conservation Interpretive Panel
23. Blue Mountain Coffee Interpretive Panel







*Fig. 7. 3-Panel Bay Orientation kiosk location*



*Fig. 8. Campfire circle overlook interpretive sign location*



## WAYSIDE AND TRAIL SIGNS

### Welcome Orientation Kiosk

#### Holywell Orientation Panel

- **Graphics:** Map of Holywell close up, indicating all features
  - ‘You Are Here’ indicator
  - insert map of BJCMNP shape, indicating the three main recreational areas within the park
- **Main text:**

*Welcome to Holywell,  
a tropical paradise of mist and forest with breathtaking views of the world below.*

Relax and enjoy Holywell:

- Stroll on a short walk
  - Rest in our rustic cabins
  - Learn about the environment on our interpretive trail
  - Picnic with your friends or family
  - Meet with your church or business group
  - Peruse local crafts in our gift shop
  - Explore our longer trails
  - Experience the forest
  - View the world below
  - Take photos
- **BJCMNP Map text:**

*Holywell is located within the Blue and John Crow Mountains National Park  
This unique high montane area is recognized globally for its biological diversity and threatened status. The forests of the Park are the last known habitat of the Giant Swallowtail Butterfly – second largest butterfly in the world. Here is also important habitat for many Jamaican birds, as well as the winter home for a multitude of migratory birds.*



- **Sidebar: Holywell Information:**

***The Legend of Holywell ... ‘So de Say’***

*“Once there was a slave who was whipped mercilessly by his master and soon after escaped into the mountains to hide. Upon reaching this area, he found a natural spring to bathe in and his wounds were instantly healed. He was recaptured within a few days and promised by slave master that he would never be beaten again if he told the secret of this “holywell”.*

*The slave told him, and soon thereafter, the slave master himself made regular journeys to bathe in the spring. Years went by and something happened where the master beat the slave again. The next day, when the slave master went for his soothing bath, he found the well had dried up.”*

### **Watershed Orientation Panel**

- **Graphics:** Map with watersheds: from north coast to south coast:  
featuring Holywell prominently in center, major features indicated, and places of interest captioned

- Leaf watermarked in background to represent watersheds which function similarly to leaves (veins of the leaf are a river and side-streams)

- Three watersheds shaded into the background of the map, or in a separate sidebar display (Hope river, Pencar-Buff Bay River, Wagwater river)

- **Text:**

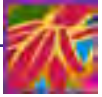
***Did you drink a glass of water this morning?***

*If you are from Kingston, St. Andrew St. Thomas, St. Mary, Portland your water came from the Blue and John Crow Mountains National Park. The Blue and John Crow Mountains National Park is vital for providing water to the people of Jamaica. The park provides 40% of the population of Jamaica, over one million persons, with fresh water daily. Watersheds and what they are used for - the whole coffee industry -*

- **Sidebar text:**

***What is a watershed?***

*Picture a leaf. When viewed from above, a watershed has a network of streams organized like veins. A drop of rain that falls anywhere within the boundary of a watershed can eventually make its way to the mouth of the largest stream.*



## **Tropical Mist Forest Interpretive Panel**

- **Title:** *You Are Standing in a Cloud*
- **Graphics:** Mural of the species within the cloud forest worked in small details: insects, etc.
- **Main Text:** *Your standing in a cloud - Powerful statement about cloud forests. Explain what a tropical mist (cloud forest) is.*
- **Side bar:** Interdependence of species. Image of droplets of water on leaves, trickling down into the earth - the water cycle come to life.

## **Campfire Circle Area**

### **Overlook Interpretive Panel**

**Greenwich/Reservoir Overview** - No title

- **Graphic:** Drawing of what you see
- **Text:** Captions to drawing - historical facts (main captions) (villages, historical places, Newcastle, Greenwich, Road, Woodford) – Mona Dam large caption explaining watershed area (why, what), Palisidos Strip (protected area)

## **Recycle Exhibit**

### **Recycling Panel**

- **Graphics:**
- **Main Text:** *So many things are thrown away in Jamaica - We've become a throw-away nation (choking in trash) - the rivers in our watersheds are full of plastics, juice boxes, .....*  
*The watersheds are naturally renewable if we all just do our part - Reuse, Recycle.*



## **Plastics Panel**

- Exhibit (on side): Plastic bottle recycling bin with hinged top - hole on the side to deposit bottles

## **Composting Panel**

- **Main Text:** The forest naturally recycles waste. “Feed the forest” theme - Organisms are alive inside this compost - feel the heat of the organisms. Do’s and don’ts of a compost heap. Layers / how to make a compost heap
- **Exhibit:** Two bins of compost to turn - chicken wire at the front., cover on top (hinge)

## **Wag Water Trail**

### **Wag Water Trailhead Panel**

- Catch it off end of cabin area
- One way (cabins - Dick’s Pond in Woodward area)
- Steep - a lot of elevation gain
- Some good views going down, but mostly inside forest

## **Waterfall Trail**

### **Waterfall Trailhead Panel**

- Old growth
- Wag Water view, Hope watershed
- Less elevation gain
- Small waterfall
- Loops (roadbed - to coffee farm - leads back to Ranger Station)

## **Blue Mahoe Interpretive Trail**

### **Blue Mahoe Trailhead Panels** (need two panels: one panel on either end of trail)

- One way (RS-picnic area)
- 2 Interpretive signs
- Secondary growth forest (Blue Mahoe and pine)
- Fairly easy grade and smooth trailbed



## ‘Heart of the Forest’ Interpretive Panel

- **Graphics:** Heart-shaped mahoe leaf  
– line drawing of mahoe trees
- **Main text:** *‘Beating again’: This trail is a forest brought back to life. This area was logged in the 19--?s for lumber production. Imagine the cloud forests stripped of its trees, exposed to landslides and the harsh sun. This plot of Blue Mahoe was planted in ---- and has grown to a teaming cloud forest again.*
- **Side bar:** Blue Mahoe - the national tree. Economic uses, in the hibiscus family (picture of flower) a species of the oca family

## ‘Creepers and Hangers’ Interpretive Panel

- **Graphics:** Detailed line drawing of forest: watermark trees to emphasize ground cover and tree hangers: creeping bamboo, orchids, lichen, old man’s beard, bromeliads
  - insert drawing (pulled out of larger display) showing close-up of bromeliad: alive with a community of tree frogs, pine crabs, insects
  - insert drawing (pulled out of main display) showing close up of lichen world/small ferns/mushrooms/moss/land snail/
- **Main text:** There is more happening here than meets the eye. Many species of Epiphytes hang from trees and an underground layer of plants creep along the forest floor.
- **Sidebar text:** Bromeliads: a world in the treetops

## Orchids Interpretive Panel

### Oatley Mountain Trailhead Panel (this is accessed by Blue Mahoe Trail)

- Old growth forest trail leads to summit with great views
- 1150’ elevation gain
- Distance: 1.2 km length
- Difficulty: much elevation gain



## **New Stairway Area**

### **Overlook Interpretive Panel**

Overview to History - No title - similar to #7 except different view and different captions.

- **Graphic:** Drawing of what you are seeing (different aspects of the landscape)
- **Text:** Captions on history, villages, Woodford area - history of the area through time

## **Trail Network Orientation Kiosk**

### **Holywell Orientation Panel**

Same as in Welcome Orientation Kiosk, only changing location for 'You Are Here' caption

### **Trail Network Panel**

- **Graphics:** Map showing all trails in vicinity  
– Insert map characterizing individual trails
- **Main text:** *If you would like to take a short stroll or a longer hike for the day, we have these both at Holywell. Explain each trail.*
- **Sidebar:** What to take with you on a hike
- **Sidebars:** Insert maps of trails and descriptions - mention on Oatley and Waterfall trails that there are fragments of original primary forest

### **History of Trails Interpretive Panel**

- **Graphics:** Maroons on trail; mules carrying coffee sacks
- **Main text:** Ancient or more recent history of trails - stories of maroons, local people, etc
- **Sidebar** - history of trails in the area. Trails through the mountains



## Shelter Trail

### Shelter Trailhead

- Short
- Moderate elevation gain
- Fairly smooth bed, nice view into Buff Bay / Pencarr watershed from top

## Mystic Area Kiosk

### Holywell Orientation Panel

Same as in Welcome Orientation Kiosk, only changing 'You Are Here' caption

### Conservation Interpretive Panel

- **Main text:** *Preserving the 'Mist'ic Experience*  
Methods of conserving the tropical cloud forest. Threats to the cloud forest. Park and Community efforts to preserve the mist forest (Craighton All Age School recycled paper project, UNESCO project with youth)

### Blue Mountain Coffee Interpretive Panel

- **Graphics:** Coffee leaves/berries coming into panel from corner
  - Simple line drawing map pointing out location of first coffee farm (Bamboo Lodge area), Greenwich Estate
  - Simple sketch of 19th c coffee mill & plantation
  - Beans spilling out of sack, sketch of coffee
- **Main text:** What is 'JBM Coffee'? elevation, mist factors about the coffee, history of coffee - (then and now), particularly in these watersheds
- **Side bar:** Environmentally friendly coffee growing "Story of a coffee farmer" - environmentally friendly techniques"





## I. FAMILY OF SIGNS

An effective signage program utilizes similar graphic elements placed with logical frequency along a travel corridor or within an area. Consistent signing provides the visitor instant recognition whether in a moving automobile or on foot.

For this reason a Family of Signs was created for the Holywell Recreation Area using common design elements on signs consistently on all directional, information and interpretive signs. The Holywell family of signs is comprised of **four** categories; **Wayside, Trail, Visitor Facility** and **Roadway**.

### WAYSIDE

- **Orientation**
- **Upright Interpretive**
- **Low Angled Interpretive**

### TRAIL

- **Trail Network**
- **Individual Trailhead**
- **Trail Marker**

### VISITOR FACILITY

- **Directional**
- **Informational**
- **Cabin and Gazebo Signs**

### ROADWAY

- **Direction**
- **Approach**
- **Entrance/Portal**

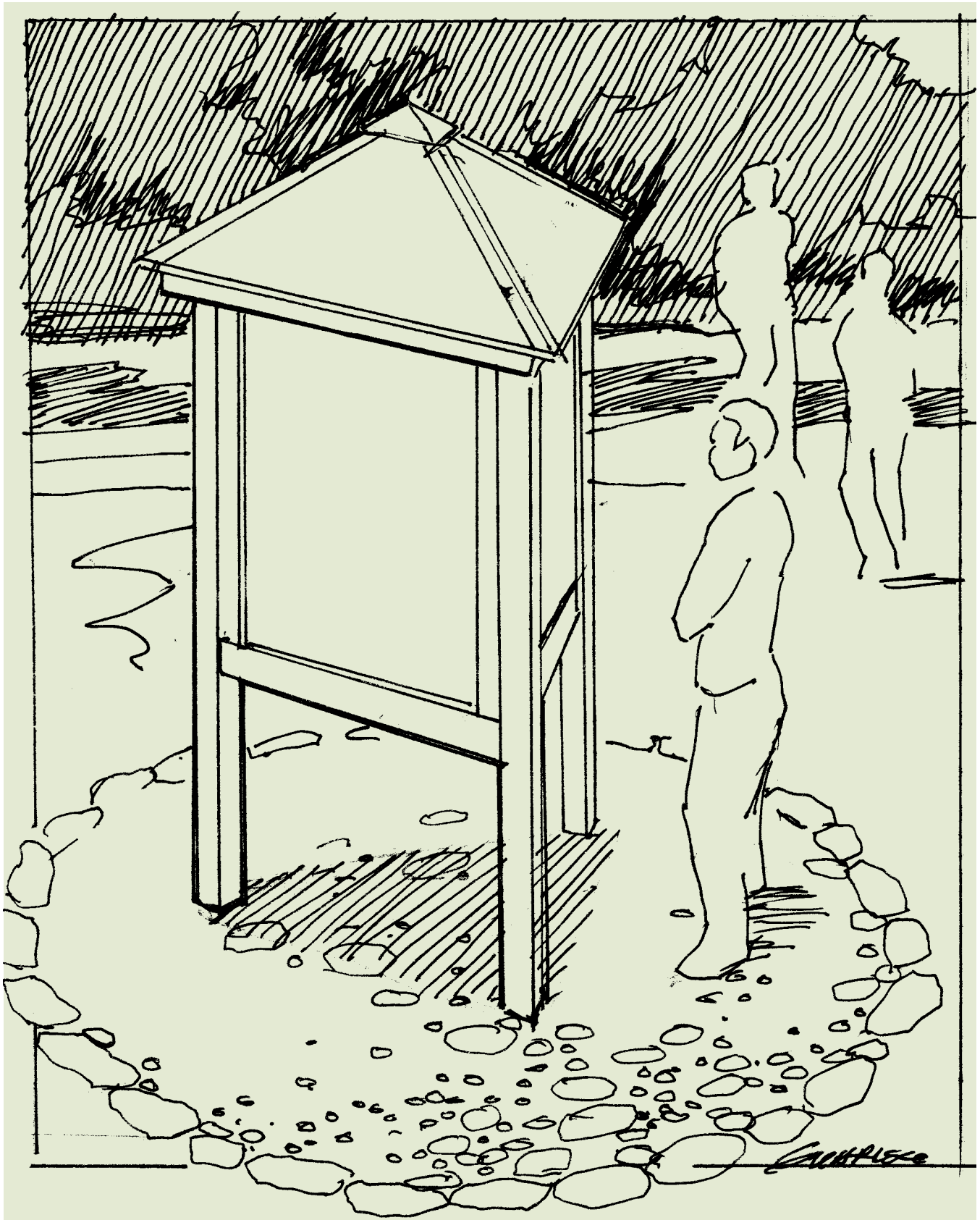


Fig. 10. 3-Panel kiosk concept sketch

## I-a. WAYSIDE EXHIBITS

Signs designed for wayside exhibits provide the visitor orientation, interpretation and other information regarding Holywell Recreation Area. These computer generated multi-informational signs use graphic elements found in a Sign Graphics Guideline on page 71. They involve a preparation and forethought and an involved manufacturing process. These signs require full color plotter output that is either plastic or PVC laminated or fiberglass embedded and can be mounted with or without a frame.

Because of its longevity and durability, we recommend using the phenol plastic resin UV laminate sign material that can be manufactured between 1/8 and 1/2 inch thick. PVC laminated or fiberglass embedded signs are mounted with a frame to secure them to the base structure. Sign panels mounted without a frame are required to be 1/2" thick to accommodate embedded hardware necessary for mounting. Signs of this type will have to be manufactured from phenol plastic resin UV laminate material that allows for the required thickness.

- **Orientation**
- **Upright Interpretive**
- **Low Angled Interpretive**

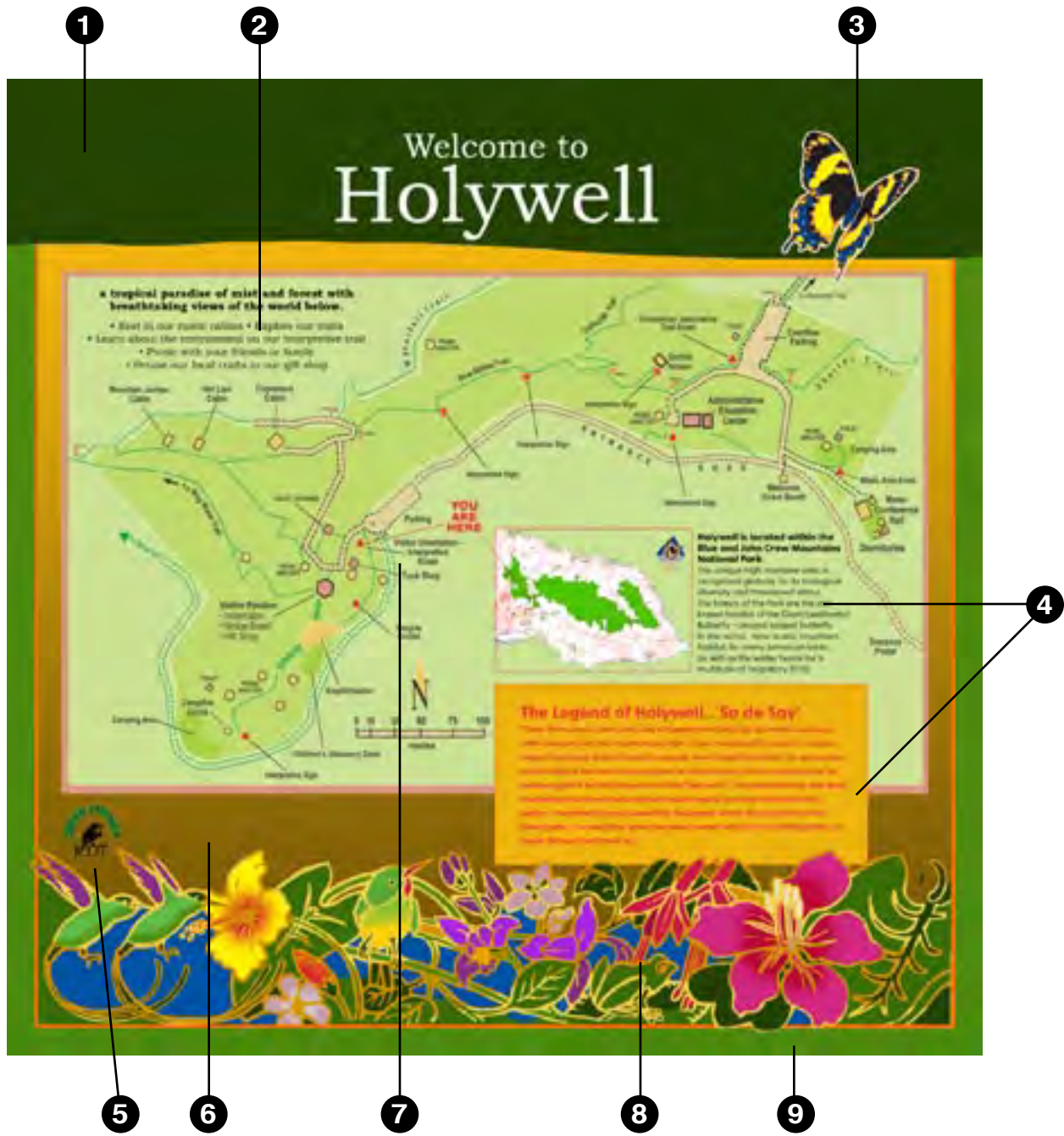


Fig. 11. 42" x 42" Orientation sign example

## I-a. WAYSIDE EXHIBITS

### **ORIENTATION**

Orientation signs welcome and help orient the visitor to Holywell Recreation Area. They are designed to involve the visitor with Holywell and its many features. This type of sign also provides an overview of the Blue and John Crow National Park watershed and highlights natural features within the area.

Three identical Orientation signs with the exception of the ‘You Are Here’ locator shall be produced to be used at three locations in two types of 3-paneled kiosks. One in a 3-panel bay kiosk located near the overflow parking area at the approach to the Administrative-Education Center. One displayed in a 3-sided kiosk placed at the Misty Area, and another placed near the Visitor Pavillion.

(See map on page 11)

**Orientation signs are 42” x 42”, have a Holywell map with a ‘You Are Here’ locator.**

#### **Elements of an Orientation Sign:**

- 1. Header containing main title**
- 2. Primary text**
- 3. Butterfly**  
**(Element from Blue and John Crow Mountains Nation Park logo)**  
**positioned in header with main title**
- 4. Sidebar text and visual content**
- 5. Jamaica Conservation and Development Trust (JCDT) logo**
- 6. Area for additional partnership logos**
- 7. Map of Holywell with ‘You Are Here’ locator**
- 8. Illustrated footer related to theme**



Fig. 12. 30" x 42" Upright Interpretive sign example

## I-a. WAYSIDE EXHIBITS

### UPRIGHT INTERPRETIVE

Interpretive signs reveal stories behind the landscape and encourage the visitor to think about the natural surroundings and events that happened here. These signs are designed to have sidebar information to tell a separate but related story or to enhance and illuminate the featured story.

Interpretive signs come in two types and sizes. They can either be used mounted in an **upright** kiosk and associated with other sign panels like the Orientation Panel or mounted singularly in a stand-alone **low angled** mount.

The upright Interpretive Sign panel (30" x 42") is the largest of the two. It can be used to tell a story that is specifically related to the site on which it is placed or tell a more general story of the surrounding area.

These sign panels should have both header and footer with optional side borders. When used in a kiosk with the Orientation panel they should employ the same or complimentary color scheme as the Orientation sign to maintain continuity.

#### Elements of an Upright Interpretive Sign:

1. Header containing main title
2. Blends text and art to create visual interest
3. May contain principal text and graphics, maps, diagrams, photos etc.
4. May use sidebar for secondary text and graphics
5. Illustrative footer related to theme

#### Holywell Upright Interpretive sign panel topics include:

Watershed Orientation  
Tropical Mist Forest  
Trail History  
Conservation  
Blue Mountain Coffee





Fig. 14. 36" x 24" Low Angled Interpretive sign example

I-a. WAYSIDE EXHIBITS

**LOW ANGLED INTERPRETIVE**

The smaller, site specific (36” x 24”) low angled interpretive sign panel is designed to tell a story specifically related to the site. This sign panel may or may not include an illustrative footer as required for the upright interpretive panel. Side borders are also optional to allow for displaying a principal image edge to edge. However, it is recommended to retain a header with the main title.

**Elements of an Upright Interpretive Sign:**

- 1. Header containing main title**
- 2. Blends text and art to create visual interest**
- 3. May contain principal text and graphics, maps, diagrams, photos etc.**
- 4. May use sidebar for secondary text and graphics**
- 5. Optional use of side borders and illustrative footer to confine information**

**Holywell Low Angled Interpretive sign panel topics include:**

- Overlook Interpretive (campfire area)
- Recycling
- Creepers and Hangers
- Heart of the Forest
- Orchids
- Overlook Interpretive (Administration-Education Center)

*Fig. 15*



*Fig. 16. Blue Mahoe Trail*

## I-b. TRAIL

Trail signs are designed to orientate and inform the visitor who wishes to hike Holywell trails. These panels can have interpretive information regarding plant and animal life; trail features, what can be seen and what to expect while trekking. Also useful to the visitor are safety information, length of time it takes to hike and difficulty rating.

There are three types of Trail signs:

- **Holywell Trail Network**
- **Individual Trailhead**
- **Trail Markers**



Fig. 17. 30" x 42" Trail Network sign example

I-b. TRAIL

## **TRAIL NETWORK**

**Holywell Trail Network sign (30" x 42")** will be one panel mounted in the 3-panel kiosk located near the overflow parking area. It should employ the same design elements as the companion wayside signs. Header and border colors should either match or complement both Orientation and Interpretive panels.

### **Elements of and Upright 32" x 42" Trail Network Sign:**

- 1. Header containing main title**
- 2. Introduction text with trail feature information**
- 3. Side bar text and visual content**
- 4. Map of trails with 'You Are Here' locator**
- 5. Safety and other trail information**
- 6. Side border**
- 7. Illustrated footer**

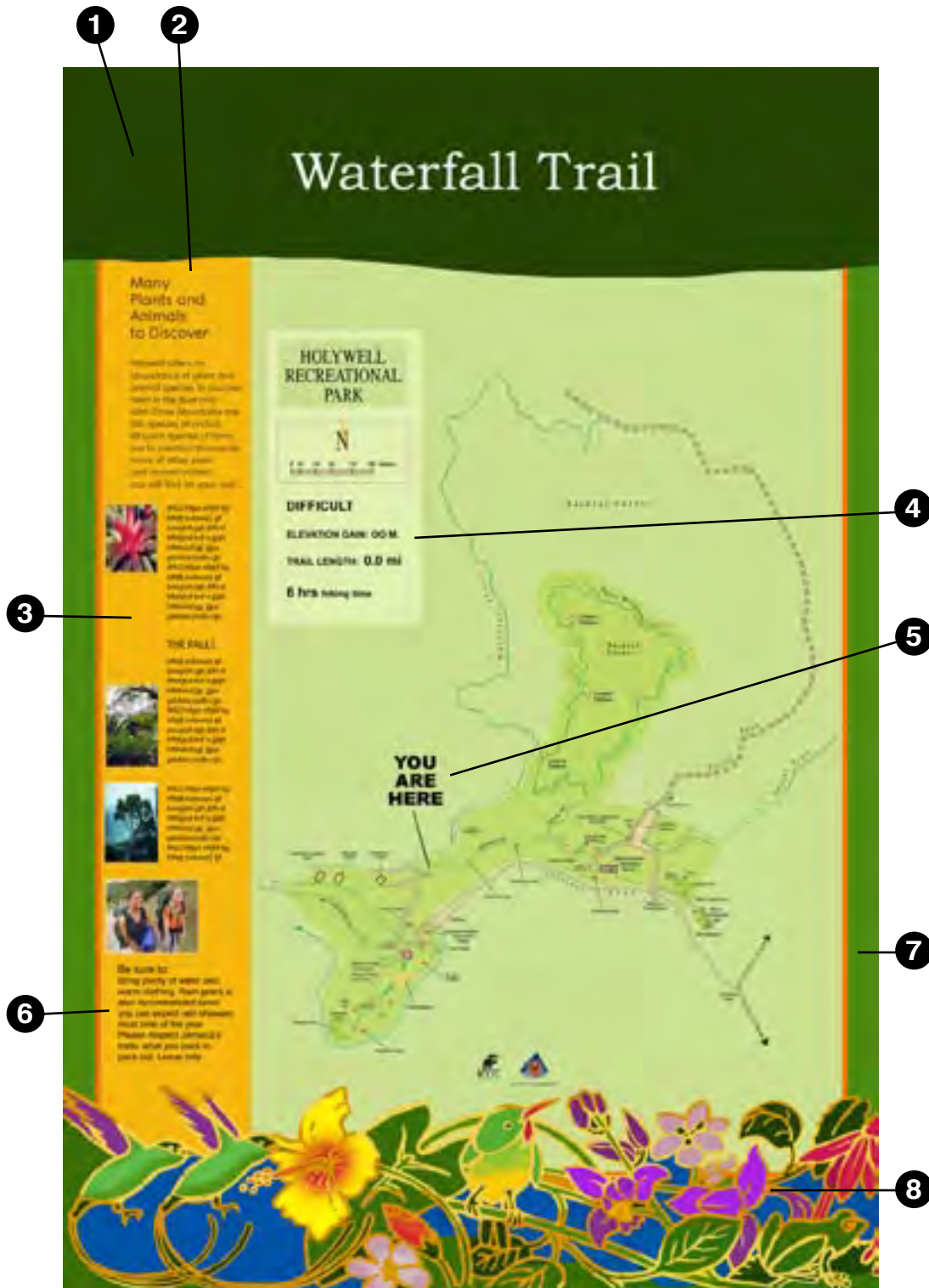


Fig. 18. 24" x 36" Trailhead sign example

I-b. TRAIL

## INDIVIDUAL TRAILHEAD

**Individual Trailhead signs** are 24” x 36” and mounted vertically in an upright slightly low laying kiosk at the beginning of each trail. These smaller upright signs shall incorporate the same graphic elements as the Wayside signs.

### Elements of an Upright 24” x 36” Trailhead Sign:

1. Header containing trail name
2. Introduction text with trail feature information
3. Sidebar text and visual content
4. Difficulty rating and time it will take to hike each trail
5. Map with ‘You Are Here’ locator
6. Safety information
7. Side border
8. Illustrated Footer

### The Holywell Trailhead sign panel include:

Wagwater Trail  
Waterfall Trail  
Blue Mahoe Interpretive Trail  
Oatley Mountain Trail  
Shelter Trail

*Fig. 19.*





Fig. 20. Trail Marker example

I-b. TRAIL

**TRAIL MARKER**

**Trail Markers** are small signs resembling Visitor Facility signs that identify the short loop trails. They contain trail name, small illustration and loop distance and can be use where ever necessary.

They should not measure more than 18 inches in either horizontal or vertical dimension. To distinguish them from Visitor Facility signs, purple (pms 2602) is used.

**Elements of Trail Marker:**

- 1. Trail name**
- 2. Small illustration**
- 3. Loop distance**



## I-c. VISITOR FACILITY SIGNS

Visitor Facility Signs help the visitor to locate facilities. They are used more than any other sign in a public setting. They are designed to inform and direct the visitor and are useful in increasing visitor traffic flow efficiency, while helping to control impacts on the built and natural environment. They should be highly visible yet unobtrusive in their setting. Careful effective placement will reduce the need for these signs, minimizing clutter in the environment.

- **Directional**
- **Informational**
- **Cabin & Gazebo Signs**



I-c. VISITOR FACILITY SIGNS



Fig. 21. 24" x 11" Visitor Facility sign



Fig. 22. 24" x 15" Visitor Facility sign

## I-c. VISITOR FACILITY SIGNS

### **DIRECTIONAL**

Directional signs should consist of only a few elements. They should not have logos or any graphics other than universal symbols. They should be no more than two colors, white lettering (Vag Rounded Bold) on green (pms 334c) background and kept to a minimum size. It is recommended templates be used for a variety of signs. When new signs are required, keep new size consistent with the existing template size.

#### **Elements of Visitor Facility DIRECTIONAL Sign:**

- 1. Consistent background color**
- 2. White san serif lettering on dark background increases readability**
- 3. Universal symbols (optional)**
- 4. White border separates and isolates them from background**
- 5. Rounded corners soften their effects on the environment**



*Fig. 23. 12" x 15" Directional sign*

I-c. VISITOR FACILITY SIGNS

24" x 11"



1-1/2"  
or  
150  
POINT

1/2" WHITE BORDER

1-1/2" RADIUS CUT CORNERS



24" x 15"

Fig. 24. Directional sign specifications

I-c. VISITOR FACILITY SIGNS



**SMALL SIGNS IDENTIFYING FACILITIES ARE NOT ADDRESSED IN A SEPARATE CATEGORY**



*Fig. 25. Facility Identifier signs*





*Fig. 26. Holywell Recreation Area 'Welcome' sign*

## I-c. VISITOR FACILITY SIGNS

### INFORMATIONAL

Informational signs include signs that provide permanent information and regulations specific to Holywell Recreation Area. They also include bulletin board type exterior signage that contains temporary postings, schedule of events and other miscellaneous postings.

These signs depart from the simplistic look of Directional signs. They should be less formal providing an opportunity to add an artistic touch to the Holywell signage program by looking hand crafted, similar to the existing Welcome sign near the entrance of Holywell. Signs of this type are far more approachable and interesting especially if the information is of regulatory content.

More traditional, replaceable sign material can be framed in hand carved, painted wooden frames with strong Jamaican cultural elements. Bulletin board signs mounted in a kiosk should be framed similarly with the addition of plexiglass or lexan covering to protect from the elements.



*Fig. 27. Existing Administrative sign*

I-c. VISITOR FACILITY SIGNS

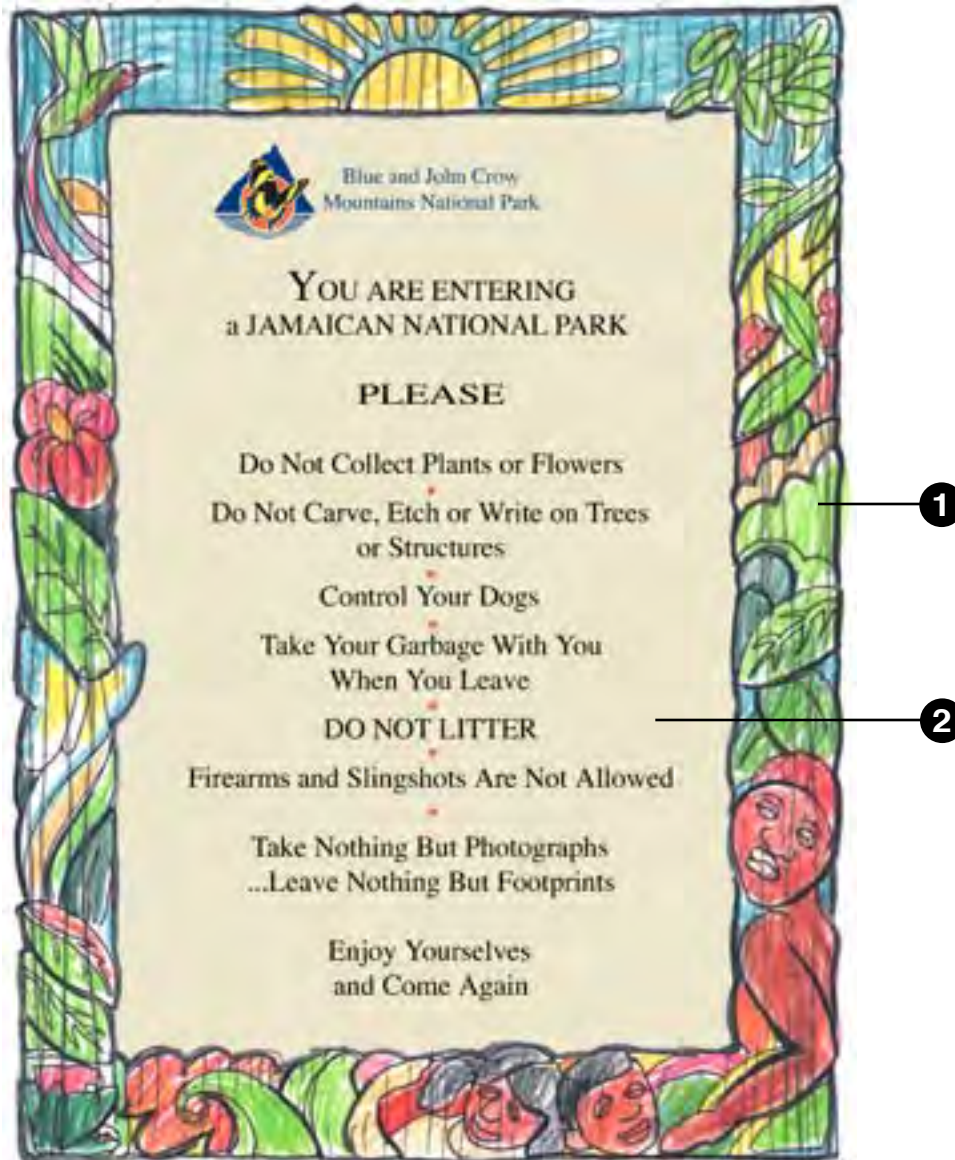
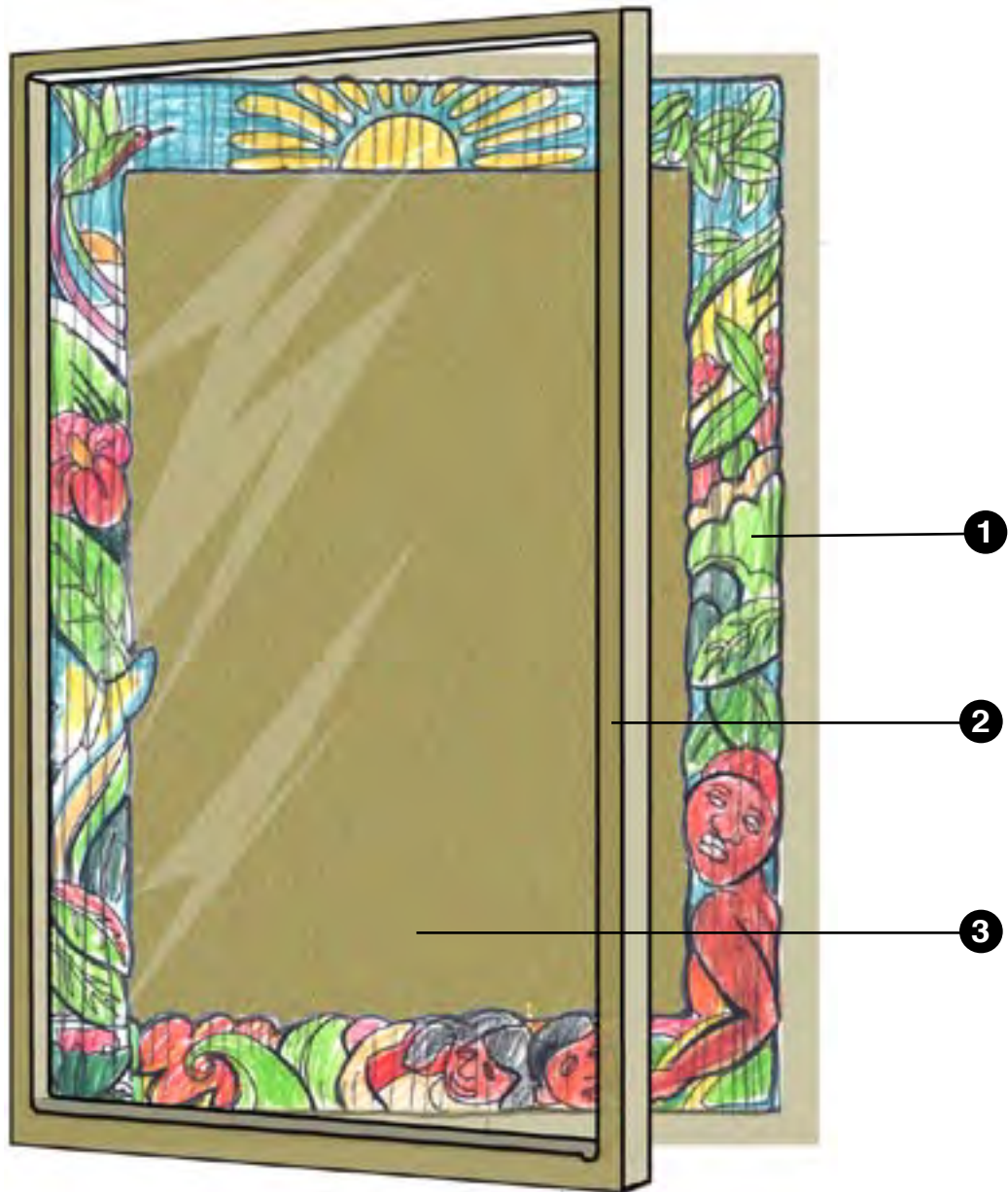


Fig. 28. Administration sign concept

**Elements of Visitor Facility BULLETIN BOARD signs:**

- 1. Handcrafted, carved and painted frame**
- 2. Replaceable sign panel**

I-c. VISITOR FACILITY SIGNS

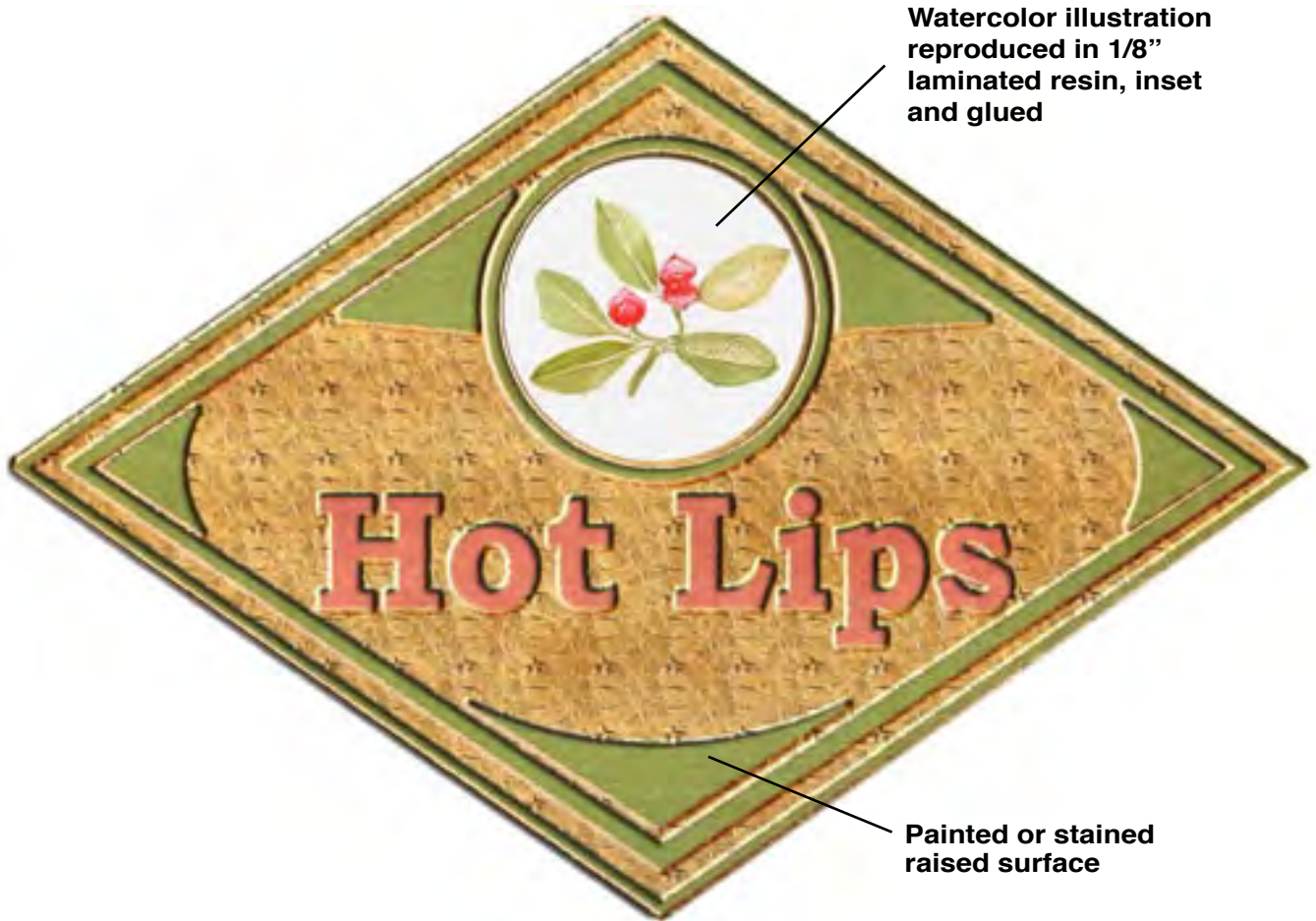


*Fig. 29. 30" x 42" Bulletin Board*

**Elements of Visitor Facility BULLETIN BOARD signs:**

- 1. Handcrafted, carved and painted framed door**
- 2. Plexiglass or Lexan cover**
- 3. Cork material**

I-c. VISITOR FACILITY SIGNS



*Fig. 30. Cabin and Gazebo sign*

## I-c. VISITOR FACILITY SIGNS

### **CABIN AND GAZEBO**

Cabins and gazebos named after plants and animals shall have routed wooden name plaques attached to them. Each plaque shall have their name and a small watercolor illustration of the species they are named for reproduced in resin, cut in a circle and applied to them. The top surface of the wooden plaque may also be painted or stained for better readability. Each plaque may have a different color corresponding to the species. (Red for Hot Lips, etc.)

#### **Elements of Visitor Facility Signs:**

- 1. Name of structure**
- 2. Laminated resin illustration of plant or animal**
- 3. Routed wood base**



Fig. 31. Existing Roadway signs

## I-d. ROADWAY SIGNS

Roadway signs are signs designated to provide directional assistance and site identification to the visitors who are not familiar with Holywell's location.

It is important that this type of sign is readable at speeds traveled on the roadway where they are posted. The size is relative to the speed of traffic. The overall dimensions and letter size of roadway signs should be in scale with where it will be posted. Due to the limited roadside space large signs may otherwise be more hazardous than useful. However, it is important to place signs with good visibility at critical intersections where space may allow, then smaller signs along the roadway to ensure the traveler that they are on the right road. This may be achieved with only a few well placed signs.

Again, simplicity is important. Graphic representation and logos should be kept to the barest minimum for clarity and rapid identification. It is best to keep your eyes on the road leading up to Holywell rather than on any sign for more than a few moments along the way.

- **Directional**
- **Approach**
- **Entrance**



*Fig. 32. Road to Holywell*



I-d. ROADWAY SIGNS



Fig. 33. Directional signs



## I-d. ROADWAY SIGNS

### DIRECTIONAL

Directional Signs aid the traveler in finding their way to their planned destination telling them how far away and how much time they have before they arrive. Visibility on the landscape, whether natural or built, is important. Safety is also important, if possible signs should be posted at a distance from the roadway to allow for emergency situations and not impose a hazard to travelers.

**Holywell Directional Signs should start from Kingston, Port Antonio and Ocho Rios.** They should maintain the simplest design while imparting sufficient information. The main body of the sign should be no more than two colors, white sans serif lettering on blue (pms 3005c) background with a white radius edge border. A simplified Blue and John Crow Mountains logo utilizing the most striking image on the logo, the colorful yellow butterfly, which can be applied in the lower portion of the sign panel.

When the entire name, Holywell Recreation Area, is used it should be spelled out on two lines with 'Holywell' on the top line with slightly larger letter size that extends beyond the line length of the bottom text. Normally just the word 'Holywell' with direction arrow, mile indicator and butterfly logo should be sufficient.

#### **Elements of a Directional Sign:**

- 1. White text on blue background color**
- 2. White border with radius corners**
- 3. Butterfly logo**

Locations of Directional Signs Needed Between Papine and Holywell  
(these should include distance to Holywell)

1. Just north of Papine at curve on Water Commission land site
2. The turn off at the Irish Town / Gordon Town 'Y'
3. Switchback before Irish Town
4. Strawberry Hill turnoff
5. Turn out just before Newcastle (other signs are there now)
6. 1/4 mile before Holywell entrance

Fig. 34

I-d. ROADWAY SIGNS



Fig. 35. 30"x 12" Directional Sign specifications

1" WHITE BORDER,  
RADIUS CORNERS



Fig. 36. 30"x 18" Directional Sign with mile indication specifications

I-d. ROADWAY SIGNS

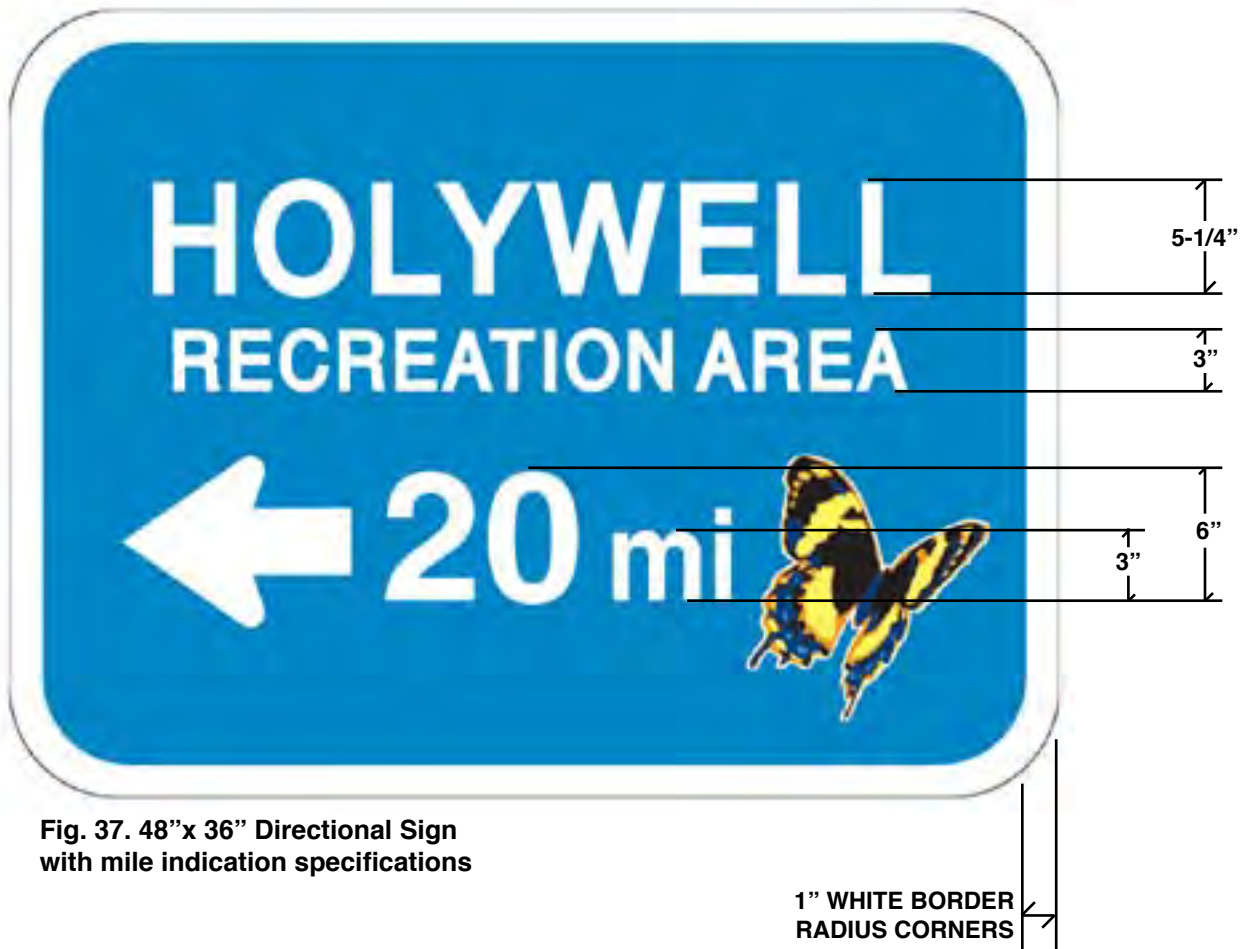


Fig. 37. 48"x 36" Directional Sign with mile indication specifications



WHITE LETTERING  
ON BLUE: PMS 3005C

Fig. 38. Butterfly specifications

I-d. ROADWAY SIGNS



*Fig. 39. 48" x 36" Approach sign with mile indication to be placed 1/2 mile before Holywell destination*

**SAME SPECIFICATIONS  
AS 48" X 36"  
DIRECTIONAL SIGN WITH  
MILE INDICATION**

## I-d. ROADWAY SIGNS

### **APPROACH**

Approach Signs placed a convenient distance before the entrance tell the traveler they are nearing their destination. The signs have the same graphic elements as Direction signs with the exception that they have the distance indicated. They should be a larger sign than the Directional sign.

#### **Elements of a Direction Sign:**

- 1. White text on blue background color**
- 2. White border with radius corners**
- 3. Butterfly logo**

I-d. ROADWAY SIGNS



Fig. 40. Entrance Portal concept sketch

## I-d. ROADWAY SIGNS

### **ENTRANCE PORTAL**

A single Entrance Sign placed over the entrance of Holywell tells the traveler that they have arrived.

#### **Elements of a Directional Sign:**

- 1. White text on blue background color**
- 2. White border with radius corners**
- 3. Butterfly logo**





## II. SIGN GRAPHIC GUIDELINE

### For Orientation & Interpretive Signs

The visual presentation of a sign is an effective communication tool but often not well understood. One is not likely to be aware of the dynamics employed that either make a sign effective or not. The visual parts of a sign, color, graphics, typography, logos and other identifying information as well as, the material that it's made of, are all key to creating an effective and consistent message. They need to harmonize with one another to create a pleasing and memorable presentation.

The following guidelines will help managers at all levels to create wayside exhibits that present information in a professional manner.

Simple rules, variation in layout, choices of type and color, use guidelines for headers and side borders are all given to create a cohesive and consistent design.

### **BASIC DESIGN ELEMENTS of Holywell Recreation Area sign design:**

**Layout/Grids**

**Headers**

**Footers**

**Side Borders**

**Color**

**Type Fonts and Sizes**

GRIDS – ORIENTATION PANEL (42" X 42')



Fig. 41.

- A. Header: 38 PICAS deep
- B. 3 PICAS space between grid boxes
- C. Grid Dimensions: 35.5 PICAS wide X 37.5 PICAS deep
- D. Bottom margin: 11.5 PICAS
- E. Outside Margin: 12 PICAS

## PLACEMENT OF GRAPHIC ELEMENTS – GRIDS

Grids accomplish several things. Primarily grids help give order to the composition and standardize sign appearance. This underlying organizational system provides perimeters aiding the designer in laying out text and graphic information in a pleasing manner. The use of grids along with other graphic elements, helps link signs with one another visually from one site to another. From the visitor's viewpoint, the system provides at a glance, a thematic recognition and conveys a sense of order that improves access to information.

**However, the use of a grid system should only be an optional aid assisting the designer to align horizontal and vertical elements if needed but, not as a rule. Grids also provide a method for placement of standard elements common from sign to sign.**

**GRIDS – UPRIGHT INTERPRETIVE & TRAIL NETWORK (30" X 42")**

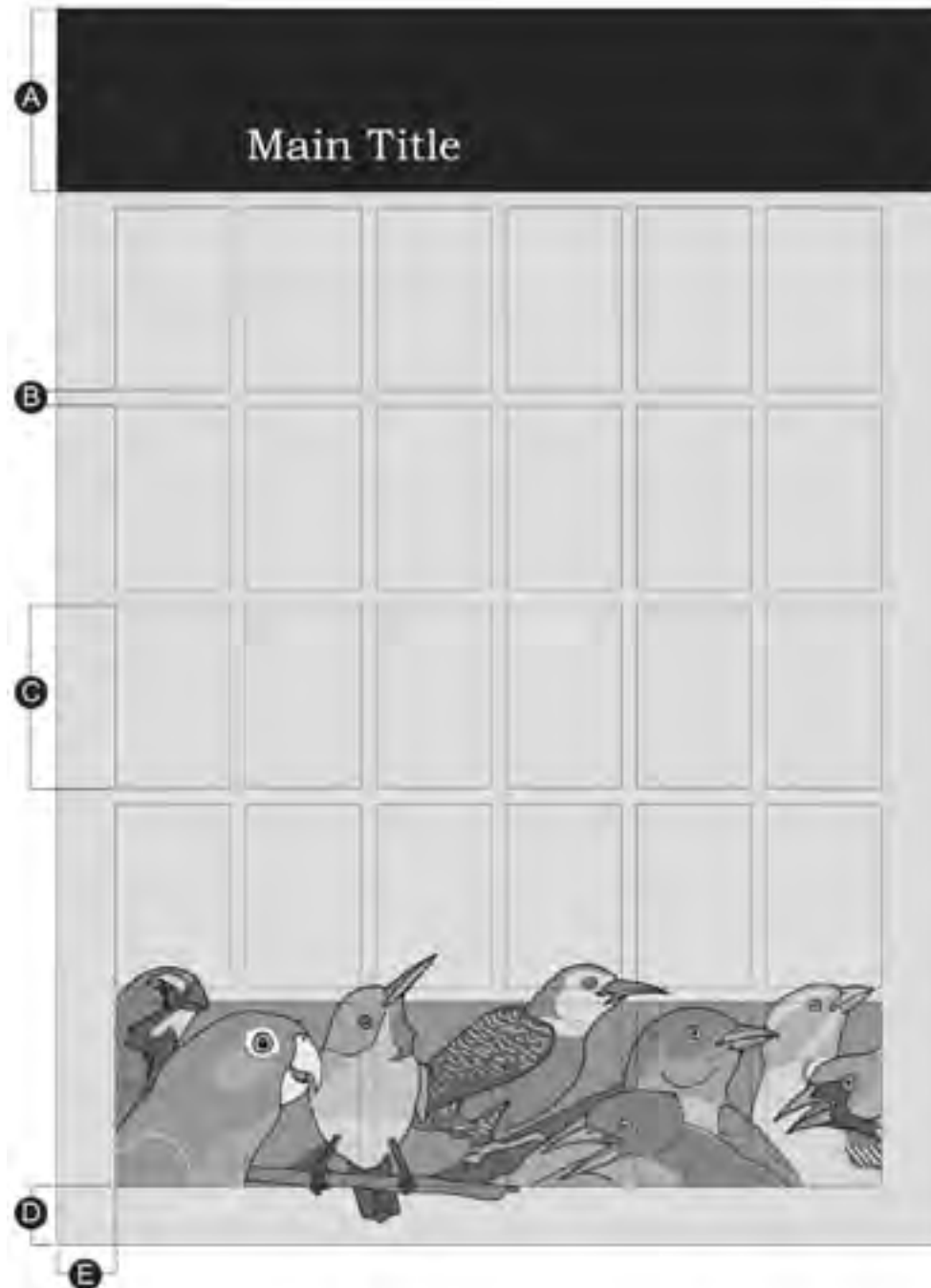


Fig. 42.

- A. Header: 38 PICAS deep
- B. 3 PICAS space between grid boxes
- C. Grid Dimensions: 23.5 PICAS wide X 37.5 PICAS deep
- D. Bottom margin: 11.5 PICAS
- E. Outside Margin: 12 PICAS

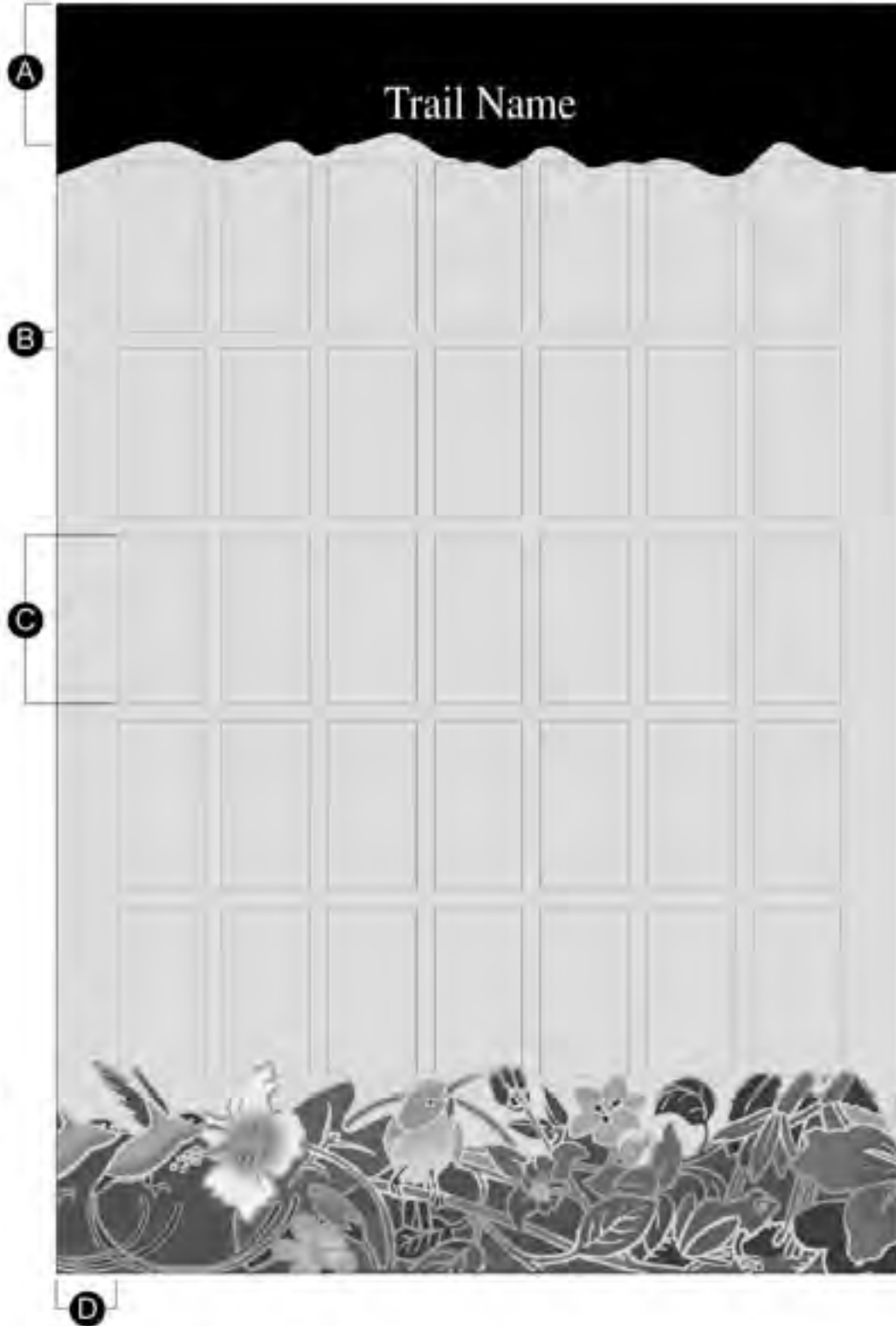
GRIDS – LOW ANGLED INTERPRETIVE (36" X 24")



- A. Header: 24 PICAS deep
- B. 3 PICAS space between grid boxes
- C. Grid Dimensions: 30 PICAS wide X 15 PICAS deep
- D. Bottom margin: 12 PICAS
- E. Outside Margin: 10.5 PICAS

Fig. 43.

GRIDS - TRAILHEAD (24" X 36")



- A. Header: 24 PICAS deep
- B. 3 PICAS space between grid boxes
- C. Grid Dimensions: 28.5 PICAS wide X 15 PICAS deep
- D. Outside Margin: 10.5 PICAS

Fig. 44.

## HEADERS

Headers are the narrow banners at the top of Orientation, Interpretive and Trailhead sign panels. They serve as a title bar, separating the main title from the body of information below. Headers can also contain a logo, preferably on the far right side. Care should be taken not to crowd the main title.

Four header designs are initially created for Holywell's Orientation, Upright Interpretive, Low Angled Interpretive and Trailhead panels. They retain the banner approach but utilize a sculpted designed edge. Headers of this type must remain simple as not to over-power other design elements, while at the same time, providing a solid base for the main title.



**Straight**



**Wave**

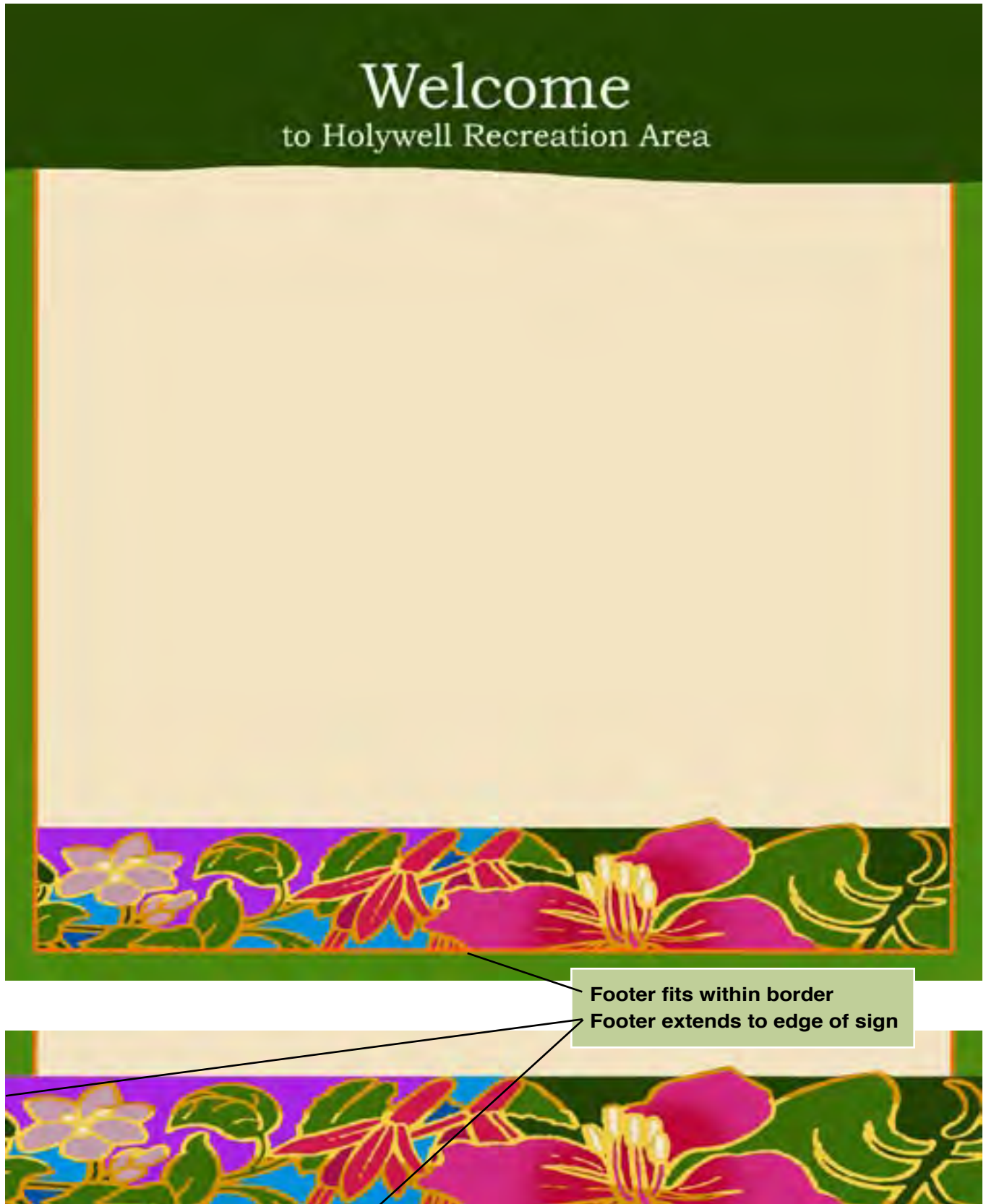


**Terrain**



**Montane**





## FOOTERS

Illustrative footers shall become a prominent element of design for the Holywell wayside trail signage. These banner-like elements shall occupy the lower portion of each sign panel giving them weight and volume while providing an integral thematic design motif from panel to panel. They set a tone that will reflect the individual sign panel theme in an attractive, colorful and interesting way. The examples shown here are designed to reflect Jamaica's rich heritage and natural beauty, in the rhythmic style of art that is inspired by the Jamaican Wassi Pottery Works. With the abundance of interesting things to illustrate, the examples shown here are a few of the themes that can be created for this purpose.

Footers may fit within the border area or extend beyond to the edge of the entire sign panel. When signs are displayed side by side in a kiosk, the placement should be consistently either inside or extended, and aligned.



**Jamaica Birds**



**Flora - Fauna**



**Flora**

*Fig. 47.*

## SIDE BORDERS

Side borders are an optional design element on low angled Interpretive signs. To optimize the effect of the visual information on these smaller signs, side borders may be too constraining. However on the larger upright Interpretive and Orientation panels they should be used to help pull together and contain the informational elements of each panel. Likewise, side borders should also be used on the smaller trail signs.

They should be no less that 1 to 1-1/2 inches wide from the edge of the sign panel to accommodate kiosk frame overlap, usually 1/2 inch. They should be a consistent width and color for each panel in the kiosk they are displayed next to. A narrow accent color on the inside edge of the border is also suggested to give them visual interest while acting as a containment device and helping to isolate the border from the main body.

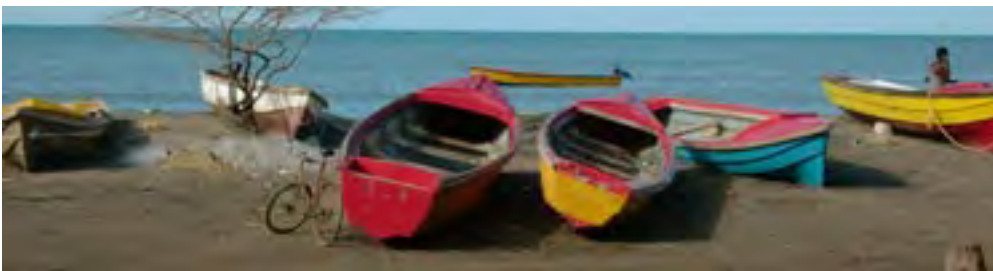
**Some suggested color schemes below:**










## COLOR PALETTE

A standard color palette used consistently throughout Holywell Recreation Area provides a valuable design element for further unifying the look of a family of signs. Colors that fit well with the surrounding area compliment as well as accentuating the hues of the natural setting. By varying the tonal quality of the more vibrant colors they can be more compatible with the range of colors found naturally in the setting. These colorful signs provide attractive accent that can enhance the overwhelming green of the Park. Sign panels that use color and other design elements reflected in the surrounding landscape can attract attention without being obtrusive.

The colors chosen for the Holywell Recreation Area Graphic Design Guideline were chosen to impart the look and feel of Jamaica's exuberantly colorful culture. These colors are found everywhere in Jamaica and are the basis for a variety of closely related hues and color schemes that may be chosen.



### Color Chart

	NAME	PMS*	PROCESS	RGB	WEB HEX
	<b>PURPLE</b>	<b>513U</b>	<b>C 47 M 87 Y 0 K 0</b>	<b>R 140 G 24 B 140</b>	<b>660066</b>
	<b>TEAL</b>	<b>3265U</b>	<b>C 69 M 0 Y 43 K 0</b>	<b>R 80 G 182 B 139</b>	<b>33CC99</b>
	<b>LEAF</b>	<b>368U</b>	<b>C 65 M 0 Y 100 K 0</b>	<b>R 91 G 177 B 36</b>	<b>339900</b>
	<b>LEMON</b>	<b>108U</b>	<b>C 0 M 0 Y 100 K 0</b>	<b>R 255 G 254 B 0</b>	<b>FFFF00</b>
	<b>TANGERINE</b>	<b>1505U</b>	<b>C 0 M 38 Y 76 K 0</b>	<b>R 255 G 157 B 90</b>	<b>FF6600</b>
	<b>PINK</b>	<b>219U</b>	<b>C 0 M 87 Y 0 K 0</b>	<b>R 248 G 25 B 145</b>	<b>CC0066</b>
	<b>LAKE</b>	<b>300U</b>	<b>C 100 M 43 Y 0 K 0</b>	<b>R 9 G 92 B 166</b>	<b>330099</b>

\* U designation indicates colors printed on uncoated paper

The color swatches below represent a range of colors selected from PANTONE® MATCHING SYSTEM and their approximate match in process color. The colors represented here are a close approximation but are not true PANTONE® MATCHING SYSTEM colors. Consult a PANTONE® Color Selector to view the true color.

Fig. 49.

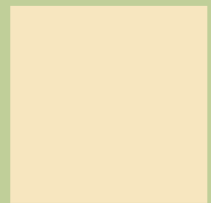
## Color Variants



Various hues of the same color can be achieved by increasing or decreasing tonal values and color intensity

*Fig. 50.*

**BACKGROUND COLOR**  
behind text and graphics in the main body of the sign should be a light warm color such as a parchment or a buff.



Avoid using white as a background color.

*Fig. 51.*

## TYPE FONT & SIZES

A type font contains a complete assortment of characters of one typeface in one style. Each font normally has several variables – roman, italic, light, regular and bold faces. **It is best to build variety using these variables rather than switching fonts.** Except in rare circumstance use not more than two fonts in a design.

Type should be treated as a graphic element creating a balance with other graphic imagery. Text can be layered, with principle text short and to the point (no more than 50 words). Secondary text can be set aside by color, boxed or set in a field of color such as a sidebar to present an aside or provide more detail. Layering information readily addresses two types of visitor, the skimmer, with only a passing interest in the subject and the more engaged reader.

For ease of reading, the general rule is to use a serif font for main body text. Usage of san serif fonts for secondary text can be effective for a change of editorial voice and for emphasizing short elements such as subheads and labels.

**96**

**Main Title: 96 point (minimum)**  
Times Roman Regular  
Helvetica Bold or Black

**36**

**Subtitle: 36 point (minimum)**  
Helvetica Bold or Black  
Times Roman Bold

**36**

**Main Text: 36 point**  
Times Roman Regular  
Helvetica Bold or Black

**24**

**Secondary Text: 24 point**  
Helvetica Regular, Italic or Bold  
Times Roman Regular, Italic or Bold

**24**

**Captions: 20 - 24 point**  
Helvetica Regular or Italic  
Times Roman Regular or Italic

**20**

**20**

**Labels: 20 - 36 point**  
Helvetica Regular or Bold

**96**

**36**

**36**

**24**

**24**

**20**

**20**

Although many fonts are similar with only slight degree of difference, Times Roman and Helvetica are standard, compatible and universally available font choices.

Fig. 52. Fonts and sizes

**Alternative type fonts** can create subtleties in design that can enhance the overall feel of a wayside interpretive sign. Whether used as a slightly different style for text, subtitles and labels or as embellishments, quotes or headings they provide a less generic look and open up possibilities that can broaden the design avenues for a more creative view approach.

There is no hard and fast rule when it comes to font styles and their compatibility to theme. Deciding what typeface is right calls for judgements beyond the scope of this guideline. It is an aesthetic design decision that is more a “Feel” than Rule.

Fonts that are reminiscent of a period in history or typify a theme may or may not be compatible with other fonts chosen or fit well within the overall design. Many of them have too much character and draw excessive attention to themselves. A balance must be struck that takes a professional eye and sensibility for design.

Type Fonts that are unusual, scripted, or antique, if used in scale, with sensitivity to the overall design of the panel or interpretive theme can be in themselves an element of design bringing to play a unique quality of their own. Used as an embellishment, as in the case of illuminated letterforms and Initial caps, or script fonts for quotes, these touches can bring a sense of thematic quality to the design very much like any other design element.

Many Antique font have been converted to digital format, however specifying typefaces can be confusing when different manufacturers give different names to similar fonts. This is true even with standard, well used fonts. The major drawback in using unusual or antique fonts is the difficulty in finding them for universal use. Sources are limited and matching font styles is sometimes challenging. **Always include a copy of your font software when sending your electronic file to an output service or sign manufacturer.**

## TEXT WRAPS

**W**orking well within the framework of the design grid, wrapping text or following an edge around an image is a unique way to add variation and interest to your design. Text fitted closely with the corresponding graphic allows the text to become an extension of the graphic, relating more closely the written word with the image. It can also solve space problems and provide a less blocky appearance to your narrative. Relatively easy to do with a computer desktop publishing program, however, some minor adjustments may have to be made to eliminate clumsy line breaks.





### III. STRUCTURES & SIGN MOUNTS

Important features of structures used for wayside exhibits are durability, vandal resistance and maintenance free while fitting well into the environment. The structures and sign mounts presented in this plan meet all of these criteria.

To best preserve the natural beauty at Hollywell, structures should maintain a rustic style, emphasizing simple craftsmanship and material detailing. Structures of this type presents an organic quality that is harmonious to the setting.

■ Kiosk

■ Low Angled



Fig. 53. Wood post kiosk, Mt. Baker/Snoqualmie National Forest



*Fig. 54. Existing kiosks*

## ORIENTATION KIOSKS

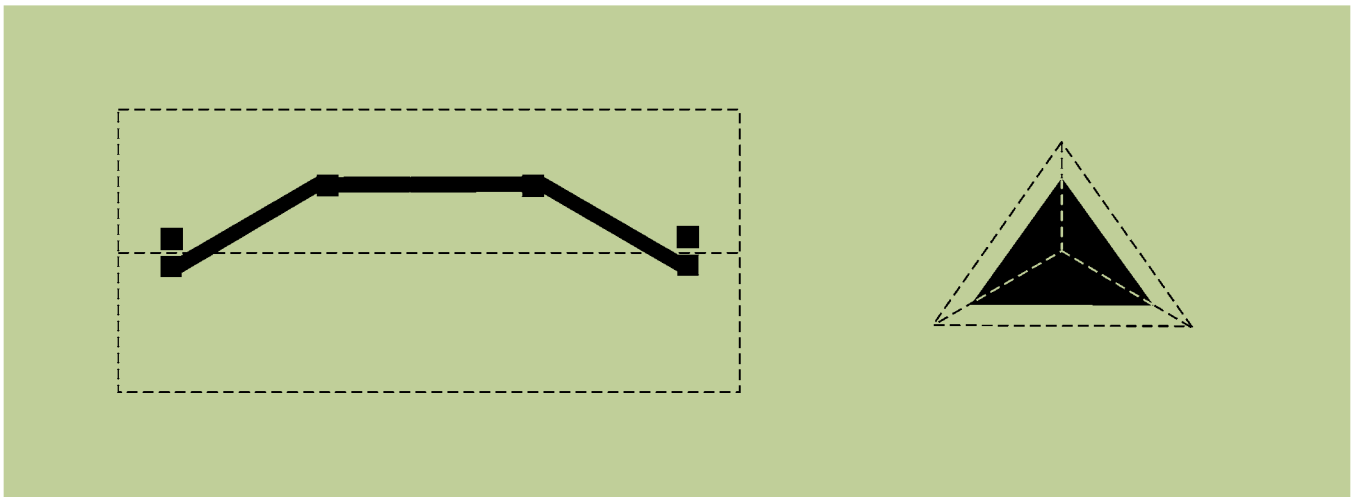
Three-panel Orientation kiosk should be post constructed with a cedar shingled roof.

Two styles of three-panel kiosk displays will be needed for Holywell. One is bay constructed with side wing panels at 30 degree angle from the center panel. The other is three-sided kiosk with a triangular footprint.

Both styles shall contain the Orientation sign panel and two Interpretive signs.

### Kiosk Elements

- Spaces for either or each Orientation sign and Interpretive sign and perhaps an Information Board
- Roofed post construction
- Placed in a pleasing accessible setting near parking with picnic and/or wayside activity nearby



*Fig. 55. 3-Panel Bay and 3-Sided kiosk footprints*

### 3-Panel Bay Kiosk

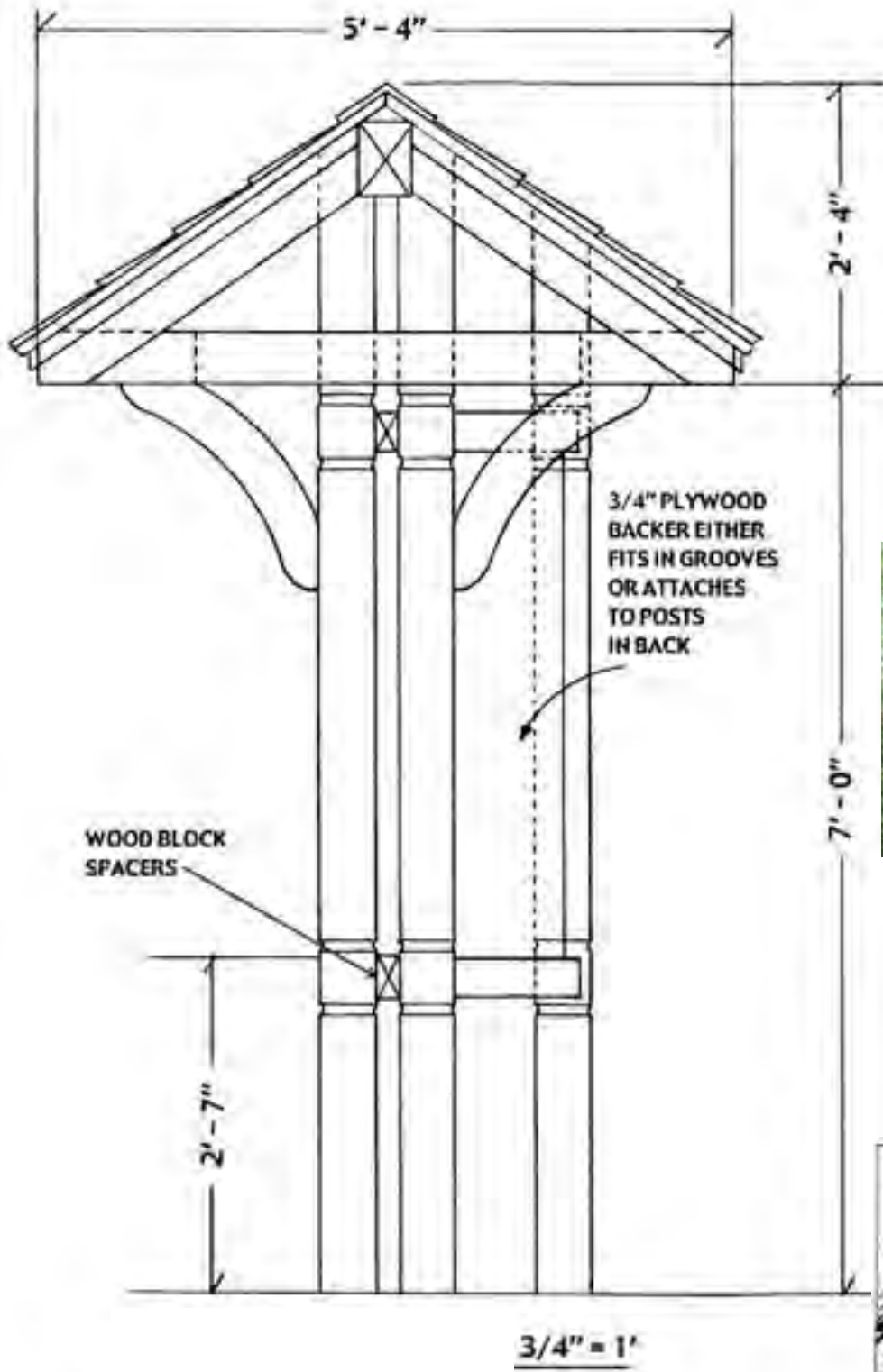


Fig. 56. 3-Panel Bay kiosk side elevation

### 3-Panel Bay Kiosk

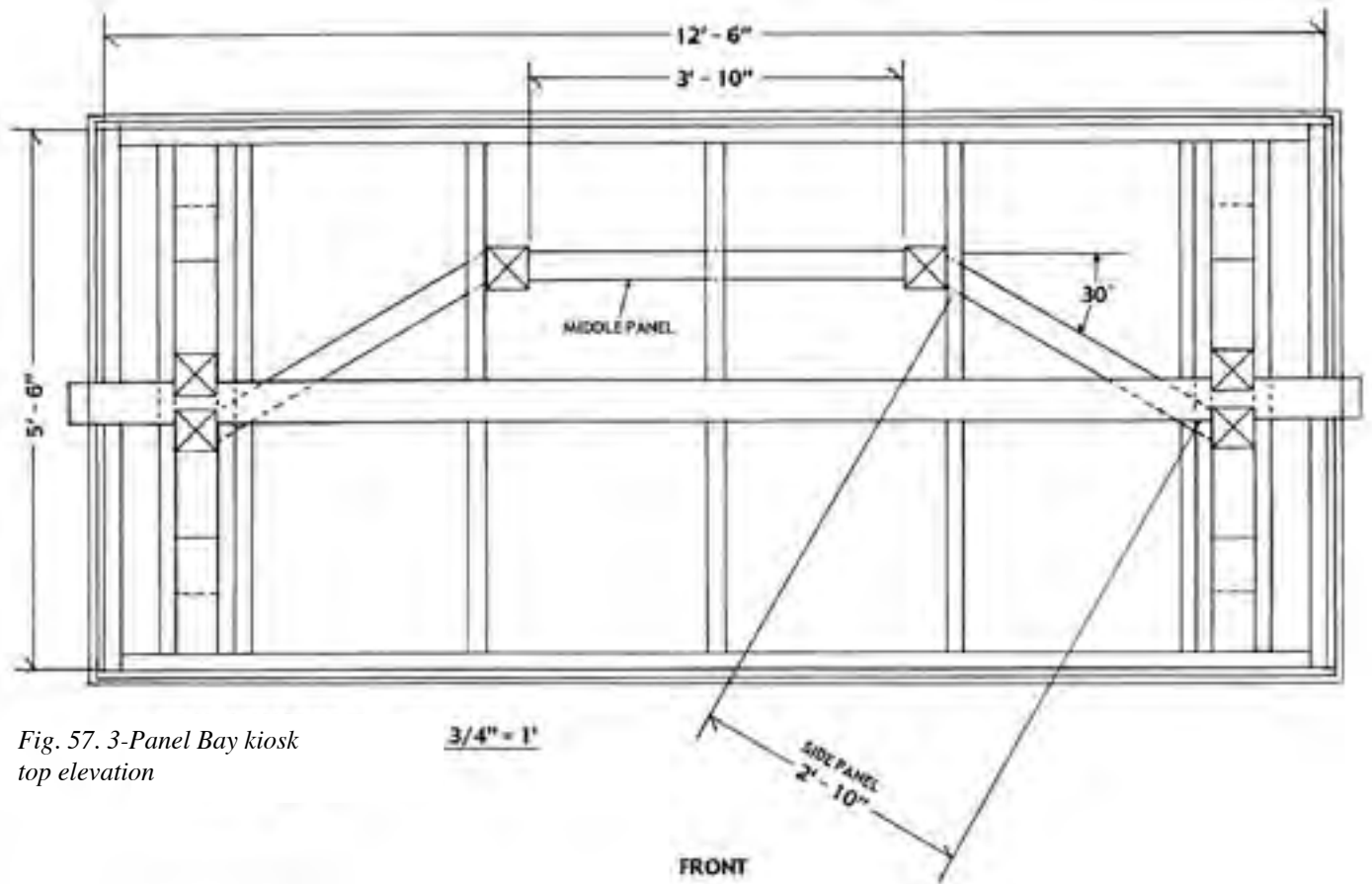


Fig. 57. 3-Panel Bay kiosk  
 top elevation

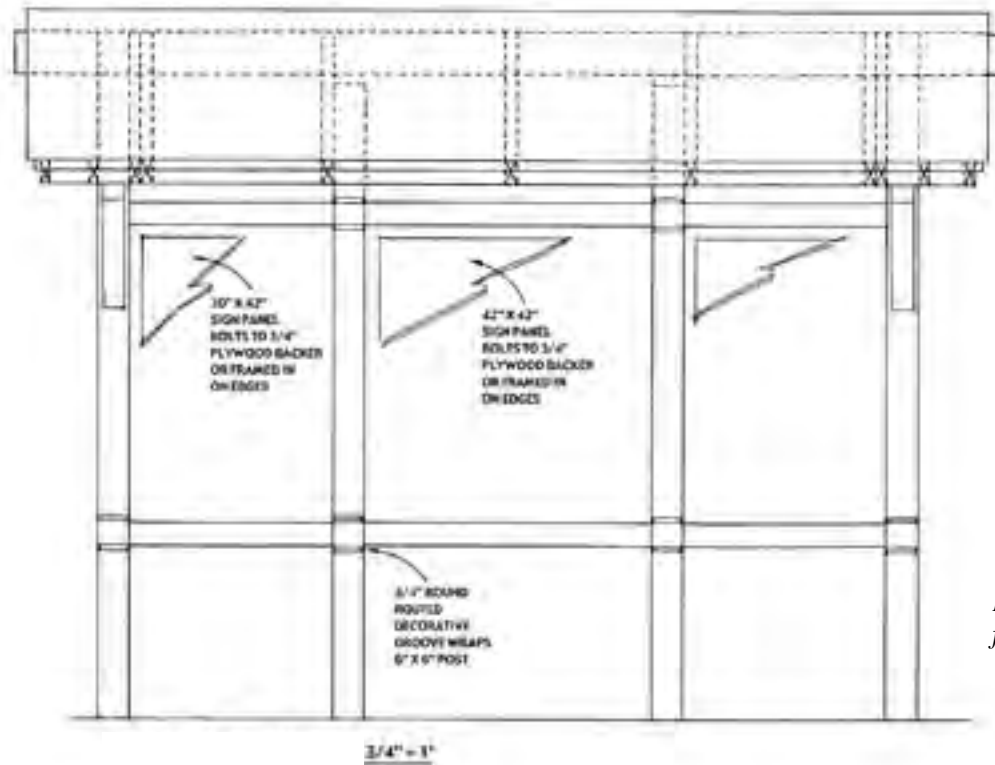


Fig. 58. 3-Panel Bay kiosk  
 front elevation

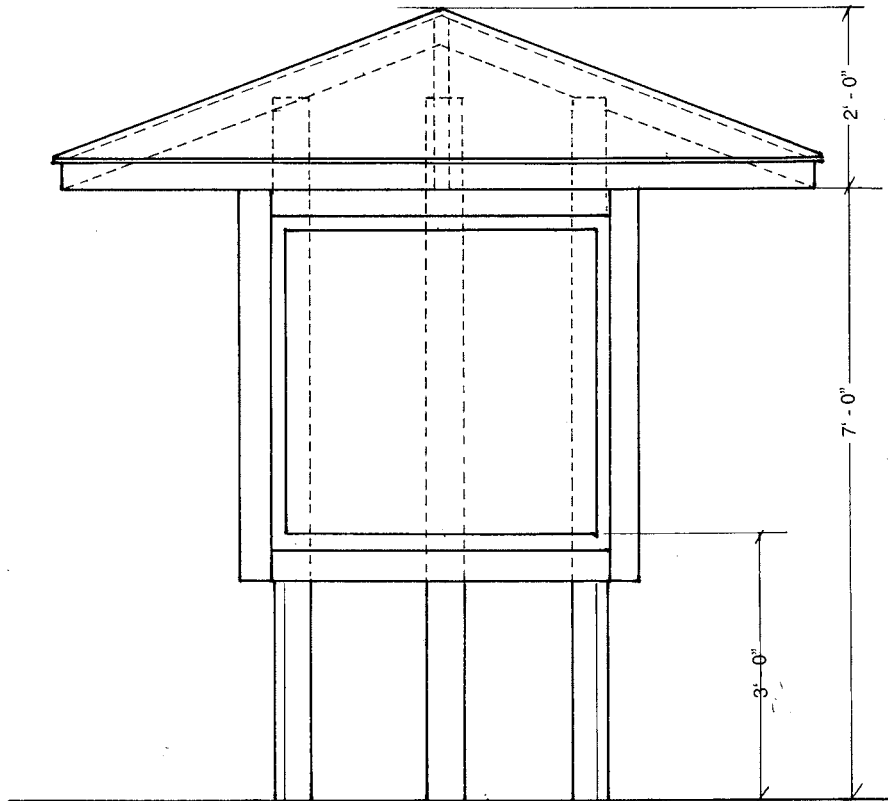
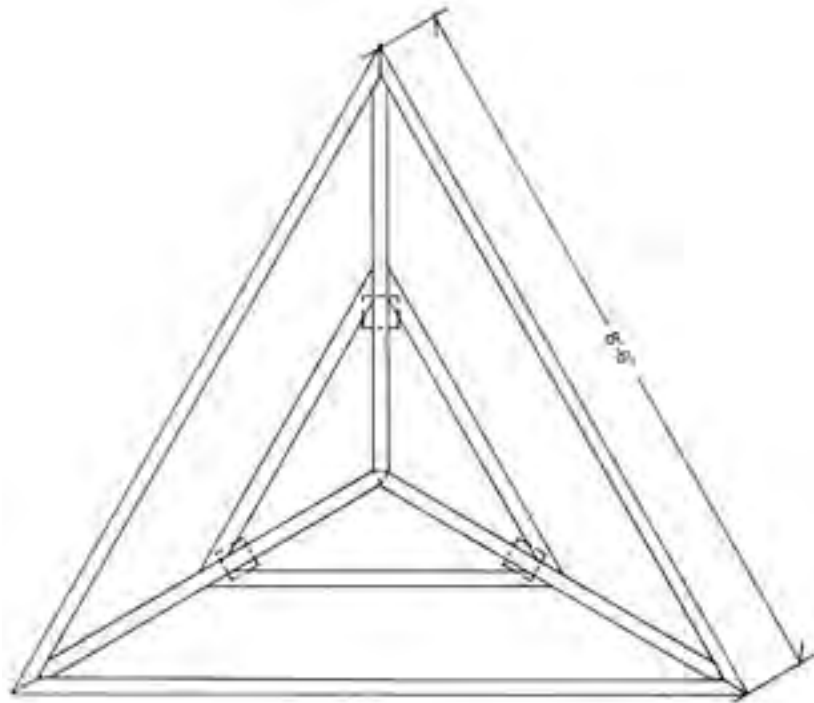


Fig. 59. 3-Sided kiosk

3/4" = 1'

### 3-SIDED KIOSK

3-Sided Kiosk designed to accommodate a 42" x 42" Orientation panel, Smaller 30" x 42" panels would have to be centered from side to side. This structure would be post construction with cedar shingle roof and have a 24" eave overhang to provide some shelter from the rain.



*Fig. 59. 3-Sided kiosk location*



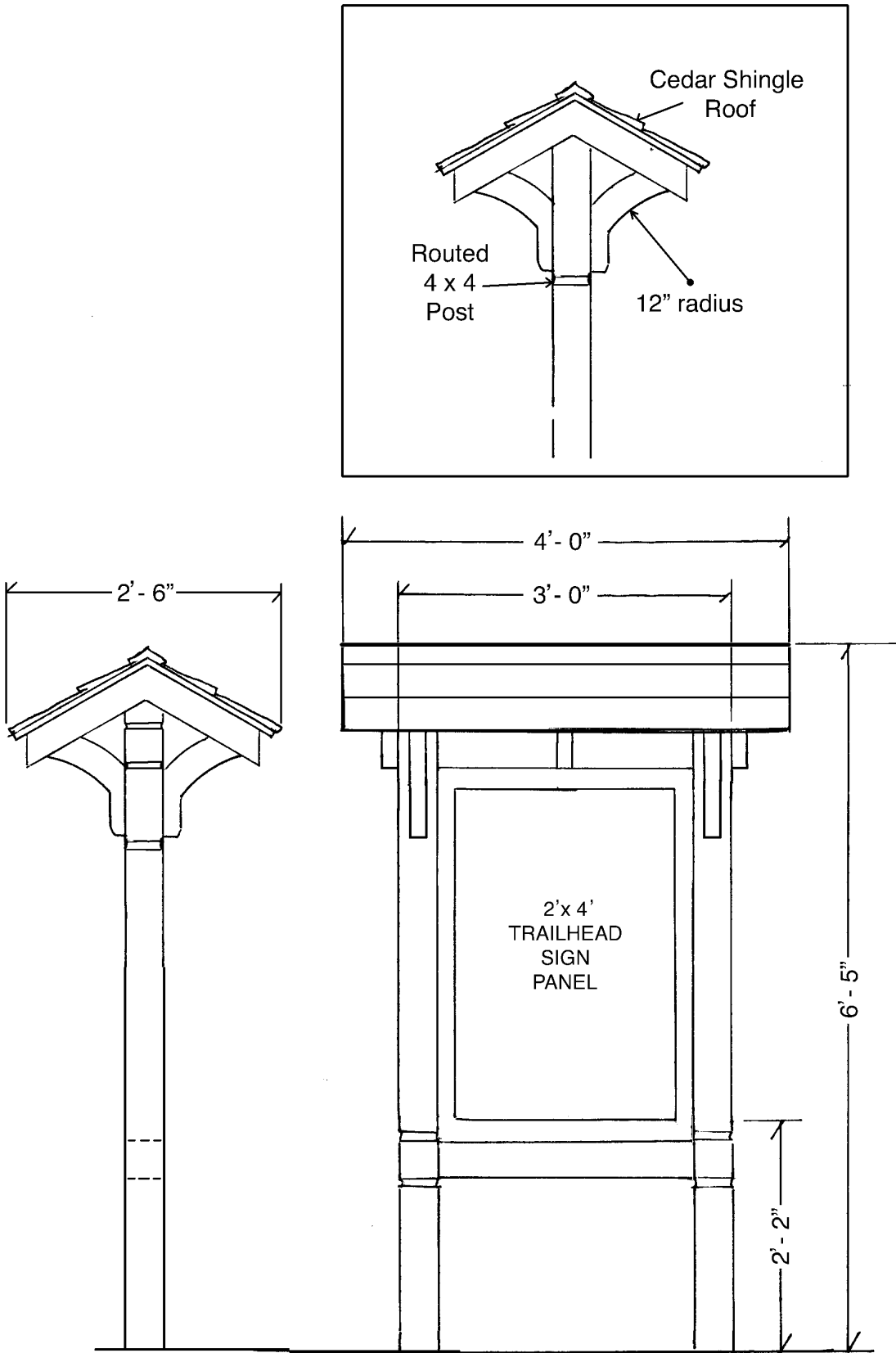


Fig. 61. Trailhead sign mount

3/4" = 1'

## TRAILHEAD SIGN MOUNT

Trailhead sign mounts are designed to have a low profile on the landscape. They should be sited at the immediate entrance to the trail, set to one side and landscaped to provide a visual block. They should be noticeable only when the trail user approaches the trailhead and be hidden from view otherwise.

They are designed to be viewed from one side, post constructed with a cedar shingled roof and have elements that are similar to the 3-Panel Bay kiosk. They may be painted a deep green or left natural wood color.

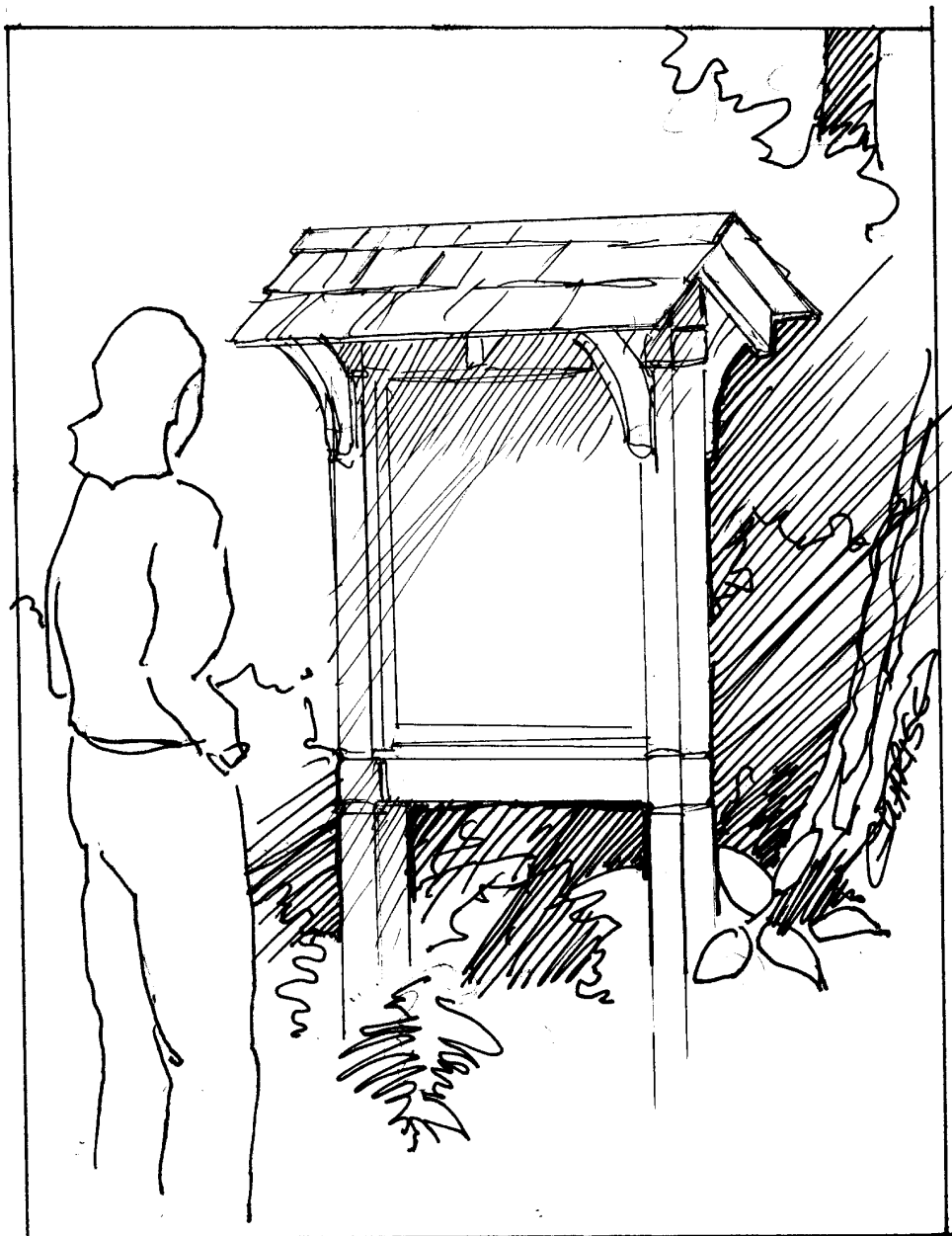
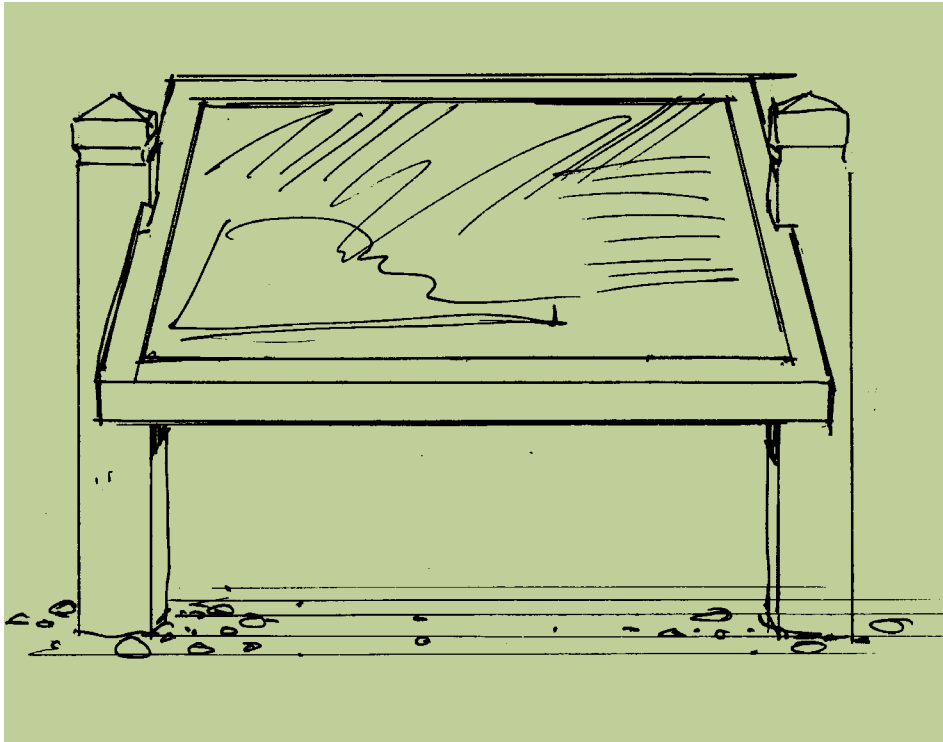
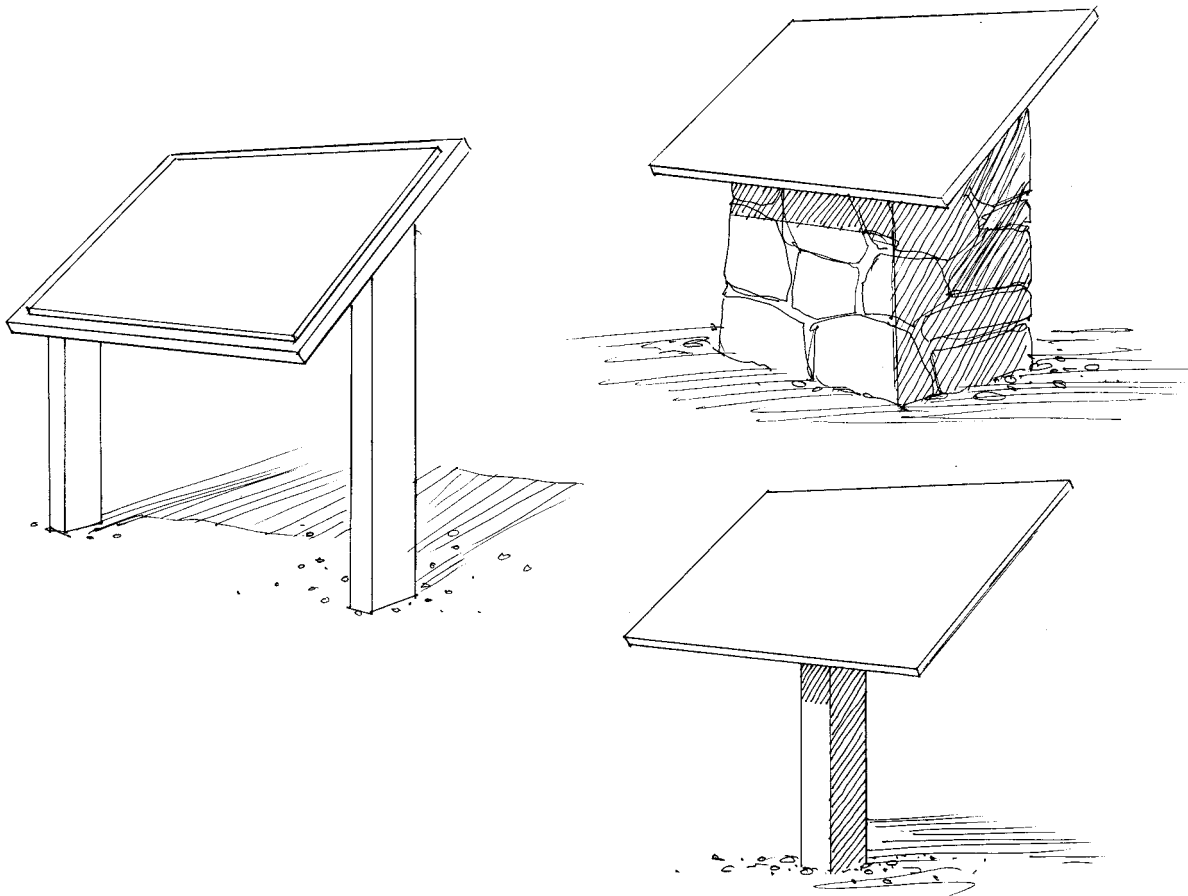


Fig. 62 Trailhead sign concept sketch



*Fig. 63 Low Angled sign mount examples*



## low angled Interpretive mounts

Low Angled Interpretive sign mounts are designed to be used near or away from kiosk structure. They may be designed and constructed with or without frame to accommodate 36" x 24" Interpretive sign panel.

Interpretive signs be located with minimum impact to the setting, unobtrusive yet easily accessible. In some instances the area chosen should be set apart and away from high traffic areas and connected with a path and landscaped with plants blending it into the natural setting. Avoid stand-alone, stand-out interpretive locations where an interpretive creates a distracting singular profile on the landscape. It is advisable to avoiding placing interpretive signs near restroom facilities, garbage cans, information kiosks and other structures. To create a more pleasant visitor experience these elements should be, if at all possible, kept away from interpretive installations.

### Kiosk Elements:

- Frame or frameless mount
- Versatile design and structure
- Placed in a pleasing accessible setting near parking with picnic and/or wayside activity nearby









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# HOLLYWELL BIODIVERSITY CONSERVATION MANAGEMENT PLAN

USAID/RURAL ENTERPRISE, AGRICULTURE AND COMMUNITY TOURISM  
(REACT) PROJECT

SEPTEMBER 2007



**September 2007**

This publication was produced for review by the United States Agency for International Development. It was prepared by PA Consulting Group



# USAID/RURAL ENTERPRISE AGRICULTURE AND COMMUNITY TOURISM (REACT) PROJECT

## HOLLYWELL CONSERVATION MANAGEMENT PLAN

**September 2007**

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### **DISCLAIMER**

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## List of Abbreviations and Acronyms

<b>BJCMNP</b>	Blue and John Crow Mountains National Park
<b>CAPE</b>	Caribbean Advanced Proficiency Examination
<b>CXC</b>	Caribbean Examination Council
<b>EAST</b>	Environmental Audits for Sustainable Tourism
<b>EMP</b>	Ecotourism Management Plan
<b>EMS</b>	Environmental Management Systems
<b>GDP</b>	Gross Domestic Product
<b>HEART/NCTVET</b>	Human Employment & Resource Training/ National Council for Technical Vocational Education and Training
<b>JCCP</b>	Jamaica Cluster Competitiveness Project
<b>JCDT</b>	Jamaica Conservation and Development Trust
<b>JDF</b>	Jamaica Defence Force
<b>JHTA</b>	Jamaica Hotel and Tourist Association
<b>JPS</b>	Jamaica Public Service Company
<b>FD</b>	Forestry Department
<b>LAC</b>	Limits of Acceptable Change
<b>NEPA</b>	National Environment and Planning Agency
<b>NRCA</b>	National Resources Conservation Authority
<b>UNDP</b>	United Nations Development Programme
<b>UNEP</b>	United Nations Environment Programme
<b>UNEP-GEF</b>	United Nations Environment Programme- Global Environment Facility
<b>UNESCO</b>	United Nations Education and Scientific Council
<b>USAID</b>	United States Agency for International Development
<b>UWI</b>	University of the West Indies

## **Executive Summary**

This conservation management plan sets out environmental, geographical, biophysical and human settlement descriptions of the Hollywell Recreational area to provide the context for the conservation management of the biological resources of the area. Direct and indirect threats such as access, boundaries and alien invasive species are set out to indicate identified pressure. A brief review of relevant legislation and policies indicates the governance framework within which the area is managed.

The substantive part of the document is the section “Blueprint for Sustainable Management” which is divided into two main areas namely strategies and actions. The strategies and actions are focused around seven thematic areas: zoning; visitor management; public education; community involvement; habitat and species conservation; monitoring and evaluation and resource improvement/upgrading. The structure of the management organisation and Hollywell Recreational Area is provided to present a realistic picture of the current human and organisational resources available to implement this plan. Ongoing and planned initiatives are also included so that this plan as far as possible will seamlessly interface with ongoing activities of the Jamaica Conservation and Development Trust.

## **1.0 Introduction**

Hollywell is located in the transition area between the Port Royal Mountains and the Blue Mountains adjoining Hardwar Gap within the Blue and John Crow Mountains National Park (BJCMNP). (See Appendix A for Plan) Hollywell encompasses some 10ha and has been leased to the Jamaica Conservation and Development Trust (JCDDT) by the Forestry Department. The vegetation can be described as Upper Montane Forest with invasive species such as Wild Coffee (*Pittosporum*), Wild Ginger (*Hedy-chium*) and Bracken Fern (*Gleichenia*) found along peripheries and trails.

### **1.1 Mission**

The mission of Hollywell is to support the Blue and John Crow Mountains National Park's mission and objectives by providing recreational opportunities for local and international visitors, using ecotourism principles.

### **1.1 Goals**

The goals of Hollywell are to:

1. Provide recreational and educational opportunities for local and international visitors that:
  - i. raise awareness and knowledge about the BJCMNP, thereby motivating concern and support for conservation of the national park, and
  - ii. result in the least environmental degradation to the site.
2. Generate income for conservation / management of the BJCMNP
3. Provide benefits for communities around the BJCMNP by increasing the local community's support for natural resource management.

(JCDDT, 2005a)

## **2.0 Approach to Plan (Method)**

This Management Plan was prepared by reviewing existing documents relating to the Blue and John Crow Mountains, the National Park in general and Hollywell specifically. These included management plans, business plans and scientific reports (see list of References). A stakeholder workshop held on September 26, 2007 was used to provide feedback on the draft plan as well as to assist in refining the strategies and actions to achieve the "blueprint for sustainable conservation and management of Hollywell's biodiversity. At the workshop a visioning exercise and strategic action-planning session were conducted. The report of the Stakeholder Review Workshop is presented as Appendix B

### **3.0 Environmental Context**

Hollywell is located in the Blue and John Crow Mountains National Park adjacent to Hardwar Gap. It is located within a mountain forest vegetation zone which has experienced centuries of environmental modification, degradation, impacts from natural and man-made occurrences, and in some areas, recovery.

#### **3.1 Description of Location**

Hollywell is the main recreational area within the Blue and John Crow Mountains National Park. It is located at Hardware Gap, in the parish of St. Andrew at about 914 metres above sea-level, just above Newcastle, near the border with the parish of Portland. Current facilities and services at Hollywell are:

- A large, landscaped picnic area with seven gazebos, tables/benches and bathrooms
- A smaller, landscaped picnic area “Mystic Grove” with a gazebo and bathrooms,
- A tuck-shop that sells snacks, drinks and light meals
- Nature trails – a network of short, easy trails connecting the picnic areas to the administrative centre, including the Blue Mahoe Trail
- Hiking trails – “Oatley Mountain”, “Waterfall”, “Shelter” and “Wag Water”/ “Dick’s Pond”
- Guided tours (on request) with TPDCO certified guides
- An Educational Visitors’ Centre with exhibits and information
- Kid’s Discovery Zone – an interpretive and interactive play area
- Educational packages for school and other groups
- Accommodations: Three, fully-furnished cabins – each with its own bathroom and kitchen facilities
- Five campsites and tents available for rent
- Meeting/Retreat facilities for up to twenty (20) persons
- Merchandise including park souvenirs and local craft

Hollywell was a coffee plantation established in the late 18<sup>th</sup> century which fell into decline and ceased operation. It was established by the Forestry Department as a nursery and reforestation site in the 1950s and converted to a recreational area in the 1960s. Whilst the land adjacent at Mt. Horeb still has good quality montane rainforest, Hollywell is composed mainly of cleared areas, degraded forest, and areas that have been reforested with Eucalyptus Caribbean Pine, Blue Mahoe and Christmas Trees. The original patent for the Hollywell property encompassed approximately 120 ha (300 acres) but the site operated as the Hollywell Recreation Area, as per the lease agreement between the JCDT and the NRCA, is 10 ha (approximately 25 acres) and no more than 12 ha, or 30 acres of the original property is used for recreation and tourism.

#### **3.2 Ecology**

The Blue Mountains experience tropical montane climate due to their altitude and proximity to the coast. The montane zones are considered small mountain type with the resulting absence of subalpine forest and grassland. In this system lower and upper montane forests begin at 1200 and 1500 metres above sea level, respectively.

The Massentrhebung effect which produces a telescoping of climate on mountains and leads to the formation of the temperate forest quality seen in montane forests in tropical areas is less pronounced in



the Caribbean and Jamaica for several reasons. These include the isolation of the islands, the small size of the mountains and the proximity of the ranges to the coast. As a result while general altitude limits are given for lower and upper montane forest the limit in any one place is determined by a combination of these factors.

The Tropical Montane Mist-forest of Jamaica is a type of rain forest that is unique to the Blue and John Crow Mountains National Park. The park's high altitude causes the rain to occur sometimes as mist. The mist turns to rain when the water content of the atmosphere reaches saturation levels or when the mist hits vegetation and the air warms resulting in condensation of the water vapour so that rain falls from the "rain trees". These types of forests are sometimes also called cloud forests.

About 50% of the flowering plants in the mist and rain forests of the BJCMNP are endemic to Jamaica, and it is probable that about 30 – 40% may also be endemic to the Blue and John Crow Mountains (Iremonger, 2002).

### **3.3 Ecosystems**

Shreve (1914) distinguished six forest habitats in his monograph. These habitats were Windward Ravines, Windward Slopes, Leeward Ravines, Leeward Slopes, The Ridges and The Peaks. The habitats were characterised based on species composition, canopy height, forest structure and forest floor conditions. The descriptions were not based on quantitative studies but were based on qualitative assessments with measurements used as descriptive aids.

Grubb and Tanner (1977) produced a reassessment of the montane forests which identified ten forest types. However, only eight are considered by Richards (1996) to be valid montane types as the other two were found in the John Crow Mountains and characterised as limestone forest. The eight montane forest types include, Mull Ridge Forest, Mor Ridge Forest, Wet Slope Forest, Gully Forest, Very Wet Ridge Forest, High altitude Forest, Dry Slope Forest and Dry Limestone Scrub Forest. Four of these forest types were later studied in detail by Tanner (1977). The descriptions generated had very detailed floristic and structural information as well as detailed soil studies.

The classification of the forest types and the accompanying ecosystems is important as this forms particular habitats in which the faunal species occur.

### **3.4 Species**

Trees and plants naturally typical of Hollywell include the following:-

Milkwood (*Sapium jamaicense*), Umbrella Tree (*Schefflera sciadophyllum*), Hot Lips (*Cephaelis elata*), Climbing Bamboo (*Chusquea abietifolia*). In addition, there are numerous non-flowering plants including tree ferns, ferns, club-mosses such as *Selaginella*, mosses (*Marchantia* sp.) and lichens such as the “Old Man’s Beard” (*Usnea* sp.), several of which are endemic to Jamaica.

Birds common to Hollywell and the Hardwar Gap area include; Red Billed Streamertail Hummingbird (*Trochilus polytmus polytmus*), Jamaica Tody (*Todus todus*), Rufus Throated Solitaire (*Myadestes genibarbis*), White-eyed Thrush (*Turdus jamaicensis*), White-chinned Thrush (*Turdus aurantius*), White-eyed Vireo or Jamaican Vireo (*Vireo modestus*), Blue Mountain Vireo (*Vireo osburni*), Arrow-headed Warbler (*Dendroica pharetra*), American Redstart (*Setophaga ruticilla*), Orangequit (*Euneornis campestris*), Jamaican Euphonia (*Euphonia Jamaica*), Stripe-headed Tanager (*Spindalis zena*), Greater Antillean Bullfinch (*Loxigilla violacea*), Jamaican Blackbird (*Nesopsar nigerrimus*), Jamaican Oriole (*Icterus leucopteryx*), Black-faced Grassquit (*Tiaris bicolor*) and the Yellow-shouldered Grassquit (*Loxipasser anoxanthus*).

Jamaica’s herpetofauna consists of 21 species of amphibians and 35 species of reptiles representing 100%, and 77%, endemism, respectively. The Blue Mountains provide habitat for 11 of the 21 species of amphibians and 13 species of reptiles. For some species the area is of great or absolute importance as a habitat as it supports more than 50% of the population or exclusively supports the population. (Vogel, n.d)

## **4.0 Geography, Social and Economic Context**

### **4.1 Biophysical**

Hollywell is located along the Papine to Buff Bay main road which is classified as a B Class main road. The geology of the area is characterised by volcanic rock; shales and andesites.

The climate in the Blue Mountains is strongly influenced by the North-East trade winds. These winds produce increased fog, cloud and rain on the windward northern slopes than the leeward southern slopes. The longest available weather records for the Blue Mountains are from Cinchona Botanical Gardens. These records show an average rainfall of 2275 mm yr<sup>-1</sup> between 1901 and 1990 with a range between 905 and 4464 mm/yr (Hafkenschied, 2000). There are two rainy seasons from August through to December and May through June. Monthly mean sunshine duration is 4.3 h/day with a range between 3.9-5.0 h/day between 1951 and 1980. Average monthly maximum temperatures vary within 20°C of the mean maximum temperature of 22°C. However, the average monthly minimum temperature is 13.5°C (Hafkenschied, 2000).

Temperature, humidity, sunshine and cloudiness are the main climatic features that distinguish montane climate from lowland climate and therefore influence the ecosystems found in Hollywell. Low temperatures, high humidity, low sunshine and high cloudiness are characteristic of these areas. High rain-

fall is also a diagnostic feature as there are usually less than five dry months with typically in excess of 1500 mm of annual rainfall (Richards, 1996).

#### **4.2 Human**

The area surrounding Hollywell is rural and settled mostly by small farmers. These farmers grow coffee, bananas, vegetables and seasonings such as scallion and thyme. There are a number of large coffee estates which, with the exception of the Old Tavern Estate, are not normally occupied by their owners on a day to day basis. The Greenwich area located between Newcastle and Hollywell is comprised mostly of weekend/vacation homes and are not usually permanently occupied.

#### **4.3 Settlements**

Hollywell is located near to the communities of Woodford, Middleton, Redlight, Irish Town, Section and Cascade. The Jamaica Defence Force Newcastle Camp established in the 1800s is located within 3 miles of Hollywell. Greenwich is an enclave of weekend/vacation houses and may not be considered a settlement area.

#### **4.4 Culture**

List some of the key activities of the communities from Woodford, Section, Irish Town, Redlight, Middleton and Cascade

Festivals

Maroon Culture

Mountain Village Culture

Art and Craft

Food and Cuisine

#### **4.5 Heritage**

The area has been settled since the late 1700s. Coffee plantations have been the major land use since that time. Most of the original land patents were for 300 acres but those tracts have been sub-divided or amalgamated since. The presence of the Jamaica Defence Force military camp has been a major influence on settlement and activity in the area. The road from Papine through Irish Town and Redlight to Buff Bay has been upgraded from a bridle road to a carriage road and finally to a motor road to improve the access of troops to Newcastle and the interior. It was used during the 1865 Maroon uprising as a line of march for troops. The nearby spa at Silver Hill was much touted in the 1800s for its restorative powers. The nearby Cold Spring property (now called The Heritage Gardens of Cold Spring) was leased for water rights by the Secretary of State for War to supply the military camp.

### **5.0 The Area and its Resources**

#### **5.1 Renewable**

The most notable resource of the area is the forest plantations. These plantations are primarily comprised of Caribbean Pine, Mahoe, Mahogany and Cedar. Other natural products that are harvested

include Sphagnum (moss) and Tree Fern stems (these materials are used mostly by Orchid collectors as potting media.)

## **5.2 Non-renewable**

The area has no currently exploited non-renewable resources. A number of metallic minerals have been recorded within the Blue Mountains and some prospecting has been carried. At present there is no prospecting activity near to Hollywell.

## **6.0 Threats**

### **6.1 Direct**

#### **6.1.1 Invasive Species**

Invasive species are a threat to the health of the forests in the park as they grow quickly and easily, invading and dominating the areas in which they are found. Some of these species are the *Gleichenia* commonly called “Bracken Fern”, Ginger Lilies and Red Bush. Removal of these species is not simple because they tend to have rhizomatous roots that are difficult to remove completely, and often grow on slopes where their removal may result in landslides. Persons responsible for landscaping must consider how invasive the species of plants and trees used for beautification are.

#### **6.1.2 Environmental Degradation**

This threat is perhaps the most pervasive because of its association with sections of protected or natural areas used for recreation and tourism and other areas that are used heavily by humans. The resources, which are the basis of the tourists’ visit, may be damaged or destroyed by visitors themselves and their activities. Degradation can occur in a number of ways and in a variety of intensities. Much of the damage is visible such as litter, trampled vegetation and trail erosion. However, other effects such as the impact on wildlife may be less obvious. Visitors cause other changes to nature and protected areas. These may be subtle changes that affect the natural processes, which cause problems, including the alteration of animal behaviour. These changes are often difficult to detect but are important. Visitors sometimes not only cause negative impacts on the site that hosts the tourism activity, but also on neighbouring or surrounding lands.

#### **6.1.3 Habitat Modification**

Discuss habitat modification, which can result from development pressure adjacent to the park.

Modification of habitat due to invasive species, natural events and man-made influences

## **6.2 Indirect**

### **6.2.1 Access**

The park's soil composition is predominantly shale. Together with the high levels of rainfall, landslides are a common threat. This results in access to the area being cut off as paths and roadways leading to and from Hollywell may become blocked.

Within Hollywell, there are also concerns about an access road leading from the Woodford community through the site. From Woodford, the road connects to Norbrook or via Maryland back to Irish Town. The road is used mostly by coffee farmers, and drivers of all-terrain vehicles (ATV's) or trial bikes, for recreational rides.

The fact that Hollywell does not have boundaries defined by fences, markers, etc. makes it accessible from a number of points. The securing of boundaries is therefore a challenge. This concern is also applicable to the wider BJCMNP, with respect to identification of the boundaries.

### **6.1.2 Sustainability**

The sustainability of the site as a recreational area is threatened by the cost of operations, which often-times exceeds the income earned. Measures will need to be taken to address this problem in order to increase income above expenses if the site is to continue operation. Under the current business approach of the JCDDT, it is no longer acceptable nor viable to depend on outside factors such as donations and funding to sustain the park.

As the inflow of visitor's increases in number and frequency, the natural resources will become more stressed and the eventual result will be damage to trails and vegetation. This will decrease the environmental sustainability of the site and its ability to attract the desired target market.

## **7.0 Legal and Enforcement Framework**

In 1885 Hooper's 'Report upon the Forests of Jamaica' made the recommendation that "the first and most important work to be done is reservation of the highlands of the Blue Mountains". He also stated, "To such a reserve it would be of great importance to have a well defined boundary, easy of access," He firmly concludes "But at all hazards, the main ridge should be preserves from all cutting, and any proprietor holding such land should be invited to relinquish it, granting other land to him in exchange or lease the ridge from him for a long term of years, or buying it from him once and for all." In response to the recommendations of this report Law 37 of 1889, The Mountain and River Reserves Law was enacted in 1889. In 1927 "The Afforestation Law" permitted the gazetting of a number of properties that

had been forfeited through various means to the crown to be declared forest reserves. These forest reserves were the genesis of the Blue and John Crow Mountain Forest Reserve as it is now known.

### ***7.1 Natural Resources Conservation (BJCMNP) Declaration Order (1993)***

The Natural Resources Conservation Authority Act provides for the management, conservation and protection of the natural resources of Jamaica. The Act establishes the Natural Resources Conservation Authority, a body of persons appointed by the Minister of the Environment. The functions of the Authority include the taking of such steps that are necessary to ensure the effective management of the physical environment of Jamaica; and the management of marine parks and protected areas. The declaration order sets out the boundary of the BJCMNP.

### ***7.2 Natural Resources (National Park) Regulations (1993)***

The Blue and John Crow National Park is located in the Blue and John Crow mountains in Jamaica, which traverse the four easternmost parishes in the island. It is the first and only declared national park in Jamaica and was so declared pursuant to Section 5 of the Natural Resources Conservation Authority Act which also allows the Authority to designate any area of land as a national park to be maintained for the benefit of the public, or any area of land or water as a protected area for the protection of natural and inanimate objects that is of aesthetic, educational or scientific interest. The protected areas system is guided by a Policy on Protected Areas, which was endorsed by Cabinet in 1997.

### ***7.3 Natural Resources (Blue and John Crow Mountains National Park) (User Fees) Regulations 2003***

These regulations make provisions for the issuing of a pass to enter a recreational area. This pass must be in the possession of the person using it for entry at the time of entry. With respect to Hollywell the pass may be either a single entry or annual pass for multiple entries. Authorised Officer's under the National Park regulation of 1993 are exempt from using a pass.

These regulations also govern persons conducting research in the park area who may be collecting specimens, audio recordings, data (including computer records) and producing scientific publications from their activities. The regulations make provisions for the final destination of these materials to be declared.

### ***7.4 The Forest Act (1996)***

This Act addresses the sustainable management of forests on lands in the possession of the crown and vests management responsibility in the Conservator of Forests. The Act provides for the establishment of forests reserves, the establishment of protected areas, the promotion of forestry research areas, re-forestation initiatives and the preparation of a forestry management plan.

The act speaks to the establishment and maintenance of recreational facilities in forest conservation areas and forest management areas as may be designated for that purpose as well as protection and

preservation of watersheds in forest reserves, protected areas and forest management areas. In forest reserves parks and other recreational amenities may also be provided. The act also recognises the protection and conservation of endemic flora and fauna.

The Conservator may establish recreational facilities in such forest reserves or forest management areas as he considers appropriate and such facilities may include -

- (a) parks;
- (b) roads and trails;
- (c) camp grounds;
- (d) picnic sites;
- (e) such other facilities as the Conservator may determine.

Fees may be payable for the use of facilities provided.

### ***7.5 The Forest Regulations (2001)***

The Forest Regulations 2001 incorporate additional provisions related to the regulation of forest reserves, offences against burning without a permit in forest reserves and timber licences. There is no overarching section in the Act that states that the Forestry Department is responsible for all of the island's forests. The department is restrained by the limitations placed on the areas over which the Act establishes jurisdiction namely: Forest Reserve (any area of land declared by or under the Act to be a forest reserve), Forest Management Area (any area of land declared under the Act to be a forest management area) and Protected Area (any area of land declared by the Minister pursuant to section 23 to be a protected area). These boundaries were extended somewhat by the area created under the Forest Regulations of 2001 as it was found that a lot of the areas that was actually being managed by the Department were not actual forest reserves and as such would not fall within the interpretation given under the Act. The Regulations introduced a new category of lands, namely the 'forest estate' which was designed to include all the lands managed by the Forestry Department. This also includes forest reserves. It is thought that this distinction was placed to facilitate easy usage, as these results in the inclusion of many parcels of land which are in fact managed by the Department but which have not been declared as a forest reserve.

Recreation sites and facilities in a forest estate may be the subject of management contracts or leasehold arrangements with other parties. Government agencies, non-governmental organizations or private individuals who make application for such agreements may do so if

- (a) the facility or site was approved in the Forest Management Plan; and
- (b) the Conservator is satisfied that the site or facility will be operated in compliance with the Act and the Regulations. In determining whether or not to recommend an application, the Conservator shall be

guided by (but shall not be obliged to accept) the recommendations of the Forest Management Committee. The rates for any lease or management contract shall be the rates recommended by the Commissioner of Lands. The period of any lease or management contract shall not exceed 10 years in the first instance and shall be subject to performance standards and performance indicators and agreeable to both parties to the contract. A contract for the operation of a recreation site facility in a forest estate may be terminated if the terms of the contract are contravened. If the Conservator is satisfied that there has been a breach by a person to whom a contract is granted under this regulation, the Conservator shall give three months notice in writing before taking steps to terminate the contract.

### **7.6 The Forest Policy (2001)**

The policy addresses a number of areas but central to the purpose of this plan is the Conservation and Protection of Forests. The policy states that forest lands, especially the last remaining areas of natural forests, will be conserved to protect and enhance the native and endemic flora and fauna of the Island. No harvesting will be permitted of primary closed natural forest in forest reserves, national parks, or protected areas. Forest management will support the development of the National Park and Protected Areas System that will assist in the conservation of all natural resources.

The protection of forests from all threats forests including damage from fires, illegal cutting and theft of trees, illegal hunting of birds and animals, soil erosion and other processes which damage soil, water, plants, birds, animals and landscape features is also clearly stated.

The policy adopts the position that no net loss of forest cover will be permitted on lands owned by the Government of Jamaica. Where forest stands are wholly or partially cut or otherwise damaged, they should be promptly reforested with the same, or other suitable species. Where destruction of forest cover is unavoidable, the loss will be compensated by reforesting an equivalent area elsewhere.

Community participation, public awareness and environmental education are seen as major vehicles for implementing the policy, promoting and supporting forest development as well as imparting the importance of forests to Jamaica's economy, environment and society.

Co-operative Management Agreements will be used to achieve forest protection and conservation. For public lands, agreements normally will be made between the Conservator of Forests, the National Environmental Planning Agency and/or delegated non-governmental agencies. For private lands, an agreement may be entered into between the Conservator of Forests and any owner designating their land as a forest management area, as provided for in the Forest Act.

Such agreements will specify:

- the identity and interests of each party;
- the specific purpose and area of agreement;



- responsibilities of the parties;
- designation of permitted land uses;
- provisions for enforcement of land use controls;
- incentives and payments (if applicable);
- management and administrative arrangements; and
- mechanisms for termination and dispute resolution.

### **7.7 The Wild Life Protection Act (1945) and relevant amendment orders and regulations**

Only statute in Jamaica specifically designated to protect species of animals and regulates hunting in Jamaica. Main provision that ensures the protection is found in Section 6 of the Act which states that (1) No person shall hunt any protected animal or protected bird. (2) Every person who

- (a) contravenes the provisions of subsection 1; or
- (b) has in his possession the whole or any part of any protected animal or bird; or
- (c) Takes or has in his possession the nest or egg of any protected bird, shall be guilty of an offence.

The act designates all birds except the 22 birds in schedule 2 and birds kept as domestic birds as not protected and 14 animals as protected e.g. Hawksbill turtle, American Crocodile, Jamaican Iguana and West Indian Manatee.

The act regulates the hunting of game birds, designates game birds, hunting times and limits. It also prescribes the licence, provides for the declaration of game sanctuaries and games reserves.

### **7.8 The Country Fires Act (1942)**

The act states that every person who sets fire to my crop shall be guilty of an offence. So too is every person who sets fire to any trash on any land unless the occupier of such land first serves on the officer or sub-officer in charge of the nearest police station and the occupiers of all adjoining lands the nearest boundaries of which lie within half a mile (0.8 km) of the place where it is intended to set fire to such trash, notice of his intention to set fire to such trash on the dates, not exceeding seven, specified in such notice; and clears an open space of at least fifteen feet(4.5 m) in width round such trash and removes from such open space all inflammable material or other matter likely to burn, land, unless the occupier of such land first-shall be guilty of an offence against this Act. Notices shall be served three clear days at least before the first of the dates specified in the notice. Every person who sets fire to any trash between the hours of six in unattended, the evening and six in the morning; or leaves unattended any fire he may have lit or used in the open air before it is thoroughly extinguished, shall be guilty of an offence against this Act.

Permits should specify the period, not exceeding fourteen days at the most, within which the permit shall be in force, and the hours during which fire may be set, and the person issuing such permit should

send a copy thereof to the officer or sub-officer in charge of the nearest police station. Every person who, for the purpose of obtaining a permit, gives to the person to whom application is made any information knowing it to be false, or makes any statement knowing it to be false, shall be guilty of an offence against this Act.

Every person who sets fire to any trash contrary to the provisions of any order issued under or contrary to the provisions of any permit granted shall be guilty of an offence against this Act.

Fires lit on any plants or trash to eradicate or prevent the dissemination of, any disease within the meaning of the Plants (Protection from Disease) Act as well as those lit for lime or charcoal kiln are noted exemptions to the main provisions of this act.

### ***7.9 The Endangered Species (Protection, Conservation and Regulation of Trade) Act (2000)***

This Act was promulgated to ensure that Jamaica meets its obligations under the Convention for the International Trade in Endangered Species of Wild Fauna and Flora. The Act governs international and domestic trade in endangered species to and from Jamaica. It establishes a Management Authority, which is the Natural Resources Conservation Authority, as well as a Scientific Authority. The functions of the Management Authority include the grant of permits and certificates for the purpose of international trade, the determination of national quotas and the monitoring the trade in endangered species. The primary role of the Scientific Authority is to determine whether a species is at risk, vulnerable or threatened, to advise on trade matters and to monitor the grant of permits and certificates. Offences under the act relate to trading in any specimen of a species without a permit or certificate; enclosing in or with any letter, parcel, packet or other matter sent by post, any endangered species; or knowingly using for the transportation of any endangered species any mail bag or mail van, aircraft, ship or other vehicle used for the carrying of mail.

### ***7.10 The National Solid Waste Management Act (2001)***

This act makes provision for a National Solid Waste Management Authority and mandates inter alia that the Authority take such steps as are necessary for the effective management of solid waste in Jamaica in order to safeguard public health as well as the collection, transportation, re-use and re-cycling of waste in an environmentally sound manner. The Act establishes a licensing regime for operators of solid waste management facilities, and the operators of collection and transfer services.

### ***7.11 The Water Resources Act (1995)***

The Water Resources Act (1995) was promulgated in the Jamaican Parliament in September 1995 and enacted into law on 1st April 1996. This marked a 25-year effort to address the deficiencies in legislation for the proper administration, development and optimal use of the island's water resources.

The Act gives to the Water Resources Authority (WRA) the responsibility for planning. The orderly development and equitable allocation of water resources, including the analysis of alternative methods of developing and supplying water, can now be executed. The alternative methods will examine how best to supply water without damage to the environment and economic setback. Too often a water supply is put in place and no thought is given to areas such as expansion of urbanization, or population growth. Within a short time the system cannot meet demands and there is conflict among the various sectors.

The WRA will maintain an inventory of resources and demands by sector (domestic, irrigation, industrial and tourism), and determine the growth in demand well into the future, to ensure that available water can be optimally allocated while at the same time preserving the environment. This Water Resources Master Plan recommended the projects, programmes and other steps, which should be taken in respect of development, control, abstraction and storage of water as well as its supply, distribution and disposal. In anticipation of the new Act, a plan was prepared by the WRA in September 1990. The Act allows the WRA to declare a water quality zone to protect water quality in the public's interest.

### ***7.12 Convention for International Trade in Endangered Species of Flora and Fauna (1973)***

CITES is the Convention on International Trade in Endangered Species of Wild Fauna and Flora. It is an international agreement between governments that are signatory to the convention. The aim for CITES is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

Because the trade in wild animals and plants crosses borders between countries, the effort to regulate it requires international cooperation to safeguard certain species from over-exploitation. CITES was conceived in the spirit of such cooperation. Today, it accords varying degrees of protection to more than 30,000 species of animals and plants, whether they are traded as live specimens, fur coats or dried herbs.

Jamaica is a party to the CITES convention and permits may be required for any listed species occurring in the area.

### ***7.13 Convention on Biological Diversity***

The objectives of the Convention on Biological Diversity are "the conservation of biological diversity, sustainable use of its components and the fair equitable sharing of the benefits arising out of the utilization of genetic resources". This is the first global, comprehensive agreement, which has as its focus all aspects of biological diversity: genetic resources, species and ecosystems. The Convention acknowledges that the "conservation of biological diversity is a common concern of humankind and an integral part of the development process". In order to achieve its goals, the signatories are required to:

- Develop plans for protecting habitat and species.
- Provide funds and technology to help developing countries provide protection.
- Ensure commercial access to biological resources for development.
- Share revenues fairly among source countries and developers.
- Establish safe regulations and liability for risks associated with biotechnology development.

Jamaica's Green Paper Number 3/01, entitled *Towards a National Strategy and Action Plan on Biological Diversity* in Jamaica, speaks to Jamaica's continuing commitment to its obligations as a signatory to the Convention.

## **8.0 Blueprint for Sustainable Management**

Whilst the area at Hollywell used for recreation is only about 0.01% of the almost 200,000 acres National Park, and most of it had been cleared for coffee plantation in the late 19th century, it is still important to ensure its sustainable management. This is so as the intention is to maintain use of the site for the enjoyment of local and international visitors well into the future, to generate support for the National Park. The habitats and specific flora and fauna can be negatively impacted by use of the site, and so in order to manage the site sustainably, management must address both environmental, or bio-physical impacts, as well as ecological impacts. The existing Hollywell Ecotourism Development and Management Plan (JCMT, 2005a) addresses some of the relevant issues, strategies and actions, but these are mainly related to environmental and social impacts. This Plan speaks to issues related more directly to biodiversity and related ecosystem health, in relation to use of the area for recreation and tourism.

## **8.1 Strategies**

Management strategies for conservation and sustainable use, particularly for recreational use usually include zoning, visitor management, public education, community involvement, habitat and species conservation, monitoring and evaluation, and resource improvement. Each of these is addressed below, first with respect to strategies and then actions.

### **8.1.1 Zoning**

Hollywell is located in the Hardware Gap, where the Port Royal Mountains (PRM) and the Blue Mountains (BM) meet. Most of the forest in the PRM has been converted to pine and coffee plantations with only a small remnant of natural or closed broadleaf forest at Mt. Telegraph to the north-west and Mt. Horeb, adjoining Hollywell to the east. The BJCMNP Management Plan has zoned both these areas for forest preservation, which is to include preventing forest degradation, and rehabilitating disturbed areas. This is already occurring through the Park's Conservation Programme, where between 2005 and 2007, 9 acres have been reforested at Catherine's Peak with funding from the Luis Kennedy Foundation (LKF), and 3 acres rehabilitated through control of the alien invasive Wild Ginger (*Hedygium* sp.) through a combination of sources including the LKF.

With respect to BJCMNP zonation, Hollywell is located within the Park's Recovery Zone and has been identified as a site for restoration, particularly with respect to the control of alien invasive species. Again, since implementation of the new Management Plan in 2005, invasive species control has been a significant activity at Hollywell. All Wild Coffee/Mock Orange (*Pittosporum undulatum*) trees and saplings removed under a project funded by the Rufford Small Grants Programme. In addition, one acre of wild grass is now under control and native species of trees have been planted with funding from the LKF. Therefore, whilst Hollywell is the Park's main recreation area, it is also important for conservation, due to its proximity to one of the last remaining remnants of natural forest in the area.

Two zones have been described for Hollywell, in the Development and Management Plan. These are:-

- (1) Intensive Use Zone – providing recreational and educational opportunities for large numbers of people, within a semi-natural environment, and consisting of:-
  - Roads and Car parks

- Administrative Area – Ranger Station, Education Centre
- Picnic Areas – main and secondary, including the Kids Discovery Zone, gazebos, bathrooms etc.
- Cabin and camping Areas
- Trails connecting these areas including the “Blue Mahoe Trail” between the Administrative Area and the Cabin Area
- Oatley Mountain Trail

These areas accommodate the majority of visitors and have hardened surfaces, large spaces with interspersed trees many of which are non-natives e.g. Eucalyptus and Caribbean Pine.

In the Intensive Use Zone, the following rules apply:-

- Visitors are allowed to responsibly make use of the above facilities once the park is open and the relevant fees have been paid
- Campfires are permitted in designated areas
- Firewood collection is not permitted
- Pets must be kept on leashes
- The trails/paths provided must be used
- Plants or animals may not be removed from the park
- Vehicles must be parked in the designated areas

(2) Moderate Use Zone – providing recreational and educational opportunities for small numbers of people, in a relatively natural environment and consisting of:-

- Trails – Waterfall, Shelter, Wag Water/Dick’s Pond, and the lower trail from the Cabin Area to the Main Picnic Area

These trails meander through secondary forest in relatively good condition, and in fact, some of the trees appear to be very old.

### **8.1.2 Visitor Management**

Recreational use of National Parks is part of the reason for their establishment, and it is anticipated that such use will contribute to the generation of income and increasing the level of support for the site, its ecosystems, flora and fauna. Visitors have an impact however, and park management needs to determine what degree of impact is acceptable within the context of the benefits the visitors provide.

As already indicated, the Hollywell recreational area is a very small percentage of the BJCMNP's area, and so visitor use is already limited with respect to the wider National Park. Further, the area is zoned so that intensive use is limited to areas that are less valuable in terms of biodiversity, and also to areas that have been "hardened" to be more resistant to impacts from recreational use. In addition, public education and other aspects of management contribute to visitor management indirectly. Hence, a variety of tools can be used for visitor management; however design and implementation of a system rather than an ad hoc approach would improve management effectiveness. Several systems have been developed internationally, including Limits of Acceptable Change (LAC) and its simpler version, Visitor Impact Management (VIM). These systems are based on the assumption that simply limiting the number of visitors through a carrying capacity approach is not appropriate as a site usually has different zones which can handle differing capacities, and also, it is often the behaviour of visitors rather than the numbers that has most impact. The Hollywell Ecotourism Development and Management Plan uses a theoretical approach based on existing facilities e.g. parking space and bathrooms to estimate a carrying capacity of about 300 persons per day, with allowances for up to 2,500 for events when shuttle buses and portable bathrooms amongst other strategies are used to solve the capacity limitations. Further, the assumption is made that the majority of these persons will not enter the moderate use zones. Design and implementation of a Visitor Management System e.g. LAC or VIM would allow for regular monitoring of relevant impact indicators in order to trigger appropriate management action. The level of impact used to trigger action would be related to the degree of impact considered acceptable for the recreational use area.

### **8.1.3 Public Education**

Hollywell is an important component of the National Park's Education and Public Involvement Programme, which aims to raise public support and improve natural resource management, particularly in buffer zone communities. The main method for public education at Hollywell is interpretation, and this programme is described in detail in the Hollywell Ecotourism Plan (JCDDT, 2005a). Interpretation has been described as:-

"An educational activity that aims to reveal meanings and relationships through the use of original objects, by first-hand experience and by illustrative media, rather than simply to communicate factual information." (Freeman Tilden, 1957)

Therefore, the whole visitor experience at Hollywell can be considered as interpretation, although this needs to be enhanced through use of interpretive tools, to ensure that the goal of interpretation is achieved. Tools for interpretation include exhibits, signs, guided tours, videos and slide or power-point presentations. Currently, most visitors to Hollywell receive little interpretation, as the signage is limited and mainly directional, and there is relatively little interaction between management and visitors, unless visitors are with an educational or tour package. This is because the staff at Hollywell is limited and most of the existing interpretive materials are in the Administrative Area and not in the Main Picnic Area.

The conservation and other Park management activities at Hollywell are useful as part of the public education process, helping to explain how the National Park is managed. For example, under the Conservation Programme, there are demonstration plots for invasive species control, and a native species

nursery is also located on site. Visitors on educational tours are usually shown these areas as examples of what conservation entails.

Public education, through interpretation or other means, is geared at increasing understanding about the National Park in order to change behaviour to become more supportive of Park management. This means that it should assist in ensuring visitor compliance with rules and regulations e.g. not picking flowers or stoning animals.

(1) Existing interpretation:-

- Exhibits in the Education Centre e.g. large map of the Park, birds of the Park, management programmes of the Park (some exhibits damaged by Hurricane Ivan)
- Brochures
- Slide presentation
- Guided Tours – Park Rangers, Education Officers and community youth have been trained and certified TEAM JAMAICA and Tour Guides by the Tourism Product Development Company (TPDCo) and several training sessions have been held with these persons e.g. Flora & Fauna of the BJCMNP, Oral Communications and Interpretation.
- Educational packages for schools – these vary depending on the age-group and if there is a request for a specific theme, but usually includes a slide/PowerPoint presentation on the National Park, a guided tour of the Oatley Mountain Trail, and a selection of activities including at the Kids Discovery Zone.

(2) Plans for interpretation:-

- Interpretive Signs (layout complete, production & erection to be funded by USAID REACT):-
  - Three for Entrance to Main Picnic Area – Hollywell Orientation, Watersheds, Mist Forest
  - Seven Trail Heads – Oatley Mountain (1), Shelter (1), Wag Water (1), Blue Mahoe (2) and Waterfall (2)
  - Two for Blue Mahoe Trail (Administrative Area to Cabin Area)
- Cabin and Gazebo Name Labels (birds and plants)
- Education Centre – new set of exhibits being designed to replace those destroyed & damaged by Hurricane Ivan e.g. 3-D model of the BJCMNP
- New Visitors' Centre, in Main Picnic Area "Visitors' Pavilion" – funds being sought from Tourism Enhancement Fund
- Kids Discovery Zone, in Main Picnic Area – funding to be sought for additional items to complete the site

#### **8.1.4 Community Involvement**

Ensuring community involvement and benefits is one of the ecotourism principles that guides the BJCMNP Recreation and Tourism Programme and therefore, management of Hollywell (JCDT, 2005).

This principle is supported by the Education and Public Involvement Programme which has members of the Park's Community Buffer Zone as the main target group. Hence, there are several strategies for community involvement:-

- (1) Employment of local community members at Hollywell e.g. housekeeper, watchman, ticket clerks, grounds men
- (2) Using the services of local tradesmen e.g. plumber, electrician, carpenter and caterers. (3) Involvement as booth holders for food, produce etc., tour guides and entertainers at events
- (4) Reduced prices for community patrons at events
- (5) Skills training for local community youth
- (6) Assistance with community-based tourism product development (currently in planning stages)

### **8.1.5 Habitat and Species Conservation**

The BJCMNP Conservation Programme uses an ecosystems approach, and focuses on habitat conservation, as funds and species ecology and conservation needs knowledge is limited. Further, existing information indicates that species require healthy habitats and ecosystems (Vogel, 2004), and the assumption can therefore be reasonably made that, in general, by actively protecting and restoring habitats, species will be conserved. Therefore, whilst information on species distribution (through recording of Ranger observations, community reports and scientific studies) and species ecology (from research) is used to guide conservation approaches, the main focus has been on forest conservation through alien invasive species control and reforestation with native species e.g. Dovewood (*Alchornea latifolia*), Soapwood (*Clethra occidentalis*) Milkwood (*Sapium jamaicense*) and Blue Mahoe (*Hibiscus elatus*).

Most of this work has been implemented outside Hollywell (most activity in the area is focused on Mt. Horeb) however, with respect to:-

- (1) the alien invasive species *Pittosporum*, this is under control within the site, and
- (2) a one acre plot near the new Ticket Booth has been reforested during 2007, and prior to this there have been a variety of small reforestation projects by volunteers.

Further, a plant nursery focusing on native species (over 6,500 seedlings in 2006) has been established on the property.

### **8.1.6 Monitoring and Evaluation**

The BJCMNP Monitoring and Evaluation Programme is geared at tracking and recording both the threats and the changes to ecosystem health so that it is possible to assess whether or not the Park is achieving its over-arching, conservation goal. This is to protect the remaining core of natural (closed broadleaf) forest for its biological diversity and the maintenance of ecosystem services including water supply and recreational opportunities. In light of this, the Programme has two main components:-



### (1) Threats/Ranger-based Monitoring

This monitoring records using digital photography and notes, incidents that threaten the Park's resources, and their exact location, using GPS units. The information is then loaded on to the Park's GIS for analysis. Threats monitoring is conducted by Rangers whilst on patrol (at least 8/mth) or other field duties, in addition to a set of ten (10) permanent photo-monitoring points distributed around the Park. This programme was fully initiated in 2006 and over a year of data has been collected including photos from 8 of the proposed 10 permanent sites. Threats monitoring allows Park management to identify the threats that predominate a particular area, to address these with the most appropriate action.

### (2) Outcomes/Targets Monitoring

This type of monitoring aims to assess the impact management is having on biodiversity and ecosystems. The National Park has eight (8) conservation targets, and evidence suggests that if these are healthy then the other flora, fauna and habitats should also be in good condition. Currently, the monitoring being implemented addresses seven of the eight targets, though not as completely as would be ideal.

### Forest Monitoring

Montane forest on shale and montane forest on limestone are two of the Park's conservation targets. The JCDT will work with the Forestry Department to compare satellite imagery of the Park taken over in different years.

### Freshwater Monitoring

Headwater ecosystems are another of the Park's conservation targets and since 2005, freshwater monitoring has been conducted at 12 monitoring points on the headwaters of nine rivers (all ten watershed management units except Hope River). One monitoring point is on the Wag Water River just outside the leased Hollywell property. Monitoring involves measurement of physical-chemical parameters (temperature, pH, dissolved oxygen and turbidity) and biological monitoring of macro-invertebrates using a kick-sampling method. Monitoring is conducted biennially, during the wet and the dry seasons. Analysis is conducted annually and a report produced.

### Bird Monitoring

Montane forest birds are another conservation target and monitoring has been conducted since 1999. Since 2004/5 monitoring has been upgraded and expanded to cover a greater area of the Park. This followed analysis of the data from 2000 to 2004, during which time, monitoring was limited to a very

small area and the same sites were monitored annually. The analysis found no significant changes in occurrence of the birds and identified a need for wider distribution of the monitoring areas, and improvements in the methodology. Under the new system, a different area is being monitored every year on a five-year cycle. None of the annual monitoring areas are at Hollywell.

Efforts are also made to monitor and evaluate each of the Park's programmes and sub-programmes e.g. pre- and post-testing of students for buffer zone school presentations, but there is no system for monitoring and evaluating the Recreation and Tourism Programme aside from visitor statistics including income, although the cabins have suggestion boxes and visitor comments cards.

#### **8.1.7 Resource Improvement/Upgrading**

The main strategy for resource improvement and upgrading is to ensure that any improvements or additions to the facilities result in minimal impact, both in construction and during operations. Hence, whereas Hollywell was constructed during the early 1970s with limited concern for environmental issues such as energy and water conservation, these factors must be considered for any future improvement or additions. The Hollywell Ecotourism Development and Management Plan has a chapter on environmental management, and further, based on an environmental audit conducted in 2003, an Environmental Management System was prepared for the site. In addition, JCDDT has sought and achieved Green Globe certification for Hollywell in 2006.

Facilities and services to be developed and improved over the next one to three years include:

- Interpretive and other Signage – a series of signs providing information and direction
- Additional special events
- Hollywell Visitor Pavilion – to be located in the main picnic area for information, interpretive signs/exhibits, merchandise
- Amphitheatre and permanent stage
- Addition of a kitchen and veranda, joining the existing Ranger Station to the Education Centre, thus enabling more comfortable use of the facility for retreats and workshops
- Additional gazebos and benches
- Dormitories – additional space for accommodating large groups

### **8.2 Actions**

Actions describe the activities that are to be implemented in order to fulfil the strategy.

#### **8.2.1 Zoning**

At present, there are no specific activities directed towards zoning, except that the zoning exists in terms of plans. However, the zoning happens to fit the existing use patterns and therefore whilst there are no signs or other method of maintaining the zoning strategy, it is effectively maintained, as the majority of persons stay in the Intensive Use Zone and relatively few use the Moderate Use Zone.

Proposed Actions:-

(1) Intensive Use Zone

(2) Moderate Use Zone

(3) Buffer Zone

### **8.2.2 Visitor Management**

At present, visitor management is indirect, and is related mainly to the limited numbers of visitors, the obvious zoning of the site and the work of the ticket clerks and Rangers in terms of guiding and limiting visitor use. A Visitor Management System should be designed and implemented.

### **8.2.3 Public Education**

As indicated above, there are several existing and planned activities. The latter should be implemented as follows:-

- (1) Interpretive Signs - production of signs, construction of sign mounts and installation of signs – by February, 2008
- (2) Education Centre - Improve exhibits in existing Education Centre – by October, 2007 (may not be installed until February, 2008 or whenever cabins are repaired from Hurricane Dean damage, as the area is currently being used for storage of the cabin furnishings.
- (3) New Visitors' Centre – Obtain funds from the TEF, design exhibits, construct building and exhibits, install furnishings and exhibits.
- (4) Kids Discovery Zone – Obtain funds to complete the site

### **8.2.4 Community Involvement**

At present, the strategies described above are all being acted on, the main issue being that Hollywell does not earn enough to employ existing staff full-time nor to increase the number of staff e.g. full-time tour guides.

### **8.2.5 Habitat and Species Conservation**

As described above, there is little active conservation at Hollywell, and more could be done, especially with respect to:-

- (1) Invasive species control e.g. Wild Ginger (*Hedychium* sp.) and Net Fern (*Gleichenia* sp.)
- (2) Forest rehabilitation e.g. along Oatley Mountain Trail

### **8.2.6 Monitoring and Evaluation**

As described above, there is little monitoring and evaluation at Hollywell. It would be useful to implement more both in terms of designing and implementing a visitor management system and a simple system for monitoring species e.g. those seen in the Intensive Use Zone as compared to those in the Moderate Use Zone.

### **8.2.7 Resource Improvement/Upgrading**

Best practices must be used in any resource improvement and upgrading undertaken at Hollywell.

## **8.3 Business Plan**

A Business Plan was prepared as part of the Ecotourism Development and Management Plan in 2005. The following provides highlights:-

### **8.3.1 Visitation**

Hollywell currently receives about 10,000 visitors per annum including approximately 2,000 who visit on one day for the annual Misty Bliss celebration. The remaining 8,000 visitors come throughout the year mainly on weekends (especially holiday weekends) during the summer and winter months. The rainy months of May and October have the least number of visits. On average, 154 persons visit the site per weekend. There are also days when there are about 200 persons on the property, including overnight guests in cabins or tents.

The majority of visitors are Jamaican and there are a number of foreign nationals, resident in Jamaica and a few tourists who come by taxi or occasionally by tour buses. There are a wide variety of visitors such as school groups, church groups, youth clubs, families, couples, tourists who come to picnic, hike, camp, relax outdoors or in the cabins, bird-watch or conduct research.

Although record keeping has improved significantly since 2002, prior to this it was not well maintained. According to Goodbody and Smith (2002), visitation increased from 5,000 per year to 30,000 per year between 1964 and 1994. With the introduction of an entry fee in 1999, numbers decreased significantly, particularly the number of tour buses. Prior to this, entry was free of charge.

**Table 8.3.1: Number of Visitors to Hollywell (2002-2005)**

YEAR	TOTAL NO. OF VISITORS	NO OF RESIDENT ADULTS	NO. OF RESIDENT CHILDREN	NO OF FOREIGN ADULTS	NO. OF FOREIGN CHILDREN
2002	4,471	NA	NA	NA	NA
2003	7,299	5,363	1,540	330	66
2004	8,550	6,258	2,101	181	6
2005*	2,521	1,868	614	39	0

Figures do not include visitor numbers of about 2,000 for the annual cultural event Misty Bliss. \*Figures are for January to May only

The income generated from Hollywell is derived mainly from user (entry) fees, guided tours and the rental of site facilities (campsite, cabins etc). In addition, annual events such as Misty Bliss held at Hollywell, also help to raise funds for the park. Annual operational costs for Hollywell equal approximately total operating expenses are estimated at \$3.5 million while income remains at about \$2 million, thus much of the operating costs are subsidised by JCDT and the BJCMNP e.g. JCDT's receptionist doubles as a bookings clerk, Administrative Manager deals with personnel, repairs and financial management, Executive Director deals with marketing and Rangers are on duty on weekends for safety, security and visitor management.

In order to meet its goal of supporting management of the BJCMNP, Hollywell must improve its earnings. Based on the industry and market analysis, these improvements must be made firstly, to cover all expenses including administrative overheads, and secondly, to begin to make a profit that can be used for JCDT's conservation work in the BJCMNP. This forms the basis of a five year business plan which, among other things, proposes the hiring of a Recreation Area Officer, making a capital investment of about J\$20 million in the first three years and improving the site's management and marketing to achieve these goals. The investment of a further J\$19 million is proposed in the final two years. However, much of the latter amount is not essential to the income projected but rather, is more related to fulfilling social/educational objectives through the construction of dormitory facilities. It may be possible to generate more income with expenditure of fewer funds through the construction of additional cabins or a café, possibly as a concession. This decision will need to be taken by the end of year 2.

### **8.3.2 Fees**

As at January 2005, the fees charged for facilities and services are as follows:

Entry (User) Fee

This allows for the use of picnic areas, gazebos, bathrooms, Visitors' Centre, and trails.

Type of Person	Residents	Non-residents
Adult	J\$100.00	US\$5.00
Child	J\$50.00	US\$2.00

It should be noted that the amendments to the BJCMNP Regulations (June, 2003) stipulate higher non-resident fees of (US\$10 and \$5 respectively). JCDT and tour operators consider these too high for what is currently offered, and the JCDT has indicated to NEPA that it will not be possible to raise these fees.

#### Guided Trail Tours

Type of Person	Residents	Non-residents
Adult	J\$200.00	US\$5.00
Child	J\$100.00	US\$2.50

#### Tent Sites

The fees are charged per person/night in addition to the Entry Fee for the first night.

- Adults – J\$100/night
- Children – J\$50/night

#### Tent Rental

- 2-3 persons – \$500/night plus \$700 refundable deposit
- 4-6 persons – \$700/night plus \$700 refundable deposit
- Up to 20 persons– \$2,500 plus \$700 refundable deposit

#### Cabin Rental

Cupressus – a 2 bedroom, self-contained cabin	J\$3,500/night
Hot-Lips – a 1 bedroom, self-contained cabin	J\$2,500/night
Mountain Yacca – a self-contained studio	J\$2,500/night

### **8.3.3 Licensing and Certification**

Hollywell is listed by the Jamaica Tourist Board (JTB) as a site of special interest. However, very little additional information is provided because the site has not been recommended for a JTB licence by the Tourism Product Development Company (TPDCO.). The JCDT has been working with the TPDCO and other agencies to make improvements in order to licence Hollywell as both a nature attraction and an accommodation. The main criteria have been met, for example obtaining public liability insurance and a lease. However, there are a number of areas for example, fire safety, lighting, communications and security that need to be addressed in order to obtain the licence. It is anticipated that if a manager can be employed in 2005, it should be possible to make these improvements by the end of the year in order to obtain certification.

In addition, through the Environmental Audits for Sustainable Tourism (EAST) Project, an environmental audit has been conducted an Environmental Management System for the site prepared. Green Globe certification for 2006 was obtained but lost in 2007 as the organisation could not afford the audit fees at the time, however benchmarking has been completed and JCDT plans to seek re-certification shortly.

### **8.3.4 Accessibility**

The site is easily accessible in about one hour from Kingston by private or rented vehicle. However there is no public transportation available. From Port Antonio, the access could be easy if the upper Buff Bay Valley road was in good condition however since 2005 there have been several major break-aways, and although the road is passable currently, the journey is somewhat hazardous.

### **8.3.5 Industry Analysis**

Tourism contributes significantly to Jamaica's economy, and whilst the island has been marketed successfully as a 'sun, sea and sand' destination, as the market for nature, culture, adventure and a learning experience increases, the plans to market this aspect of the island are being developed. There has been limited analysis of the contribution of the domestic market in terms of recreational use of the island's attractions; however the experience at Hollywell indicates that there is a significant demand which could be increased through marketing.

### **8.3.6 Market Analysis**

An analysis of the industry data, with respect to the existing and potential market, indicates that for sites in the BJCMNP international visitors show the following:

- 
- An increasing interest in visiting the hinterland and experiencing/learning about Jamaica's natural and cultural heritage,
- Familiarity with using the national parks (persons often visit these types of

- areas in their own countries),
- Knowledge of, and interest in Blue Mountain Coffee.

Despite this interest:

- Tourists are not aware that Jamaica has any national parks or similar attractions because the hotels, tour operators and tour guides do not generally have any information on these sites. Furthermore, the existence of national parks is not promoted in the marketing of the island's tourism product.
- Tour operators tend not to market Kingston as a destination for touring due to the fear of crime. Additionally, business visitors to Kingston often depart on weekends because they are unaware of attractions that exist on the outskirts of Kingston.
- Attempts by the JCDT to attract international visitors through the existing tour companies have proven futile. This is partly because the tour operators feel that additional attractions are needed to attract tourists to the Blue Mountains as well as improved facilities at Hollywell and other sites. In addition, many of the tour operators do not understand the concept of sustainable nature tourism or ecotourism and therefore exclude these types of attractions from their marketing strategies. Finally, the cost of travelling to the Blue Mountains (even Hollywell) is significant and therefore in order to make a profit, the tour operator would require significantly reduced entry fees to Hollywell – US\$2 for adults has been recommended (although the tourist is willing to pay more). The other option for the tour operator would be to sell a high-end package that would require significant improvement at Hollywell. Generally it is hard to target the international market for visits to the park, at least through local channels.

Domestic visitors

Although many persons have heard of Hollywell:

- they are not certain where it is located or how to get there (some assume a 4WD vehicle is needed),
- they believe it is probably in poor condition (many persons visited when they were children in the 1970s and 1980s before the improvements made in the late 1990s),

Generally, once residents visit Hollywell, they keep returning. Return visitors have, however indicated a need for improvements. They believe that Hollywell cannot continue to rely on goodwill and its wonderful ambience to maintain its local market for very long. Return visitors tend to bring family and friends.

In summary, there is a need to get information out to the public and to maintain a reasonable level of presence.

### **8.3.7 Competition**

Hollywell has limited competition. Comparable attractions are located mainly on the north coast and the distance from north coast resorts makes it expensive to access for most tour operators. In the vicinity of Kingston and within the Irish Town to Buff Bay Valley area there are no comparable attractions. The attractions in these areas are mainly accommodation and restaurants



There are a variety of trails in the area; however, there is no charge and most are either not maintained or managed because access is difficult to monitor. In addition, some coffee farms offer tours but mainly on an ad hoc basis. These other trails and tours include:-

- Trail from Gordon Town to Redlight to Greenwich/Hollywell,
- Hike from Manor Park through Norbrook, through Woodford and Freetown to Hollywell Trail,
- Twyman's Coffee Farm,
- Ueshima Coffee Company – Craighton Great House,
- Section Coffee Processing Tour,
- Charlestown Maroons.

Unlike other sites, Hollywell offers several opportunities for recreation in one location. However, improvements to the tuck-shop/restaurant and gift shop are needed, as well as the proposed Coffee Exhibit. In addition, stronger links must be made with the other attractions in the area to take advantage of opportunities for joint marketing. For example, guests staying at Starlight Chalet and Strawberry Hill often come to Hollywell for hiking, and guests staying at Hollywell sometimes have lunch or dinner at the Gap Café.

### **8.3.8 Marketing Plan**

#### (1) Target Markets

Residents:-

- (a) Families/Friends - Groups of 4 – 20, Middle income professionals and Expatriates
- (b) Hikers/Walkers/Fitness Enthusiasts - Early 20s to mid 40s, Middle income professionals
- (c) Church and Youth Groups - Variety of age-groups and income levels
- (d) Staff Associations - Companies of all sizes
- (e) Primary/Secondary schools and Tertiary institutions - Particularly preparatory and high schools

Non-Residents:-

- (a) Accompanied by a Jamaican family/friends
- (b) Tourists in Jamaica staying in resort areas
- (c) Nature, Soft adventure and Eco- tourists, Bird-watchers

#### (2) Product Strategy

The unique features and comparative advantages of Hollywell will be the product marketed:

- Tropical, montane mist-forest
- cool, fresh air and swirling mist,
- lush forest vegetation with unique species of plants e.g. bromeliads, tree ferns and orchids,
- wildlife especially birds like the Jamaican white-chinned thrush (hopping dick) and the Rufous-throated Solitaire with its haunting whistle,
- beautiful scenery, spectacular views.
- Relative ease of access, especially from Kingston – “Take a break from the heat and hustle/bustle of city life – to relax and rejuvenate your body and soul!”,
- Opportunities for out-door activities e.g. hiking, camping, picnicking,
- Opportunities to learn about the natural and cultural heritage of the BJCMNP.

The main product strategies will be to:

- improve appearance of existing facilities e.g. covering garbage bins, new curtains, paint,
- improve delivery of existing services,
- introduce additional facilities, activities and services.

### (3) Pricing Strategy

The user or entry fee for Hollywell is set by legislation through the National Environment and Planning Agency through the Natural Resources Conservation Authority Act, National Park Regulations Amendment 2003. Although the fee for residents (J\$100 for adults and J\$50 for children) remains the same, the fees for non-residents have been doubled to US\$10 for adults and US\$5 for children. These regulations also set rates for concessions and other uses e.g. filming. All of these newly set rates are considered too high by the JCDT and other tourism experts unless a guided tour or some other activity is included as part of the entry fee. This view was confirmed by comparing rates at Hollywell with other attractions, and the 1995 survey results. Currently all rates at Hollywell are very reasonable in comparison to other attractions, and there is scope for an increase in entry fees once the major developments are in place, particularly the Entry Portal, Welcome Booth, Hollywell Pavilion, Children’s Discovery Zone and Hollywell brochure.

The rates for cabin accommodation are also very reasonable in comparison to other locations. However the cabins need significant improvements in appearance e.g. painting, lamps, kitchen utensils, water heaters and interior décor. Once these are in place, it is anticipated that customer satisfaction will be improved significantly, which should translate to increased cabin rental. These increases would only affect the rentals of smaller cabins (during the week in particular). The larger cabin is usually booked every weekend of the year except during the rainy season. The rental of tent-sites (J\$100 for adults and J\$50 for children per night in addition to the entry fee for the first night) is very reasonably priced.

Guided tours are approximately one hour and usually include a slide or other audio-visual presentation. The rate for residents (J\$200 for adults and J\$100 for children) is reasonable in comparison to other attractions. Group rates are available and special packages for school groups. The rate for non-residents (US\$10 for adults and US\$5 for children) may need to be reviewed, particularly in light of the user/entry fee set under the new legislation.

In general, pricing is very reasonable and increases should not be considered until the product has been improved. It will be difficult to increase the entry fee for residents, particularly local residents, and consideration should be given for some kind of local resident pass –(provided for a small fee) because many of these persons are regular visitors.

The pricing strategy should be to maintain the reasonable rates, particularly for entry, while increasing the opportunities for purchasing additional products and services. There is scope for higher prices for events and new accommodation that targets the high-end of the market.

#### (4) Distribution Strategy

The JCDT office in Kingston acts as the booking office for direct booking by visitors or indirect bookings by tour operators. Bookings can be made in person, on the phone or by email, and payment is required before the bookings are confirmed. Payment by cash, cheque (for companies) or wire transfer is accepted. Payment by credit and debit cards can be investigated if the demand is high enough to cover the charges incurred with the provision of these types of payment methods.

For accommodation, a two-week notice is normally enough to book rooms. However, during the summer and other holiday periods, booking weeks in advance is necessary. For special packages requiring educational and other tours, two weeks to a month's notice is required (depending on the services required).

Currently, despite the development of a variety of packages and family tours conducted by some local tour companies, tour operators generally do not sell tours of Hollywell. Until the interest increases, using tour operators for bookings is unlikely to be viable. JCDT needs to improve its website and increase the use of this and other tools for marketing and sales.

#### (5) Promotional Strategy

Several approaches have been used to promote Hollywell between 2003 - 2004, with significant success. There has been over 30% increase in the number of visitors and over 50% increase in the income from 2003 to 2004. These approaches have included contracting a marketing consultant, hosting Misty Bliss, having a television quiz, making direct mailings to schools, churches and companies, placing advertisements, and participating in exhibits. In addition, the JCDT has become involved in the Jamaica Exporters Association's Jamaica Cluster Competitiveness Project (JCCP) that is promoting nature, culture and adventure tourism. The approaches found to have the most success in increasing visitation include advertising, articles in the media, exhibits and special events. The promotional strategy should, therefore focus on the following:

For Domestic Visitors

- Include Hollywell in JCDT brochures/information
- Seek funds to print Hollywell brochure
- Include Hollywell photos in the media releases JCDT sends out as part of the national park's Education and Communication Programme
- Advertisements should be placed at least once a month, and more frequently in the summer and holiday periods
- Add at least one special event to the annual calendar – preferably a smaller, all-inclusive event targeting the high-end of the market

#### For International Visitors

- Improve the packages offered and send brochures/information to tour operators
- Improve website (especially links and user-friendly access to information)
- Work with JHTA for presence in Kingston hotels
- Work with JTB, TPDCO, JHTA, JEA-JCCP to assist in promotions e.g. website links, participation in tourism expositions etc.
- Send media releases or special articles to relevant tourist/traveller magazines (research will need to be done to identify these magazines)
- Explore more direct marketing approaches

## 8.4 Work Plan

The work plan will be drafted based on stakeholder feedback on such issues as urgent areas for attention, critical habitats and keystone species.

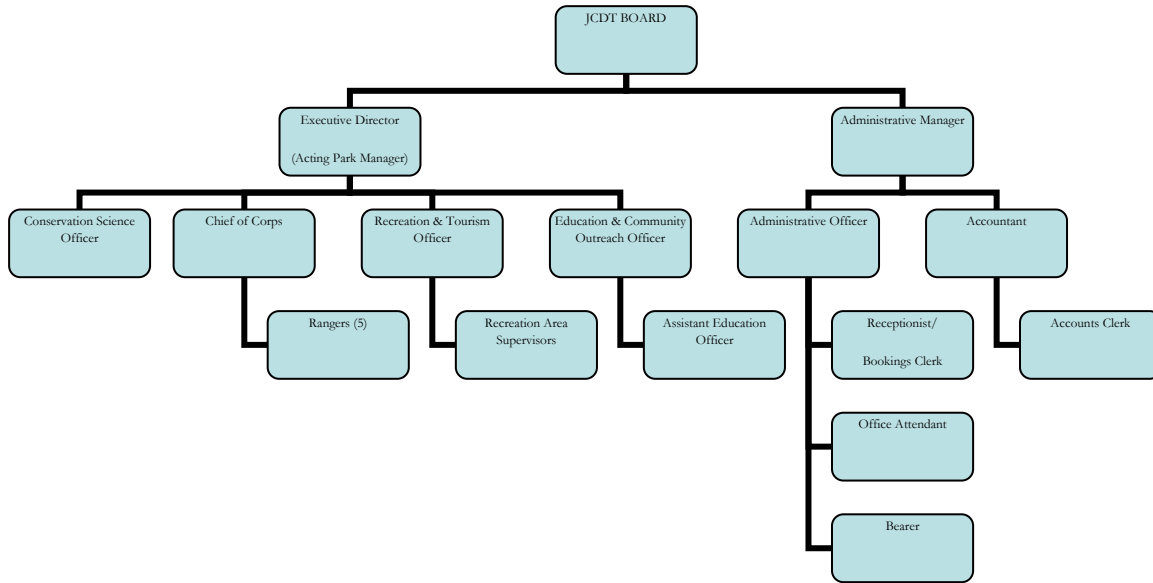
## 9.0 Management Organization

Hollywell is managed by the Jamaica Conservation and Development Trust (JCDDT) a non-government organisation and registered charity established in 1988. The mission of the JCDDT is to promote environmental conservation and sustainable development, with particular emphasis on the BJCMNP, for the benefit of Jamaica and our people. Management of Hollywell falls within the National Park's Recreation and Tourism Programme which has the goal of providing recreational opportunities for local and international visitors, using ecotourism principles, in order to generate income and support for the Park (JCDDT, 2005).

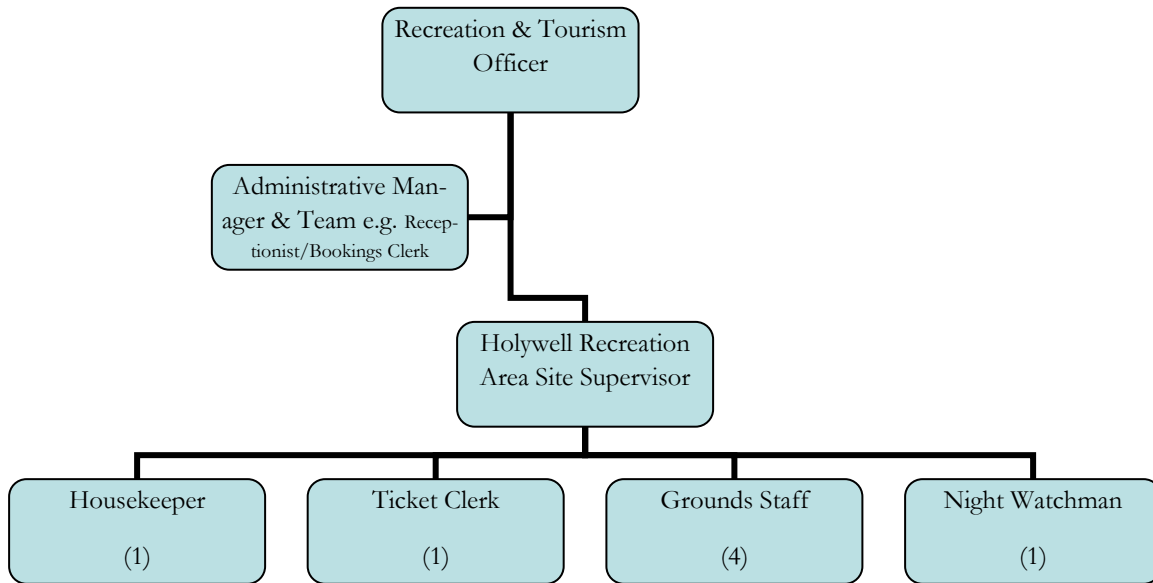
In 1996, when the JCDDT first signed a delegation agreement for management of the BJCMNP, it began to be much more involved in the management of Hollywell. This included a number of improvements to the site including re-construction and interpretation of the Oatley Mountain Trail, funded by the RARE Tropical Bird Conservation Programme. In 1999, the JCDDT began charging an entry fee (entry had been free under the Forestry Department) and running the site on a more commercial basis. In 2002, JCDDT signed a new delegation agreement for management of the National Park, in addition to a formal sub-lease agreement with the NRCA. The JCDDT was granted a long-term (25 years) sub-lease of Hollywell because of its co-management of the BJCMNP in association with the National Environment and Planning Agency and the Forestry Department. The purpose of the lease is to allow JCDDT to generate revenue from visitors' use of the area in order "to defray operational costs of managing the BJCMNP" (Hollywell Under lease, 2002). The use of these funds for this purpose is very important because currently the GOJ does not provide a management fee, or significant financial contribution to management of the national park. In 2004 and 2005, the GOJ's direct financial contribution amounted to only about 2% of the BJCMNP's budget. For the 2006/7 financial year, a subvention of about 25% of the Park's budget was provided, however it is not clear that these funds will be awarded annually. It is important to note however, that currently Hollywell does not generate enough income to take care of its expenses. Hollywell's expenses are subsidised by projects and the JCDDT. Income generated at Hollywell is only sufficient to pay casual labour and cover supplies and materials costs. On the other hand, activities conducted at Hollywell e.g. environmental education and sustainable livelihoods skills training for community members contribute to meeting other park management objectives.

## 9.1 Structure

*JCDT's organisational structure is as follows:-*



**Hollywell's organisational structure is as follows:-**



## 9.2 Existing Capacity

As at September, 2007 the Site Supervisor position is filled by a Senior Park Ranger – the Station Chief for the Hollywell Ranger Station, however this does not effectively fill the position as the Ranger is sometimes on other duties and replaced by another Ranger, resulting in a lack of continuity and focused attention. The ticket clerk position is shared by two persons working alternate weeks – this works as the position requires week-end work, thus the current situation allows each person two week-ends off per month. Two of the grounds staff are paid for by a private sector company, one is paid based on job-work and the other is a nursery worker, and functions under the Conservation Programme. When there is a need for additional staff e.g. Hurricane Dean clean-up or getting ready for Misty Bliss, additional personnel are taken on for day or job work. All staff, workers and service personnel e.g. plumber, carpenter, are from the neighbouring communities.

## 9.3 Tenure and Financing

The JCDT was granted a long-term (25 years) lease of Hollywell because of its co-management of the BJCMNP in association with the National Environment and Planning Agency and the Forestry Department. The purpose of the lease is to allow JCDT to generate revenue from visitors' use of the area in order "to defray operational costs of managing the BJCMNP" (Hollywell Underlease, 2002). The use of these funds for this purpose is very important because currently the GOJ does not provide a management fee, or significant financial contribution to management of the national park. For 2004, the GOJ's direct financial contribution amounted to only about 2% of the BJCMNP's budget. It is important to note however, that currently Hollywell does not generate enough income to take care of its expenses. Hollywell's expenses are subsidised by projects and the JCDT. On the other hand, activities conducted at Hollywell e.g. environmental education and sustainable livelihoods skills training for community members contribute to meeting other park management objectives.

## 9.4 Staff

There are currently eight (8) positions on staff at Hollywell – the Station Chief and an Assistant (Ranger), a ticket clerk, night watchman, one housekeeper and three grounds staff. In addition, at JCDT's office in Kingston, there is a receptionist/bookings clerk, administrative officer, administrative manager and executive director who each spend between 15% - 25% of their time dealing with site development and management e.g. marketing, fund-raising and project management. Further, the Environmental Education Officer conducts tours and other educational packages, and is responsible for the Interpretive Programme for the area. Currently, the ticket clerk position is shared by two persons who work on alternate weeks and the housekeeper and grounds staff work three days per week. This casual labour is supported by two additional persons twice per week, paid for by Peak Bottlers Ltd. (Catherine's Peak Spring Water). In addition there are two trainee rangers who are paid a stipend through a variety of project funding sources. Daily activities of the site staff include monitoring and assisting visitors, giving guided tours, making slide presentations and providing site maintenance.



Ms. Herma Nathan (a senior Ranger) is the Station Chief assigned responsibility for Hollywell. Ms. Nathan is generally responsible for maintenance of the property, preparation for events e.g. workshops and visitor management. In addition, a nursery is maintained at Hollywell for landscaping, sales and reforestation. Ms. Nathan also supervises the other Ranger (Mr. Roger Thompson), ticket clerks, casual labourers, the housekeeper and the watchman. Every other weekend, Ms. Nathan is off-duty and the other Ranger is on visitor management duty. Either one of these two individuals collects or records the entry fees received by the Ticket Clerk and provide reports on the findings. Ticket stubs have three sections. The visitor and Hollywell retain one each and the other is returned to the JCDT office with the money.

Bookings for accommodation, group visits, educational tours and other special packages e.g. workshops are made through the JCDT office. Logistical arrangements are made with the officer on duty for the relevant day, and if additional personnel such as tour guides are required, arrangements are made. A security deposit is required for cabin rentals. Records are kept and a monthly report is prepared detailing the numbers of visitors (resident and non-resident, adult and child) and the income from entry fee, accommodation, special packages etc. The JCDT's receptionist also acts as the BJCMNP Bookings Clerk, answering queries, taking bookings and sending out invoices. JCDT's Administrative Officer checks the records, prepares the monthly reports and otherwise supervises and assists the Bookings Clerk. JCDT's Administrative Manager provides assistance and direction, particularly with respect to billing for special packages.

The Station Chief is supervised by the Administrative Manager and JCDT's Executive Director provides technical advice and is responsible for raising funds to support the attraction. The Executive Director and the Environmental Education Department are often involved in marketing the property e.g. participating in exhibits and producing brochures.

Significant training has been conducted over the past two years through the HEART/NTA Hospitality Management and the TPDCO Tour Guiding programmes. However, there are several areas that need improvement and will require a wider level of supervision in addition to the training, in order to ensure effective follow through. Several of the casual staff have worked at Hollywell for many years and feel that their salaries are low. They only continue to work at the site because they love Hollywell. There is a need for motivation from a management level staff member who should be on-site more often than is currently the case.

An analysis of the current management of Hollywell and the other recreational areas within the park indicates that many inadequacies continue to exist because there is no management level, professional staff member responsible for the site. These results in poor supervision of staff and programme implementation, with the result that some improvements are not instituted and many issues go unresolved. Further, the chain of command overlaps and with so many persons involved, the likelihood of miscommunication is high.

## **9.5 Recommendations**

1. A full-time Site Supervisor is required for improved focus and continuity
2. Additional grounds staff is needed

## **10.0 Summary**

The Hollywell Recreational Area provides a reasonably accessible site for visitors to experience one of Jamaica's unique ecosystems; the montane forest as well as to enjoy scenic vistas and salubrious climates. Any plan for conservation management must reconcile the different perspectives that of conservation and that of resource consumption within the ambit of sustainable use. The planning process must identify area concerns and issues, describe opportunity classes, select indicators of resource and social conditions and inventory the conditions of resources and social conditions.

Standards for these resources should be prescribed to have a point of reference. Opportunities for the visitor to enjoy the resources of the site should be examined so that several options exist to provide users with alternate experience opportunities. These various usage scenarios should be reviewed against the management lens mindful of the available organisational resources. The result should identify preferred alternatives selected by a meaningful screening and evaluation process. The recommended management actions should be monitored against the aims and objectives of the plan to conserve the biological resources whilst providing a rewarding nature experience.

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**APPENDIX A**  
**PLAN OF HOLLYWELL**

# PLAN OF HOLLYWELL RECREATIONAL PARK

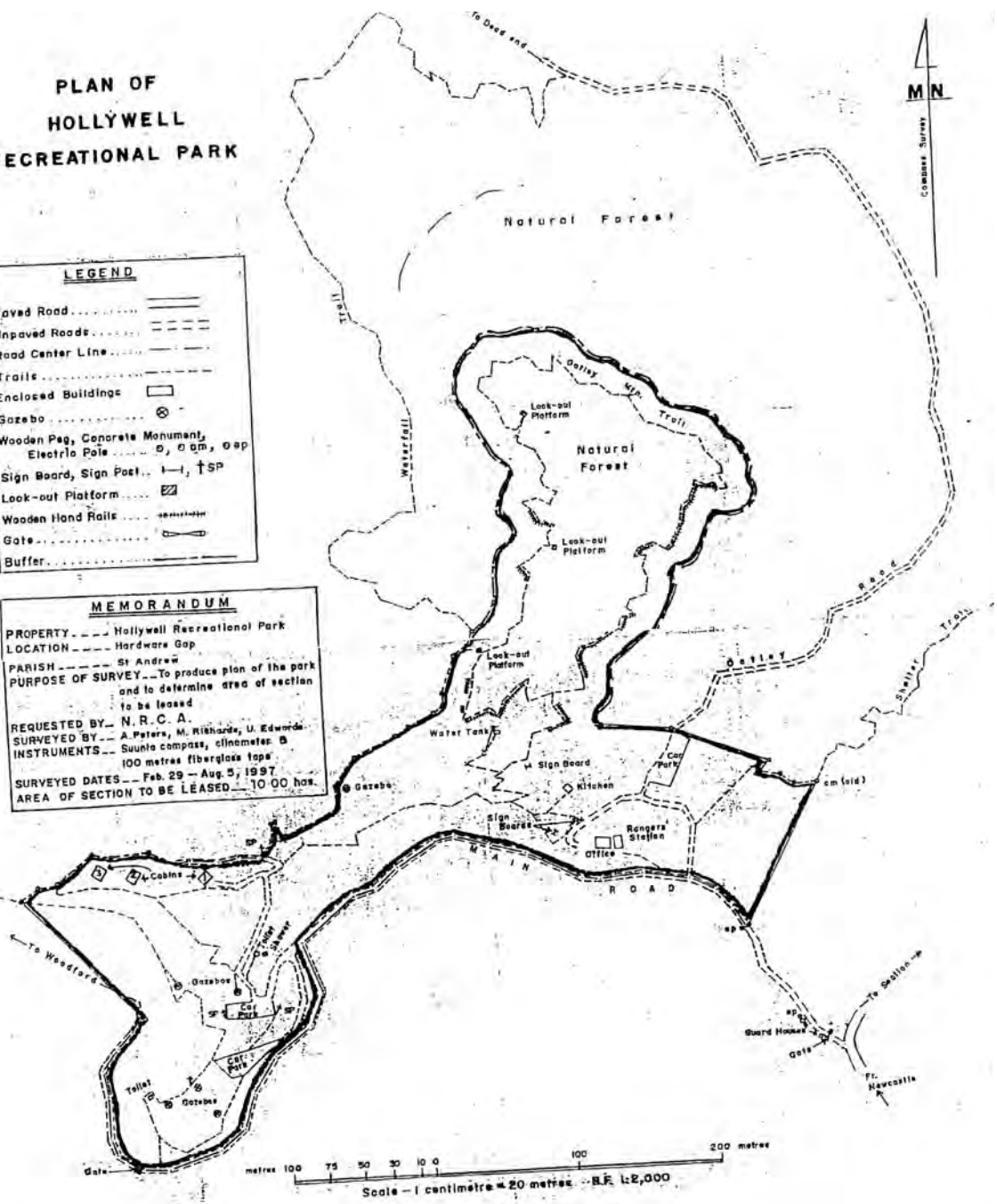


**LEGEND**

Paved Road	—————
Unpaved Road	- - - - -
Road Center Line	—+—+—+—
Trails	.....
Enclosed Building	□
Gazebo	⊗
Wooden Peg, Concrete Monument, Electric Pole	⊙, ⊙ am, ⊙ ap
Sign Board, Sign Post	↑, †, SP
Look-out Platform	⊞
Wooden Hand Rails	— — — —
Gate	⌢
Buffer	.....

**MEMORANDUM**

PROPERTY — Hollywell Recreational Park  
 LOCATION — Hardware Gap  
 PARISH — St Andrew  
 PURPOSE OF SURVEY — To produce plan of the park and to determine area of section to be leased  
 REQUESTED BY — N.R.C.A.  
 SURVEYED BY — A. Peters, M. Richards, U. Edwards  
 INSTRUMENTS — Suunto compass, clinometer, 500 metres fiberglass tape  
 SURVEYED DATES — Feb. 29 — Aug. 5, 1997  
 AREA OF SECTION TO BE LEASED — 10 00 ha.



- 1.) Section shaded represents area to be leased (10.00 ha.)
- 2.) Area to be leased is bordered by wooden pegs, road center line and imaginary buffer 20 metres from Oatley Min. Trail.

**APPENDIX B**  
**STAKEHOLDER REVIEW WORKSHOP REPORT**

**HOLLYWELL CONSERVATION MANAGEMENT PLAN**

***REPORT OF STAKEHOLDERS' REVIEW WORKSHOP***

**September 2007**

**(Held at JAMPRO Building on September 26, 2007)**

**Prepared for the**

**Rural Enterprise, Agriculture and Community Tourism (REACT)**

**Submitted by:**

**Trevor O. Spence**

**October 1, 2007**

## **GENERAL CONTEXT**

Rural Enterprise, Agriculture and Community Tourism (REACT) is a four-year project designed to accelerate sustainable and equitable rural growth. This particular area of work seeks to deliver to the REACT Project five (5) biodiversity management plans for selected areas identified within the project's Primary and Secondary Zones of influence. One of the five identified area is the Hollywell Recreational Park.

REACT has developed a draft Conservation Management Plan for Hollywell that sets out environmental, geographical, biophysical and human settlement descriptions of the area to provide the context for the conservation management of the biological resources. Direct and indirect threats such as access, boundaries and alien invasive species are set out to indicate identified pressure. A brief review of relevant legislation and policies indicates the governance framework within which the area is managed.

The REACT Project has a team of Consultants working on this Plan and contracted Trevor Spence, Facilitator to work with that Team to design the methodology for a one-day workshop, geared to get stakeholders' feedback on the draft plan; facilitate that workshop and prepare a report on the workshop.

## **WORKSHOP METHODOLOGY**

The Facilitator with the Team designed the workshop methodology based on the Consensus-Building Advanced Participation Methods (APM). The workshop was geared to present to stakeholders the draft Hollywell Conservation Management Plan and have their input in the reviewing/recommending strategies and actions towards a Blueprint for Sustainable Management of Hollywell.

The days' activities included registration of participants; providing an overview of the agenda; using PowerPoint to present the draft plan; undertaking an abridged visioning exercise; participating in a strategic action planning workshop; presenting the reports from the workshop; endorsing the Plan and agreeing on some next steps. (Please see Appendix 1 for the Workshop Agenda)

In all nine persons participated in the Workshop (excluding the Facilitator). Please see Appendix 3 attached for list of participants.

## **PRESENTATION OF CONSERVATION PLAN**

In her presentation, Thera Edwards indicated that the Conservation Plan seeks to chart a course for the conservation and management of the Biodiversity of the Hollywell Recreational Area in the Blue and John Crow Mountains National Park (BJCMNP). The BJCMNP's activities are guided by a 5 year management plan and there is a Hollywell Ecotourism Development and Management Plan. Thus the pur-



pose of this plan she said “is to develop a management approach for biodiversity and habitats specific to Hollywell recognising that Hollywell is a premier visitor site for recreation and nature tourism in the BJCMNPs”

She provided a historical and environmental context to the Blue Mountains, Hollywell and the JCDT. The environmental context included ecological and species (flora and fauna). Ms. Edwards also gave a geographical, social and economic overview of Hollywell that looked at its biophysics, human and settlements issues, as well as issues relating to culture and heritage. A review of the resources of the area as well as the direct and indirect threats and the legislative and policy framework impacting on the Park were also provided.

This context led the consultants to conclude that the blueprint for the sustainable management of Hollywell should include strategic actions built around the following seven strategies:

1. Zoning;
2. Visitor Management;
3. Public Education;
4. Community Involvement;
5. Habitat and Species Conservation;
6. Monitoring and Evaluation; and
7. Resource Improvement/Upgrading

The discussions that followed the presentation highlighted the following issues:

1. Encroachment over the last 30 years has not impacted on the Park. However, Forestry did some evictions of those who had infringed on the wider reserve;
2. A review was needed on both road access as well as the trails with a view to determine which ones should be closed and which ones should be restored;
3. Discussions had taken place, and will continue, to review community and eco tourism, including tour packages, trails, waterfalls and services; and
4. There is a recognized gap in the Plan as it relates to information on cultural practices in the area.

## **VISIONING**

Participants were then taken through a visioning exercise for Hollywell. They used the focus question: *“What do you want to see in place over the next three years as it relates to biodiversity conservation management of Hollywell?”* as well as individual and group brainstorming and reported back to the workshop on the results. The abridged visioning exercise developed the following vision statements:

- A Canopy Tour
- Site for Research Learning Lab and Species Monitoring
- Visitor Management System based on Carrying Capacity etc.
- Implementation of an ecological carrying capacity (trails)
- Active Education Programme on Invasive Species

- Public Education featuring Visitors' Centre, interpretive signs, plant labels and rules
- Maintenance of the Area (landscaping, replanting, pruning, etc)
- Part of Sustainable Tourism Loop involving Community
- More Stakeholders involvement
- Regulating of Picnic Space and Parking Area
- More facilities (accommodation and attractions)
- Have facilities licensed as Eco-tourism attraction
- Improvement of existing cabins and building of new ones
- Attractive Mist Forest with wide variety of plant groups
- Re-introduce important tree species
- Reafforestation activities being implemented
- Cultural Yard established

## **STRATEGIC ACTION PLANNING**

Participants used the draft plan, the presentation, the visioning exercise and the focus question: *In light of your visioning, what are the specific strategies and actions that are needed to achieve the vision?*

Although there are seven thematic areas in the plan, participants selected from three areas to develop action plans. These are:

### **Zoning and Visitors Management**

- Impact
- Public Education
- Zoning

### **Habitat and Species Conservation**

- Invasive Species Control
- Forest Rehabilitation

### **Monitoring and Evaluation**



- Photo
- Species (birds, plants)
- Freshwater

The outputs from the strategic action planning exercise are presented in Tables 1-7 below. Comments and recommendations from the plenary session are included in the tables for easy reference.



**Table 1**

<b>Name of Thematic Area: ZONING AND VISITOR MANAGEMENT</b>				
<b>Strategy: Develop a Visitor Carrying Capacity for the area</b>				
<b>Objective:</b>				
Limit the number of persons using the site in order to ensure the sustainable development and use of the area				
<b>Strategic Actions:</b>	<b>Lead Responsibility</b>	<b>Support Responsibility</b>	<b>Estimated Start Time</b>	<b>Estimated Completion Time</b>
Undertake Impact Assessments	JCDT	- UWI - NEPA - IOJ	October '07	September '10
Undertake a Monitoring Programme	JCDT	- Community - UWI - NEPA - IOJ	October '07	September '10
Develop and implement Public Awareness Programmes and activities	JCDT	Media - CTV - TVJ	October '07	September '10

		- CVM		
Develop and implement a Booking System	JCDT		October '07	September '10
<b><u>WORKSHOP COMMENTS</u></b>				
<p>  Additional infrastructure needed for Visitor Centre and   Trails need upgrading </p>				
<p><b><u>Team Members:</u></b></p> <p>Shae-Tongee Stewart; Herma Nathan; Shauna Wilson-Edwards</p>				

**Table 2**

<b>Name of Thematic Area: ZONING AND VISITOR MANAGEMENT</b>				
<b>Strategy: Public Education</b>				
<b>Objective:</b>				
Sensitizing and educating the public on the importance and sustainable utilization of the Park and surrounding areas				
<b>Strategic Actions:</b>	<b>Lead Responsibility</b>	<b>Support Responsibility</b>	<b>Estimated Start Time</b>	<b>Estimated Completion Time</b>
Develop and manage Visitors' Centre in main Picnic Area	JCDT	<b>Donor Agencies</b> - CIDA - USAID - EFJ	October '07	October '10
Develop and manage Amphitheatre and Stage	JCDT	<b>Donor Agencies</b> - CIDA - USAID - EFJ	October '07	October '10
Implement Schools/Churches Education Programmes	JCDT	<b>Donor Agencies</b> - CIDA - USAID - EFJ	October '07	October '10
Use events as Public Education Tools	JCDT	- NEPA - FD - IOJ - Media - Cash Plus		

Upgrading of Trails	JCDT		October '07	October '10

**COMMENTS FROM WORKING GROUP**

- Ensure other agencies are involved
- Advertise Summer Camps etc
- Work with other NGOs
- Advertise at big events

**WORKSHOP COMMENTS**

- ✚ Undertake collaborative activities with other agencies
- ✚ Visitors' Centre should include exhibits from other agencies, thereby promoting other agencies/institutions
- ✚ Fit into other activities (District Fairs, Environmental Day, Buff Bay Valley activities etc)

**Team Members:**

Shae-Tongee Stewart; Herma Nathan; Shauna Wilson-Edwards

**\* This strategy is considered Priority # 1 by the Workshop**

**Table 3**

<b>Name of Thematic Area: ZONING AND VISITOR MANAGEMENT</b>				
<b>Strategy: Zoning</b>				
<b>Objective:</b>  Ensure that Property is managed in a sustainable way				
<b>Strategic Actions:</b>	<b>Lead Responsibility</b>	<b>Support Responsibility</b>	<b>Estimated Start Time</b>	<b>Estimated Completion Time</b>
Revisit Zoning Classification	JCDT		October '07	October '11
Visual Display of Zones	JCDT		October '07	October '11



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**WORKSHOP COMMENTS**




- ✚ There are currently two zones. These should be regulated to three zones
- ✚ Timing issues should be reviewed (Day and Night activities)
- ✚ Review seasonal activities
- ✚ Activities should also take into consideration **community involvement:** employment, public education, conservation and rehabilitation and eradication e.g. training and implementation

**Team Members:**

Shae-Tongee Stewart; Herma Nathan; Shauna Wilson-Edwards

**Table 4**

<b>Name of Thematic Area: HABITAT AND SPECIES CONSERVATION</b>				
<b>Strategy: Eradication of Invasive Species of Flora</b>				
<b>Objective:</b>				
Identify and remove invasive species that are threatening to the natural ecosystem				
<b>Strategic Actions:</b>	<b>Lead Responsibility</b>	<b>Support Responsibility</b>	<b>Estimated Start Time</b>	<b>Estimated Completion Time</b>
Identify and map invasive species (literature research and ground-truthing)	JCDT	- Community - FD - UWI - JDF - NEPA (AIS) - MGI	January '08	March '08
Training for eradication team (identify plants, public awareness, referral techniques)	Forestry	- JCDT - Community - UWI - NEPA - AIS - NGOs	April '08	May '08
Eradication Schedule	Forestry	JCDT	April '08	May '08
Implementation of eradication programme # 1	JCDT	- JDF - Forestry - NEPA (AIS) - Community - NGOs	June '08	September '08

Implementation of eradication programme # 2	<b>JCDT</b>	- <b>JDF</b> - <b>Forestry</b> - <b>NEPA (AIS)</b> - <b>Community</b> - <b>NGOs</b>	September '08	February '09
Public Awareness Programmes	<b>JCDT</b>	- <b>JDF</b> - <b>Forestry</b> - <b>NEPA (AIS)</b> - <b>Community</b> - <b>NGOs</b>	2008	2009
<b><u>WORKSHOP COMMENTS</u></b>				
<ul style="list-style-type: none"> <li> Promote native species from Nursery</li> <li> Restorative and research activities should identify lower level plants such as tree ferns</li> <li> Identify bird-feeding trees</li> </ul>				
<b><u>Team Members:</u></b>				
Danny Simpson, Tracey Commock, Margaret Jones-Williams				

**\* This strategy is considered Priority # 2 by the Workshop**

**Table 5**

<b>Name of Thematic Area: HABITAT AND SPECIES CONSERVATION</b>				
<b>Strategy: Forest Rehabilitation</b>				
<b>Objective:</b>  Restore the park to former composition with native species				
<b>Strategic Actions:</b>	<b>Lead Responsibility</b>	<b>Support Responsibility</b>	<b>Estimated Start Time</b>	<b>Estimated Completion Time</b>
Eradication of invasive species	JCDT	NEPA (AISWG)	January '08	June '09
Identify species for restoration (research into forest storey levels)	Forestry	- JCDT - UWI - IOJ	January '08	June '08
Source trees for replanting (initially and propagate at Hollywell Nursery)	Forestry JCDT	UWI	June '08	December '08
Replanting activities	JCDT	- Community - Forestry - NGOs - UWI - JDF	September '08	February '09
Monitoring by Rangers	JCDT	-	September '08	March '09
Maintenance (circle weeding x 2)	JCDT	Forestry	June/July '09	June/July '10
<b><u>WORKSHOP COMMENTS</u></b>				

- ✚ Rehabilitative activities should take into consideration the limited replanting activities, germination from seed bank and scheduling

**Team Members:**

Danny Simpson, Tracey Commock, Margaret Jones-Williams

**Table 6**

<b>Name of Thematic Area: MONITORING AND EVALUATION</b>				
<b>Strategy: Multiple level data collection – eco-system habitat species/landscape</b>				
<b>Objective:</b>				
To increase and diversify the scientific data available for management of Hollywell as a pilot site – 3Rs (write, refine, replicate)				
<b>Strategic Actions:</b>	<b>Lead Responsibility</b>	<b>Support Responsibility</b>	<b>Estimated Start Time</b>	<b>Estimated Completion Time</b>
Plot and transect analysis of forest areas	JCDT	- UWI - IOJ - FD	November '07	December '10
Aerial video monitoring (Mt. Telegraph – Catherine Peak)  (video camera specifications and flight path)	JCDT	- JDF (flight) - FD (analysis)	January '08  Every year	December '10
Herpetofauna Survey	JCDT	- UWI - IOJ	January '08	December '10
Invertebrate Survey	JCDT	- UWI - IOJ	January '08	December '10
Distribution of Maps	JCDT	- FD - Mona - Geo-Informatix	March '08	December '10

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**WORKSHOP COMMENTS**

- ✚ Attempts should be made to get back early species distribution records
- ✚ Collaboration is expected to take place with JCDT, UWI and IOJ
- ✚ Literature and other secondary research should be undertaken
- ✚ A 5-year Monitoring and Evaluation Plan should be developed
- ✚ Research activities should be clearly spelled out
- ✚ Demonstration Plots should be developed – Park and in Community e.g. Mt. Horeb

**Team Members:**

Marlon Beale, Susan Otuokon, Thera Edwards

**\* This strategy and Monitoring and Evaluation as a whole is considered Priority # 3 by the Workshop**

**Table 7**

<b>Name of Thematic Area: MONITORING AND EVALUATION</b>				
<b>Strategy: Analysis and peer review of collected data</b>				
<b>Objective:</b>				
Increased data analysis to support site management				
<b>Strategic Actions:</b>	<b>Lead Responsibility</b>	<b>Support Responsibility</b>	<b>Estimated Start Time</b>	<b>Estimated Completion Time</b>
Distribution of Maps	JCDT	- FD - Mona - Geo-Informatix	April '08	December '10
Species Diversity Indexes	JCDT	UWI	April '08	December '10
Then vs. Now Change over time	JCDT	- NYBG - B Museum - IOJ	November '07	December '10
In-house Manual and lessons learnt for other PAs	JCDT			
Journals and Conferences		-		
<b><u>Team Members:</u></b>				
Marlon Beale, Susan Otuokon, Thera Edwards				



## ENDORSEMENT OF PLAN

Stakeholders were positive that the Conservation Management Plan for Hollywell was moving in the right direction. The Plan (Draft and Workshop Results) was therefore endorsed by the individual stakeholders at the workshop.

Participants undertook to provide feedback from their agencies on the draft Plan (included additions/modifications from the Workshop) by October 10, 2007.

## SUMMARY AND NEXT STEPS

The Facilitator, Trevor Spence and the Workshop Coordinator, Thera Edwards provided summaries on the results of the Workshop as well as the general status of the Plan.

The immediate next steps to complete the Plan as well as two recommended next steps to be considered in the process are summarized in Table 8 below:

**Table 8 – Next Steps**

ACTIVITIES	RESPONSIBLE AGENT	WHEN BY
Prepare Workshop Report	Facilitator – Trevor Spence	September 28, 2007
Get additional feedback from agencies	Consultant – Thera Edwards	October 10, 2007
Finalize Plan (including costing)	Consultants	End of October
<b>Related Next Steps recommended by Stakeholders</b>		
Collect, analyze and synergize existing literature/research		
Formalize Partnership with UWI		

## CLOSING OF WORKSHOP

The Workshop Coordinator, Thera Edwards thanked the individuals and agencies represented, the team that undertook the planning of the workshop as well as the Consultants that prepared the draft and the Facilitator for working with the team to develop the methodology and for guiding the actual workshop process.

The Workshop was then brought to an end.

## WORKSHOP AGENDA

**RURAL ENTERPRISE, AGRICULTURE AND COMMUNITY TOURISM (REACT)**

**STAKEHOLDER REVIEW OF  
DRAFT HOLLYWELL CONSERVATION MANAGEMENT PLAN**

**Wednesday, September 26, 2007**

**JAMPRO Building (Jamaica-Trade and Invest)**

**18 Trafalgar Road, Kingston 5**

### **Expected Outcomes**

The Workshop is geared to achieving the following outcomes:

1. Presentation of the draft Hollywell Conservation Management Plan; and
2. Review the Management Plan (focusing on strategies and actions towards a Blueprint for Sustainable Management)

## **AGENDA**

<b>9:00 am – 9:30 am</b>	<b>Preliminaries</b> <ul style="list-style-type: none"><li>✓ Registration</li><li>✓ Welcome and Overview of Workshop</li><li>✓ Introductions and Review of Agenda</li></ul>
<b>9:30 am – 10:20 am</b>	<b>Presentation of Management Plan</b> <ul style="list-style-type: none"><li>✓ Presentation</li><li>✓ Clarifications</li></ul>
<b>10:20 am – 10:35 am</b>	<b>BREAK</b>
<b>10:35 am – 11:10 am</b>	<b>Visioning and Victory Circle</b>

What do we want to see in place over the next three years as it relates to biodiversity conservation management of Hollywell?

**11:10 am – 1:00 pm**

**Strategic Action Planning**

In light of that vision, how can we use strategies such as-

- Zoning and Visitor Management
- Habitat and species conservation
- Monitoring and evaluation

to achieve that vision?

**1:00 pm – 2:00 pm**

**LUNCH**

**2:00 pm – 3:30 pm**

**Presentation of Group Reports**

**3:30 pm – 3:45 pm**

**Endorsement of Plan**

**3:45 pm – 4:15 pm**

**Summary, Next Steps, and Closing of Workshop**

**APPENDIX 2 – STRATEGIC PLANNING WORKSHEET**

**REACT – WORKSHEET 1**

**Stakeholders' Review of Draft Biodiversity Conservation Management Plan for Hollywell**

**Focus Question:** What are strategic actions that need to be implementation over the next three years?

**Thematic areas for consideration:** Zoning and Visitor Management; Habitat and Species Conservation; Monitoring and Evaluation

<b>Name of Thematic Area:</b>				
<b>Strategy:</b>				
<b>Objective:</b>				
<b>Strategic Actions:</b>	<b>Lead Responsibility</b>	<b>Support Responsibility</b>	<b>Estimated Start Time</b>	<b>Estimated Completion Time</b>
<b><u>Team Members:</u></b>				

**APPENDIX 3 – LIST OF PARTICIPANTS**

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# BLUE MOUNTAIN PEAK TRAIL BIODIVERSITY CONSERVATION MANAGEMENT PLAN

**USAID/RURAL ENTERPRISE AGRICULTURE AND COMMUNITY TOURISM  
(REACT) PROJECT**

MARCH 2008



**March 2008**

This publication was produced for review by the United States Agency for International Development. It was prepared by PA Consulting Group

# USAID/RURAL ENTERPRISE AGRICULTURE AND COMMUNITY TOURISM (REACT) PROJECT

## BLUE MOUNTAIN PEAK TRAIL BIODIVERSITY CONSERVATION MANAGEMENT PLAN

**March 2008**

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### **DISCLAIMER**

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.



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## **Executive Summary**

This Biodiversity Conservation Management Plan describes the ecosystems and species of the Upper and Lower Montane forests leading up to Blue Mountain Peak that the access trails pass through. The biological and ecological contexts are juxtaposed against the use pressures by hikers using a threat analysis and solutions set forth in the context of a management and a conservation plan.

## **1.0 Introduction**

Whilst the wider Blue and John Crow Mountains National Park has a management plan, the physical context of the peak trail passing through geologically unstable terrain and special ecosystems indicates the need for a documented approach to protection of the biodiversity.

### **1.1 Mission**

Portland Gap and the Peak Trail support the Blue and John Crow Mountains National Park's mission and objectives by providing recreational opportunities for local and international visitors, using ecotourism principles.

### **1.1 Values and Goals**

Goals and objectives of the Portland Gap and Peak Trail are similar to those of the Hollywell area notably to:

1. provide recreational and educational opportunities for Jamaicans and visitors that:
  - i. raise awareness and knowledge about the BJCMNP, thereby motivating concern and support for conservation of the national park, and
  - ii. result in the least environmental degradation to the site.
2. generate income for conservation/management of the BJCMNP
3. provide benefits for communities around the BJCMNP by increasing the local community's support for natural resource management

## **2.0 Approach to Plan (Method)**

This plan was prepared by review of existing documentation with the JCDT, scientific documents and articles on the Blue Mountains and the Peak Trail. The existing situation as well as

the strategic direction for the BJCMNP were used to prepare a threat analysis as well as a business plan and management plan.

### **3.0 Environmental Context**

The Blue Mountain Peak Trail is a 9 km (5.5 mile) trail that starts at “Look-out Point” (just above Abbey Green, and below Portland Gap) and ascends to the Blue Mountain Peak, specifically Middle Peak - the highest point in Jamaica at 2,256m (7,402 ft). The Blue Mountain Peak is actually a series of mountain peaks which form the Grand Ridge. At Portland Gap, the Trail crosses the boundary into the BJCMNP. To access the Peak Trail, persons with 4WD vehicles (Land Rover services provided by guest-houses and community members in the area) can start at Whitfield Hall, just above Penlyne Castle (this adds another 3km or 2 miles) and hike mainly on the Peak Trail. For most Jamaicans the hike to the “Peak” starts just above Mavis Bank, along either the Sheldon or Farm Hill Trail to Penlyne Castle, and this adds another 9km (5.5 miles) to the journey.

### **3.1 Ecology**

The tropical, montane mist-forest of Jamaica is a type of rain forest that is unique to the Blue and John Crow Mountains National Park. The park’s high altitude causes the rain to occur sometimes as mist. The mist only turns to rain when the water content of the atmosphere reaches saturation or when the wind hits trees and the air warms causing condensation of the water vapour so that rain falls from the “rain trees”. These types of forests are sometimes called cloud forests.

About 50% of the flowering plants in the mist and rain forests of the BJCMNP are endemic to Jamaica, and it is probable that about 30 – 40% may only be found in the Blue and John Crow Mountains (Iremonger, 2002).

### **3.3 Ecosystems**

The forests in the area are mainly a mix of Mull Ridge Forest and High Altitude Forest (with 1850 m asl being the altitudinal separation) with some Gully, Dry Slope and limited areas of Wet Slope Forest (Grubb and Tanner 1976). The forest types described by Grubb and Tanner were very similar to those described by Shreve with the exception of Ridge forest which they revised. Mull Ridge –Wet Slope forests have a typical canopy height of 8-13m and due to the upright na-

ture of trees are easy to walk through. Gully forests were described from the Portland Gap – Blue Mountain Peak area by Grubb and Tanner. The description of this variant concurs with Shreve's account. It has a canopy between 12- 18 m in height, buttresses and a liana (climber) *Marcgravia brownii* (Yellow Withe). Trees in this forest type have larger girths but seldom exceed 40cm dbh. Dicotyledons and ferns were typical in the species composition. High Altitude forests had a canopy between 3-6 m which is reduced to 1.5 -2 m near the summit of Blue Mountain Peak. This forest type had upright trees with very little evidence of wind "pruning". Of note is the absence of Tree Ferns. Grubb and Tanner (1976) commented that the forest around the summit had been "severely disturbed". They noted the presence of a small area east of the summit which showed no evidence of disturbance. Dry Slope forest was described as "almost totally destroyed by man". Altitude aside the variation in the forest types of the area has been ascribed to a complex of factors including soil type, soil nutrients and past climates.

### **3.4 Species**

Whilst the northern slopes of the Blue Mountains below 1,800m are still largely forested, on the drier and sunnier southern slopes, through which the Sheldon, Farm Hill and lower Peak Trail pass, disturbed forest exists in scattered patches. This is because much of the land was cleared for coffee plantations and farming of cash crops over a hundred years ago. Trees include Soapwood, Bilberry, Fiddlewood, Juniper, Dovewood and Wwinterry, over a fairly dense shrub layer. Trees such as Redwood and Burn nose are apparently restricted to the southern slopes. The herb layer is dominated by flowering plants including the orchid *Spiranthes speciosa*, Climbing Bamboo, ferns and lianas. Unlike the northern slopes, epiphytes are not as common. (JCDT, 2005).

Above 1,800 m, the vegetation is more stunted and species poor. Some species such as *Eugenia alpine* and *Clethra alexandra* are restricted to these high altitudes. Trees include Soapwood, Mountain Yacca and Beefwood, and common shrubs include *Palicourea alpine* and *Psychotria corymbosa*. (JCDT, 2005).

Above 2,000m in the region of the Blue Mountain Peak, the forest is known as Elfin Forest because of the stunted and gnarled appearance of the trees. The trees get up to only between 3 and 6m, and on the highest peaks are between 1.5 to 2m. The short stature of the forest is likely due to the low temperature, limited exposure to sunlight and low nutrient content of the soils. These forests experience high rainfall, and whilst there is no shrub layer, there are large numbers of a variety of epiphytes including hanging mosses, ferns and tiny orchids, many of which are restricted to these forests, with moss forming cushions on the rocks. Herbs such as *Lobelia martagon* and *Odontocline laciniata* which are endemic to high altitude forests occur here. Near the summit of Sir John's Peak and High Peak is an extremely rare community of natural grassland comprised of tussock grass *Danthonia domingensis*. Grand Ridge. (JCDT, 2005).

Since 2004/5 the BJCMNP Bird Monitoring Programme has expanded its coverage, with the Blue Mountain Peak Trail area being monitored for the first time. The monitoring points included three levels of quality habitat:- good - montane rainforest (Peak Trail above Portland Gap towards Blue Mountain Peak and Mossman's Peak), intermediate – modified/degraded (Radnor and Abbey Green area), and poor – ruinate/heavily degraded (Radnor Trail and Penlyne area). Endemic birds typical of the area are:-

- Yellow-shouldered Grassquit
- White-eyed Thrush
- White-chinned Thrush
- Stripe-headed Tanager
- Sad Flycatcher
- Ring-tail Pigeon
- Rufous-tailed Flycatcher
- Jamaican Woodpecker
- Jamaican Vireo
- Jamaican Tody
- Jamaican Peewee
- Jamaican Euphonia
- Jamaican Elaena
- Jamaican Becard

- Jamaican Blackbird
- Crested Quail Dove
- Chestnut Bellied Cuckoo
- Blue Mountain Vireo
- Arrow-headed Warbler

Other birds are:-

- Rufous-throated Solitaire
- Banana Quit
- Streamer-tail Hummingbird
- Greater Antillean Bullfinch
- Orangequit
- Ruddy Quail Dove
- Vervain Hummingbird
- Common Ground Dove
- Black and White Warbler
- Black-whiskered Vireo
- American Kestrel
- White-crowned Pigeon
- Northern Mockingbird
- Black-faced Grassquit
- Zenaida Dove
- Grey Kingbird
- Smooth-billed Ani
- Jamaican Oriole
- Sad Fly-catcher
- Yellow-shouldered Grassquit
- Northern waterthrush
- Jamaican Lizard Cuckoo
- Jamaican Mango
- Black-billed Streamertail
- Rose-breasted Grosbeak (migrant ?)



- Loggerhead Kingbird
- Caribbean Dove
- Greater Antillean Elaenia
- Mourning Dove
- Yellow-faced Grassquit

Migrants found in the area include:

- Black-throated Blue Warbler
- Common Yellowthroat
- American Redstart
- Northern Parula
- Ovenbird
- Prairie Warbler
- Worm-eating Warbler

#### **4.0 Geography, Social and Economic Context**

The area consists of steep mountain slopes, covered with degraded forest in the lower sections, and closed broadleaf forest in the upper sections approaching the Grand Ridge and over onto northern facing slopes. There are numerous streams which are tributaries of the Yallahs River. The geology is complex, with a variety of metamorphic, igneous rocks and sedimentary rocks forming the base of an easily erodible, shale soil. Villages range up the mountains from the main town of Mavis Bank, all heavily involved in agriculture as their socio-economic base.

#### **4.1 Biophysical**

The area has high rainfall and the sloping land is prone to frequent land slippage and flooding of rivers including the Yallahs River, which is crossed by a fording, which is often impassable during the rainy season. The wider area within the upper Yallahs Watershed is comprised of many old coffee estates including Clydesdale, Whitfield Hall, Abbey Green, Radnor and Arntully as well as the famous Cinchona Botanical Gardens. Above the coffee estates, many now abandoned, is the Blue Mountain Forest Reserve. This reserve was first gazetted as a list of patents

in possession of the crown under Section 3 of Law 33 of 1927. The Forestry Department, Jamaica Conservation and Development Trust, National Resources Conservation Authority Co-management Agreement, 2000 states that the National Park “consists primarily of forested areas declared as forest reserves including the Blue Mountain Forest Reserve declared 1/12/50” gazetted in 1950 under the Forest Act of 1937, and on the same boundary, the Blue and John Crow Mountains National Park gazetted in 1993 under the NRCA Act of 1992. The shape of the current park boundary is very similar to the proposed area shown on a map prepared c late 1880s demonstrating the fulfillment of the intention of the government to conserve the highlands of the Blue Mountains.

#### **4.2 Human**

The population of the Hagley Gap cluster of communities (Hagley Gap, Minto, Epping Farm and Penlyne Castle) is just under 3,000 persons. Most working persons are involved in farming, whether growing their own cash-crops such as herbs and spices on high elevation and cassava, peas and mixed vegetables on lower elevation. Many small farmers mix coffee with other crops and also reap coffee on the larger farmers during the season.

Since the 1950's with rising concern about soil erosion in the area, and its negative impact on the watershed for water supply and for farmers, the Land Authorities Law of 1951 was enacted. The Yallahs Valley Land Authority established under provisions of this legislation conducted significant training on appropriate hillside farming techniques. However, according to the BJCMNP Community Assessment of 1999, many of the small farmers do not practice these techniques as they feel the large farmers are causing greater negative impact. There is also a perception that land is available for them to move to i.e. Forest Reserve/National Park, and so shifting cultivation including slash and burn is practiced in order to cope with the soil erosion and loss of nutrients (McDonald, 2001). Many of the small farmers do not have legal land tenure.

#### **4.3 Settlements**

Mavis Bank is located in North-western St. Thomas just outside the Eastern St. Andrew border. It is a fairly large community with several amenities providing services for the smaller communities to the north-west e.g. Halls Delight and Westphalia, and to the north-east e.g. Hagley Gap. There is a police station, post office, health centre and a technical high school, a commercial centre with several shops and two relatively large guest-houses – Forres Park and Scorpio Inn.

In addition to farming, there are a number of agricultural industries e.g. Mavis Bank Coffee Factory and McGann's Farm (chicken and hogs).

About 7 km (4 miles) above Mavis Bank is Hagley Gap and north of this village, on increasingly treacherous steep and treacherous road, are the communities most closely associated with the Peak Trail including Minto, Epping Farm and Penlyne Castle. These communities are best known as the location of a number of small guest-houses e.g. Wildflower Lodge, Whitfield Hall, Abbey Green and Jah B's. Guest-houses in the area date back to 1925 when due to the influx of visitors hiking to the Blue Mountain Peak, Whitfield Hall Plantation House was transformed into a hostel. They are also known for their coffee, peaches, Christmas trees and herbs e.g. scallion and thyme, mint and rosemary. The community of Ness Castle is the eastern-most community involved with guiding hikers to the Peak.

#### **4.4 Culture**

Coffee farming is an important part of the local culture, with coffee estates having been established in the area as far back as 1791.

Hiking to the Blue Mountain Peak has become a popular challenge for many Jamaicans, even a "rite of passage" for many college students. For some it is a regular activity and there are clubs that make the trek two to three times every year. Early travel descriptions of the island and journals recount the journeys of persons to the peak. Most early trips were made by riding horses or mules up from the stables at Gordon Town. Over time the trip has become a hikers challenge with most visitors accessing the peak by foot from various starting points including Papine for the "hard core" hikers, Mavis Bank as the typical start as it is the last stop of most buses, Hagley Gap or Whitfield Hall for those person who arrange jeep transport or use specially arranged excursion packages. The narrow treacherous roads (now paths), stunning vistas, cool climate with luxuriant vegetation remain a constant of any account written of the journey to the peak. The roadside verges with exotic plants and high altitude flora, birds and other fauna delight amateur naturalists, professional scientists and general lovers of the outdoors.

#### **4.5 Heritage**

There are a number of old estate houses in the immediate area and nearby including:

- Arntully
- Whitfield Hall
- Orchard
- Abbey Green

## **5.0 The Area and its Resources**

### **5.1 Renewable**

- Rivers and springs
  - Yallahs River
  - Swift River
- Bamboo and wicker
- A variety of fruits including rose apple, peaches and berries, that do not grow at lower elevations in the island
- Forests (farming and logging threat)
- Tree ferns as orchid media
- *Sphagnum* moss

### **5.2 Non-renewable**

Minerals

## **6.0 Threats**

The main threats to the BJCMNP have been identified in decreasing order of importance as (JCDT, 2005):-

- Conversion of forest to agriculture
- Invasive species
- Non-timber products harvesting
- Logging
- Fires

- Hunting
- Informal settlements
- Channel modification

In the Blue Mountain Peak Trail area, conversion of forest to agriculture and associated fires in addition to the spread of invasive species are the most significant threats.

### ***6.1 Direct and Indirect Threats of Sites***

#### **Conversion of forest to agriculture, particularly by use of fire**

The southern-facing slopes of the Blue Mountains in the Yallahs watershed are amongst the most threatened watersheds in the island. Agriculture over the centuries has severely degraded the land, as once farms have been abandoned due to loss of fertility, soil erosion or a crash in the coffee market, the land is taken over by invasive species, including Wynne Grass which is highly flammable. Fires on these drier and windy slopes are a major problem and have resulted in conditions which make it difficult for forest to recover. Big farmers occupy the largest and best of the land and so as land is degraded, small farmers move further up the mountains and clear land or clear between forest trees to plant cash crops. Many of these crops e.g. scallion, thyme and carrots contribute to soil erosion by their method of growing and harvesting. Fires are used to clear land as it is non-labour intensive, cheap and the ash is considered to be good for the land. However, the fires are not carefully managed and so with the type of vegetation and the wind, fires usually spread and destroy large areas, and further, the soil structure is damaged making it more prone to erosion. These fires and sometimes the farming encroach into the Park boundary. The southern boundary of the Park is very close to the Grand Ridge and hence as can be seen from the Park's Zoning Plan, the core Preservation Zone has little protection from its Recovery or Buffer Zone.

The Park's Enforcement and Compliance Programme is addressing these issues through patrols and interpretive enforcement. Community members have been warned individually and with assistance from the USAID REACT Project, two community meetings have been held between October and November, 2007 to address the issue of fires and the threat to biodiversity in the area. Posters and other materials produced through the USAID PARE Project are being disseminated.

### 6.1.1 Invasive Species

Invasive species are a threat to the health of the forests in the park as they grow quickly and easily, invading and dominating the areas in which they are found. *Pittosporum* (Wild Coffee or Mock Orange) has been cited as the most threatening alien invasive in the Blue Mountains. It is found in abundance near the head of the Peak Trail, and the Trail provides a potential route for the spread of this species deep into the National Park. *Pittosporum* was introduced from Australia as a fast-growing and rapidly spreading tree that would help to reforest the damaged watersheds. However the tree rapidly takes over native forest, blocking the growth of native seedlings and hence reducing biological diversity. In addition to *Pittosporum*, other invasive species in the area include Wynne or Molasses Grass (*Melinis minutiflora*) and Net Fern (*Gleichenia* sp.). On lower elevations outside the National Park, bamboo is another invasive. Clearing of land for agriculture and then abandoning it, can allow for invasive species to spread, but along the Peak Trail, trampling or fires e.g. set by campers can also damage native vegetation and result in the spread of invasives.

Between August, 2005 and December, 2006, JCDT implemented an effective pilot project to control the spread of *Pittosporum* over a 4.8ha area from Whitfield Hall to Portland Gap. The project was funded by the Rufford Small Grants Fund and the Forest Dept. assisted with the pre- and post- *Pittosporum* control species survey. 237 mature trees were treated with glyphosate injections resulting in 80% mortality, and large quantities of wildings and seedlings were destroyed over the area. 766 native forest species seedlings e.g. Dovewood (*Alchornea latifolia*) and Mountain Yacca (*Podocarpus urbanii*) were planted with 90% survival rate. 0.7ha of forest along the Peak Trail that had been invaded by Wynne Grass (*Melinis minutiflora*) and Net Fern (*Gleichenia* sp.) were rehabilitated. (Chai, 2006). These pilot areas are being maintained and there are plans to expand this invasive species control and forest rehabilitation.

### 6.1.2 Plant and plant material collection

A variety of plant species are collected e.g. Sphagnum and Tree Fern Stems for sale as potting media and several species of Orchids and Bromeliads for sale to collectors. The scale of this collection is not known. A study of use of plants and plant materials e.g. "wiss" would be useful.

### **6.1.3 Access**

- The park's soil composition is predominantly shale. Together with the high levels of rainfall, landslides are a common threat. They cause access problems in terms of blockage of roads leading to and from the area, particularly above Mavis Bank. In addition, when the Yallahs River is in spate the fording becomes impassable and the bridge for pedestrians is unsafe.
- Relatively open access to the Trail and particularly the Peak threatens the endemic and other specialised vegetation including Elfin Forest and Tussock Grass, although it is not clear that the latter exists on Middle Peak as the literature states specifically that it is "restricted to near the summit of Sir Johns Peak and High Peak" (JCDT, 2005).

### **6.1.4 Environmental Degradation**

Degradation by visitor use can occur in a number of ways and at a variety of intensities. Much of the damage is visible such as litter, trampled vegetation and trail erosion. However, other effects such as the impact on wildlife may be less obvious. Visitors cause other changes to nature and protected areas. These may be subtle changes that affect the natural processes which cause problems, including the alteration of animal behaviour. These changes are often difficult to detect but are important. Visitors sometimes not only cause negative impacts on the site that hosts the tourism activity, but also on neighbouring or surrounding lands.

- Garbage

Hikers take a variety of packaged food and drink with them, and the packaging is often discarded along the Trail or on the Peak itself. This creates unpleasant surroundings and reduces the pleasure of other hikers. Packaging and the remains of food and drink also harbours pests including rats and mongooses and the former in particular can carry diseases, in addition to creating a distasteful and malodorous mess with their urine and faeces. Food and drink remains as well as packaging may also be dangerous for wildlife.

- Defacing and destruction of buildings

Hikers like to publicize their achievement by writing their names and other messages (usually with charcoal) on building walls. In addition, they will pull off wood from buildings to

make fires. This led to total destruction of buildings partially destroyed by Hurricane Gilbert. Subsequently, bathrooms were re-built by the JDF, using metal.

#### **6.1.5 Trail Use**

The trails in the Blue Mountains are old having origins in the old parochial road network of the area dating reliably back to the late 1700s and early 1800s. They were well constructed originally for use by the parochial (local) government of the respective parishes, military and plantation owners, and now they are mainly used for recreational purposes and by small farmers. Whilst not apparently an immediate threat or pressure, management needs to bear in mind that over-use of the trail and conflicts between different types of users is a potential threat.

- **Erosion**

The literature indicates that the major cause of erosion on trails is not use or trampling, but erosion from water draining off the trail. Whilst trail use can exacerbate erosion this is usually only if the trail was not well constructed, appropriately placed and/or if it is not properly maintained (particularly the drainage). Water should therefore be diverted off the tread by outsloping and incorporating dips and rises i.e. a 'rolling grade' rather than continuous downslope stretches. Water bars e.g. logs or rocks laid diagonally across a trail can also help to guide water off the trail tread. Water can also be kept from flowing onto the trail by rock-armoured cross-ditches, culverts and parallel ditches that carry water adjacent to but lower than the trail tread. Trails should avoid water-saturated soils e.g. where the water table is close to the surface, but if this cannot be avoided, log decking can be used to bridge the area. Whilst human trampling is not a great threat to trails, pack animals e.g. mules, can cause more problems as the hoofs of these animals carrying heavy weight is a small bearing surface that can generate significant pressure. (Hendee and Stankey, 1990).

- **Impact on Vegetation**

Studies on the impact of trails suggest that light and incidence of trampling are the main factors impacting the type of vegetation found on the tread and at the edges in comparison to within the forest habitat through which the trail passes. This actually tends to lead to increased biodiversity of herbaceous vegetation towards the tread of the trail. Along the trail, whilst trampling usually prevents growth of trees and many herbaceous plants, the increased light, particularly at the trailhead, often results in several plants being able to grow there rather than in the forest shade off the trail. Trail width widens with trampling and is usually widest at trailheads, and leaf litter usually decreases with trampling. (Bright, 1986, Hall and Kuss, 1988).



- **Conflicting Uses**

Mountain biking is a growing hobby and has been promoted through the annual “Fat Tyre” Festival which originally started in Negril. In 2007, a Blue Mountain Peak Trail ride was organized involving experienced professional riders visiting the island especially for the Festival. The riders were very impressed with the Trail placing it in the top of the range of mountain biking trails for its biodiversity, trail diversity (soil, gradients etc) and the long descent that is possible in comparison to a short ascent – by using 4WD vehicles to Abbey Green, biking up and then riding all the way down to Mavis Bank. This trail was considered one that was only for very experienced mountain bikers, and even though they plan to ride the Peak Trail again in 2008 it will not be a part of the regular festival but again only for an elite group. As bikers come whizzing downhill, they do present somewhat of a threat to hiker safety. In the USA there is some conflict between the two and many trails have been earmarked for “hikers only/no biking” or vice versa in an effort to reduce conflicts between groups. There may be several trails outside the Park that could be used for mountain biking and the Peak Trail should focus on hikers although perhaps experienced bikers could be accommodated on special days.

## **6.2. Indirect**

### **6.2.1 Sustainability**

- **Funding for conservation and maintenance of the Peak Trail**

The sustainability of the site is threatened by the cost of operations, which exceeds the income earned. JCDT subsidises operational cost as the salaries of the Park Rangers who provide supervision and the management and administrative staff time associated with the site are covered by other sources. The NRC (Blue and John Crow Mountains National Park) (User Fee s) Regulations 2003 states that persons wishing to use the Trail past Portland Gap to the Peak must pay a fee of JA\$200 for resident adults, US\$20 for non-resident adults and JA\$50 for children under 12 years old. However the JCDT has advised the NRCA through NEPA that it is unable to charge more than the current JA\$100 as people refrain from paying even this small quantity and there is a need for major improvements particularly at the Peak. Although the JCDT retains the user fee (but is accountable to NEPA for it), and also generates income from rental of the cabins at Portland Gap, the income covers only three part-time persons – a caretaker, groundsman and housekeeper, who together maintain the buildings, accommodations

and the trail e.g. maintaining drains, collecting garbage and keeping the path clear of vegetation.

- Maintenance of the Sheldon and Farm Hill Trails

These two trails take hikers from Mavis Bank (Mt Charles – just across the Yallahs fording) and on to Penlyne Castle. Sheldon is the more popular trail as whilst longer, it is not as steep as the Farm Hill Trail. Neither of these trails are maintained although they are in regular use by people every year. Lack of funding prevents JCDDT from maintaining these trails and further, they are outside the purview of the JCDDT which manages the National Park and hence only the Peak Trail, although that Trail is maintained from its starting point just outside the Park boundary. Hurricane Ivan in 2004 followed by heavy rainfall has damaged a part of the lower section and so many hikers are now using the Farm Hill Trail. Discussions with community members indicate an interest and willingness to participate to manage and maintain these trails and discussions have been held with the USAID/USFS – PARE Project regarding possible assistance with assessment and training.

- Lack of Supervision and Management

Most hiking groups involve several persons who have hiked before and existing groups add new individuals as persons drop out. Thus many groups do not require trail guides to find their way, however there are many persons – often foreigners or new groups that would like a guide however there is no organised system in place unless you book with the JCDDT or a guesthouse. Most of these guides have had no formal training and whilst they know the way, they know relatively little about the National Park or the flora and fauna, and most have only limited skills in tour guiding, first aid and CPR, customer service and hospitality etc. This presents a threat in terms of reduced safety, comfort and educational opportunity. If visitors to the National Park do not even know they are hiking within a National Park, nor yet what that means, then the

## **7.0 Legal and Enforcement Framework**

### **7.1 Natural Resources Conservation (BJCMNP) Declaration Order (1993)**

The Natural Resources Conservation Authority Act provides for the management, conservation and protection of the natural resources of Jamaica. The Act establishes the Natural Resources Conservation Authority, a body of persons appointed by the Minister of the Environment. The functions of the Authority include the taking of such steps that are necessary to ensure the ef-

fective management of the physical environment of Jamaica; and the management of marine parks and protected areas. The declaration order sets out the boundary of the BJCMNP.

### **7.2 Natural Resources (National Park) Regulations (1993)**

The Blue and John Crow National Park is located in the Blue and John Crow mountains in Jamaica, which traverse the four easternmost parishes in the island. It is the first and only declared national park in Jamaica and was so declared pursuant to Section 5 of the Natural Resources Conservation Authority Act which also allows the Authority to designate any area of land as a national park to be maintained for the benefit of the public, or any area of land or water as a protected area for the protection of natural and inanimate objects that is of aesthetic, educational or scientific interest. The protected areas system is guided by a Policy on Protected Areas, which was endorsed by Cabinet in 1997.

### **7.3 Natural Resources (Blue and John Crow Mountains National Park) (User Fees) Regulations 2003**

These regulations make provisions for the issuing of a pass to enter a recreational area. This pass must be in the possession of the person using it for entry at the time of entry. With respect to Hollywell the pass may be either a single entry or annual pass for multiple entries. Authorised Officer's under the National Park regulation of 1993 are exempt from using a pass.

These regulations also govern persons conducting research in the park area who may be collecting specimens, audio recordings, data (including computer records) and producing scientific publications from their activities. The regulations make provisions for the final destination of these materials to be declared.

#### **7.4 The Forest Act (1996)**

This Act addresses the sustainable management of forests on lands in the possession of the crown and vests management responsibility in the Conservator of Forests. The Act provides for the establishment of forests reserves, the establishment of protected areas, the promotion of forestry research areas, reforestation initiatives and the preparation of a forestry management plan.

The act speaks to the establishment and maintenance of recreational facilities in forest conservation areas and forest management areas as may be designated for that purpose as well as protection and preservation of watersheds in forest reserves, protected areas and forest management areas. In forest reserves parks and other recreational amenities may also be provided. The act also recognises the protection and conservation of endemic flora and fauna.

The Conservator may establish recreational facilities in such forest reserves or forest management areas as he considers appropriate and such facilities may include -

- (a) parks;
- (b) roads and trails;
- (c) camp grounds;
- (d) picnic sites;
- (e) such other facilities as the Conservator may determine.

Fees may be payable for the use of facilities provided.

## **7.5 The Forest Regulations (2001)**

The Forest Regulations 2001 incorporate additional provisions related to the regulation of forest reserves, offences against burning without a permit in forest reserves and timber licences. There is no overarching section in the Act that states that the Forestry Department is responsible for all of the island's forests. The department is restrained by the limitations placed on the areas over which the Act establishes jurisdiction namely: Forest Reserve (any area of land declared by or under the Act to be a forest reserve), Forest Management Area (any area of land declared under the Act to be a forest management area) and Protected Area (any area of land declared by the Minister pursuant to section 23 to be a protected area). These boundaries were extended somewhat by the area created under the Forest Regulations of 2001 as it was found that a lot of the areas that was actually being managed by the Department were not actual forest reserves and as such would not fall within the interpretation given under the Act. The Regulations introduced a new category of lands, namely the 'forest estate' which was designed to include all the lands managed by the Forestry Department. This also includes forest reserves. It is thought that this distinction was placed to facilitate easy usage, as this results in the inclusion of many parcels of land which are in fact managed by the Department but which have not been declared as a forest reserve.

Recreation sites and facilities in a forest estate may be the subject of management contracts or leasehold arrangements with other parties. Government agencies, non-governmental organizations or private individuals who make application for such agreements may do so if

(a) the facility or site was approved in the Forest Management Plan; and

(b) the Conservator is satisfied that the site or facility will be operated in compliance with the Act and the Regulations. In determining whether or not to recommend an application, the Conservator shall be guided by (but shall not be obliged to accept) the recommendations of the Forest Management Committee. The rates for any lease or management contract shall be the rates recommended by the Commissioner of Lands. The period of any lease or management contract shall not exceed 10 years in the first instance and shall be subject to performance standards and performance indicators and agreeable to both parties to the contract. A contract for the operation of a recreation site facility in a forest estate may be terminated if the terms of the contract are contravened. If the Conservator is satisfied that there has been a breach by a person to whom a contract is granted under this regulation, the Conservator shall give three months notice in writing before taking steps to terminate the contract.

### **7.6 The Forest Policy (2001)**

The policy addresses a number of areas but central to the purpose of this plan is the Conservation and Protection of Forests. The policy states that forest lands, especially the last remaining areas of natural forests, will be conserved to protect and enhance the native and endemic flora and fauna of the Island. No harvesting will be permitted of primary closed natural forest in forest reserves, national parks, or protected areas. Forest management will support the development of the National Park and Protected Areas System that will assist in the conservation of all natural resources.

The protection of forests from all threats forests including damage from fires, illegal cutting and theft of trees, illegal hunting of birds and animals, soil erosion and other processes which damage soil, water, plants, birds, animals and landscape features is also clearly stated.

The policy adopts the position that no net loss of forest cover will be permitted on lands owned by the Government of Jamaica. Where forest stands are wholly or partially cut or otherwise damaged, they should be promptly reforested with the same, or other suitable species. Where destruction of forest cover is unavoidable, the loss will be compensated by reforesting an equivalent area elsewhere.

Community participation, public awareness and environmental education are seen as major vehicles for implementing the policy, promoting and supporting forest development as well as imparting the importance of forests to Jamaica's economy, environment and society.

#### **7.7 The Wild Life Protection Act (1945) and relevant amendment orders and regulations**

Only statute in Jamaica specifically designated to protect species of animals and regulates hunting in Jamaica. Main provision that ensures the protection is found in Section 6 of the Act which states that (1) No person shall hunt any protected animal or protected bird. (2) Every person who

contravenes the provisions of subsection 1; or

has in his possession the whole or any part of any protected animal or bird; or

Takes or has in his possession the nest or egg of any protected bird,

shall be guilty of an offence.

The act designates all birds except the 22 birds in schedule 2 and birds kept as domestic birds as not protected and 14 animals as protected e.g. Hawksbill turtle, American Crocodile, Jamaican Iguana and West Indian Manatee.

The act regulates the hunting of game birds, designates game birds, hunting times and limits. It also prescribes the licence, provides for the declaration of game sanctuaries and games reserves.

### **7.8 The Country Fires Act (1942)**

The act states that every person who sets fire to my crop shall be guilty of an offence. So too is every person who sets fire to any trash on any land unless the occupier of such land first serves on the officer or sub-officer in charge of the nearest police station and the occupiers of all adjoining lands the nearest boundaries of which lie within half a mile (0.8 km) of the place where it is intended to set fire to such trash, notice of his intention to set fire to such trash on the dates, not exceeding seven, specified in such notice; and clears an open space of at least fifteen feet(4.5 m) in width round such trash and removes from such open space all inflammable material or other matter likely to burn, land, unless the occupier of such land first-shall be guilty of an offence against this Act. Notices shall be served three clear days at least before the first of the dates specified in the notice. Every person who sets unattended fire to any trash between the hours of six in, the evening and six in the morning; or leaves unattended any fire he may have lit or used in the open air before it is thoroughly extinguished, shall be guilty of an offence against this Act.

Permits should specify the period, not exceeding fourteen days at the most, within which the permit shall be in force, and the hours during which fire may be set, and the person issuing such permit should send a copy thereof to the officer or sub-officer in charge of the nearest police station. Every person who, for the purpose of obtaining a permit, gives to the person to whom application is made any information knowing it to be false, or makes any statement knowing it to



be false, shall be guilty of an offence against this Act. Every person who sets fire to any trash contrary to the provisions of any order issued under or contrary to the provisions of any permit granted shall be guilty of an offence against this Act.

Fires lit on any plants or trash to eradicate or prevent the dissemination of, any disease within the meaning of the Plants (Protection from Disease) Act as well as those lit for lime or charcoal kiln are noted exemptions to the main provisions of this act.

### **7.9 The Endangered Species (Protection, Conservation and Regulation of Trade) Act (2000)**

This Act was promulgated to ensure that Jamaica meets its obligations under the Convention for the International Trade in Endangered Species of Wild Fauna and Flora. The Act governs international and domestic trade in endangered species to and from Jamaica. It establishes a Management Authority, which is the Natural Resources Conservation Authority, as well as a Scientific Authority. The functions of the Management Authority include the grant of permits and certificates for the purpose of international trade, the determination of national quotas and the monitoring the trade in endangered species. The primary role of the Scientific Authority is to determine whether a species is at risk, vulnerable or threatened, to advise on trade matters and to monitor the grant of permits and certificates. Offences under the act relate to trading in any specimen of a species without a permit or certificate; enclosing in or with any letter, parcel, packet or other matter sent by post, any endangered species; or knowingly using for the transportation of any endangered species any mail bag or mail van, aircraft, ship or other vehicle used for the carrying of mail.

### **7.10 The National Solid Waste Management Act (2001)**

This act makes provision for a National Solid Waste Management Authority and mandates inter alia that the Authority take such steps as are necessary for the effective management of solid waste in Jamaica in order to safeguard public health as well as the collection, transportation, re-use and re-cycling of waste in an environmentally sound manner. The Act establishes a licensing regime for operators of solid waste management facilities, and the operators of collection and transfer services.

## **8.0 Blueprint for Sustainable Management**

The Peak Trail passes through disturbed montane forest below Portland Gap and more natural montane forest. These are unique and ecologically sensitive habitats. These forests are unique and ecologically sensitive habitats. Most of the Blue Mountain Peak Trail is within a National Park and Forest Reserve, and therefore biodiversity and ecosystem conservation are important, particularly for special and unique habitats. In light of use of the area for recreation, it is therefore important to ensure its sustainable management, especially with respect to the biodiversity and ecosystems which support use of the area as an attraction.

### **8.1 Strategies**

The strategies to be used for biodiversity conservation will need to reflect the fact that not all the Trail, nor the adjoining Sheldon and Farm Hill Trails are within the National Park/Forest Reserve, and therefore it will not be possible to enforce legislation in all parts of the site. At the same time, these areas are significant because of their ecology, watershed management importance. Further, careful management of these trails will help ensure careful use of the Peak Trail. Strategies and specific actions are considered below under six headings:- Zoning, Visitor Management, Public Education, Community Relations, Resource Upgrading and Maintenance and Biodiversity Conservation.

### **8.1.2 Zoning**

Zoning is a useful strategy to identify particular uses that will or will not be allowed based on the biophysical and other features of each zone. Ideally, zones should be demarcated to assist the user with compliance. The Trail(s) need to be zoned, including the Sheldon and Farm Hill Trails and any relevant recommendations for use or activities that should not be permitted should be assigned to each zone. The zoning should be based on whether or not the area is within the National Park, soil, slope, vegetation and wildlife. Consideration should be given to demarcating areas on the Peak itself as “off-limit”. The process of identifying the zones will require about four days of a multi-disciplinary team – two days in the field hiking the full-length of the Trail and two days working out the zoning. Technical assistance could be sought from the USFS in addition to using local conservation scientists, terrestrial ecologists and Park Rangers. In addition to ecology and physical attributes, land tenure along the Trail should also be noted. Rules for use of the Trail relevant to both sections within and outside the National Park should be determined and plans for disseminating this information through signage, brochures, posters, Park Rangers and Trail guides should also be prepared.

There are other trails in the area, as indicated on the various maps, however most of these are overgrown and impassable. These include Mossman’s and the Grand Ridge Trail. The Forestry Department and the JCDT have agreed, and this is certainly best practice for biodiversity conservation, that it is best not to re-open these old trails in order to avoid access by farmers who would clear land deep within the National Park, as well as invasive species which tend to spread along trails. This is particularly relevant bearing in mind the limited resources for monitoring and enforcement.

### **8.1.3 Visitor Management**

Whether there are signs or other information available regarding correct use of the Peak and associated Trails, the personal touch is essential. Park Rangers and other Park staff have an important role to play in visitor management, as do Trail and Tour Guides, many of whom will be from the neighbouring communities. All persons who will come into contact with visitors, whether local or foreign, must be knowledgeable about the National Park, the forests and wildlife, and its management. They must also be aware of the rules and the relevant legislation. Using a combination of this information, guides should advise their guests of the Trail rules before starting on the Trail. Further, they must have the diplomacy and firmness to deal with infractions whilst on the Trail. Park Rangers in particular will need to be trained to handle difficult situations and to manage any conflicts so they do not get out of control. A Trail Guide will know the route and have basic knowledge, whereas a Tour Guide will have more training, and be able to provide much more information and make the hike an experience. Depending on the size of a group, a Tour Guide will be the lead guide assisted by a Trail Guide.

### **8.1.4 Public Education**

In light of the importance and value of the site, public education even before visitor management becomes relevant, will be essential. The National Park should work to ensure publicity about the Peak Trail through use of the media, and directly to potential hikers through youth and hiking clubs, colleges and the guest-houses in the area.

The establishment of the proposed Visitors' Centre in Mavis Bank will be a critical and very useful component of biodiversity conservation through public education. Mavis Bank is the "trail-head" community, through which all hikers pass, whether on foot, or being transported to Penlyne Castle in 4WD vehicles. The Visitors' Centre should provide information on the natural and

cultural heritage of the area, particularly, the National Park/Forest Reserve and Blue Mountain Peak Trail, and the relevant rules and regulations. A map of the area, and the Trail in particular, as well as posters with photographs of special vegetation and wildlife should be featured. A brochure including all this information and the rules and regulations should be available at the Centre and all the guest-houses. In addition, information about accommodations, attractions and services should be provided. Hikers should be able to book a guide through the Centre as well. Hikers often pass through the community in the late evening when many shops and other businesses are closed. In addition to providing information for hikers, the Visitors' Centre can also generate some income through sale of items such as tinned food, water, snacks, flashlights and batteries.

Interpretive signage along the Trail regarding the changing forest types and special features e.g. Elfin Forest and Bromeliads should be in place. Existing signs are old and in need of replacement. These signs could also act as distance markers and hiking motivators. At the Peak itself there is scope for a greater level of interpretation, particularly if the old house is rebuilt. This would help to raise awareness, as many hikers are not aware of the significance of the site apart from its being the highest point in Jamaica. Awareness and pride should contribute to a level of motivation to respect the rules and regulations e.g. regarding garbage and "off-limit" areas.

#### **8.1.5 Community Relations**

The neighbouring communities in the immediate area – Mavis Bank, Hagley Gap to Penlyne Castle, and from further afield e.g. Ness Castle are an important component in management and biodiversity conservation. Good relations between the National Park/Forest Reserve and the neighbouring communities are important, to promote care of the Trail and site. In addition to

discussions at formal and informal meetings, community members should feel comfortable to approach Park management in the field or at the office. This relationship can be enhanced by the provision of technical and other assistance with respect to implementing community projects that benefit biodiversity conservation, National Park management and sustainable community livelihoods. For example, the idea of the Visitors' Centre in Mavis Bank is one that members of the Citizen's Association have devised.

Many persons from these communities (particularly young males) act as trail guides, often with little by way of formal training in tour/trail guiding nor knowledge about the National Park. They can influence visitor use of the Trail through their knowledge and skills. Education and training will therefore be important in preparing these persons to more effectively provide trail and tour guide services. Further, these same persons can and should have an interest in maintaining the Trail, particularly the sections outside the National Park, which are not maintained by the Park managers.

## **8.2 Resource Improvement/Upgrading**

Trail maintenance is critical as even the best constructed trail will degrade if not properly maintained. Erosion is a major threat, particularly given the heavy rainfall, steep slope and the soil type in the Blue Mountains. Despite the obvious impact of hikers, particularly in compacting the soil and damaging vegetation along the Trail, the control of water-flow is the most important aspect of trail building, management and maintenance. The Peak Trail has hundreds of drains and these must be cleaned out and maintained to ensure that water flows along these channels rather than along the trail. This is an on-going process but requires special efforts after events such as hurricanes and persistent heavy rainfall. The Sheldon Trail should be repaired using an

approach that involves and trains local community members to act as both trail and tour guides, as well as maintain the Trail. This is critical for safety and also because the Park does not have the resources to maintain the Sheldon nor the Farm Hill Trail.

An assessment of repair and upgrading work should be conducted at the same time as the zonation planning. Again, the USFS could be approached for technical assistance, working alongside a team of Jamaican experts and Park staff. A workshop approach could be used at the end of the assessment, in order to obtain stakeholder input and “buy-in”. This would then pave the way for the involvement of community stakeholders in conducting the repairs, participating in the training and ensuring the on-going maintenance and wise use of the Trails.

In addition to major repairs for the Sheldon and Farm Hill Trail and required repairs for the Peak Trail, the following are facilities and services to be developed and improved over the next one to three years include:

- Mavis Bank Visitors’ Centre – map, posters, exhibits
- Interpretive and other Signage – a series of signs providing information and direction, including a Trailhead sign
- Improvements at Portland Gap
- Provision of information at Guesthouses in the area
- Gazebo/Shelter at the Peak
- Renovation of the “house” at the Peak
- Other community-based natural and cultural heritage attractions

## **9.0 Business Plan**

A business plan should be prepared for the National Park and community components, particularly as a cluster is being developed around the site. USAID REACT is expected to play a lead role in implementing this activity. A business plan will help to guide business development and investment in the area.

As indicated above, whilst the gazetted user fee is US\$20, JCDT charges JA\$100 or US\$5 for non-resident hikers. This represents an increase of 50% from the fee JCDT charged before the User Fee legislation gazetted in 2003. Visitor Statistics are as follows:

Table: Number of Visitors to Blue Mountain Peak Trail (2002-2005)

YEAR	TOTAL NO. OF VISITORS	NO OF RESIDENT ADULTS	NO. OF RESIDENT CHILDREN	NO OF FOREIGN ADULTS	NO. OF FOREIGN CHILDREN
2002	3,601	2,891	451	216	43
2003	2,854	2,625	115	114	0
2004	1,780	1,749	1	30	0
2005	1,347	1,346	1	0	0
2006	1,466	1,464	2	0	0

N.B.: This information is from JCDT's records and doesn't include persons who did not pay fees

There has been a significant decrease in numbers over the years and this is somewhat supported by guesthouse owners (Allgrove, pers comm.) perhaps due to the worsening roads and concerns about the safety of far off places

## 10.0 Biodiversity Conservation



Research should be conducted, particularly with respect to the vegetation, and this can be used to help monitor visitor impacts. The University of the West Indies and/or the Institute of Jamaica should be encouraged to be a part of these activities which should be conducted at least once per year.

(1) Botanical inventory along Peak Trail, Portland Gap and Peak, using transects and quadrats – use methodology from Bright, 1986 etc

(2) Inventory of amphibians, insects and other species should be undertaken using similar methods to those developed for Hollywell.

(3) Field visit to other Peaks (by helicopter if necessary) to assess vegetation and look for endemic species e.g. Tussock Grass – *Danthonia domingensis* on Sir John’s and High Peak. Information from the field studies/research should be used to detail the monitoring plan outlined below, and to guide management.

(4) Ongoing invasive species control as described earlier, must be a component of management of this area.

## 11.0 Work Plan

**Objective:** To conserve the biological diversity of the Blue Mountain Peak and associated Sheldon and Farm Hill Trails through improved management

Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
Zoning  Prepare a zoning plan that guides	1. Request assistance from USFS and schedule	1. JCDDT &  USAID PARE	September  2008	Jan, 2008	- 4 person  days USFS (1 or 2 pers)  - 4 person

Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
use of different parts of the Peak and associated Trails, and rest areas (Portland Gap and the Peak)	time – Rangers etc	2. JCDT	March, 2008	March, 2008	days each for 5 others – Park Rangers (2)
	2. Conduct Assessment to include consideration of public education, terrestrial ecology etc.	3. JCDT	May, 2008	Aug, 2008	- 6 person days for consultant (terrestrial ecologist to go with team and pull together final zoning plan
	3. Publicise zoning in map, in brochure and signage at Mavis Bank Visitors' Centre				- Accommodation & Meals for 3 nights in area for all - Transportation

Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
					- Brochure - Sign
Visitor Management	<p>1. Use of public education to promote appropriate behaviour</p> <p>2. Visitors hike with trained Tour and Trail Guides from the community who have been involved in the programme</p> <p>3. Rangers enforce relevant regulations</p>	<p>1. JCDT</p> <p>2. Communities with JCDT</p> <p>3. JCDT</p> <p>4. JCDT</p>	<p>January, 2008</p> <p>February, 2008</p> <p>January, 2008</p>	<p>December, 2008</p> <p>December, 2008</p> <p>December, 2008</p>	<p>See below</p> <p>Cost of guide for group</p> <p>Personnel time</p> <p>Bins</p>

Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
	4. Garbage bins provided		January, 2008	April, 2008	
Public Education	1. Design and produce a brochure about the Peak Trail, its associated Trails and the area generally. This should include a zoning map with rules & regulations and species information.	1. JCDDT (working with team mentioned above to produce basic outline, and then with graphic designer for final outlay)	March, 2008	May, 2008	2 dys graphic designer Printing costs
	2. Design and produce a poster type exhibit with	2. JCDDT (as above)	March, 2008	August, 2008	2 dys graphic designer Printing costs

Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
	<p>information similar to the brochure – to be placed in the Visitors Centre at Mavis Bank and all guesthouses.</p> <p>3. Interpretive signage – these need to be designed (for along the Trail to replace existing ones) produced and erected along the Trails.</p> <p>4. Visitors' Centre Inter-</p>	<p>3.JCDT (as above)</p> <p>4. JCDT working with Mavis Bank Citizens Assocn</p>	<p>March, 2008</p> <p>Jan, 2008</p>	<p>September, 2008</p> <p>Dec, 2008</p>	<p>5 dys graphic designer</p> <p>Printing costs</p> <p>Installation costs</p> <p>2 person dys to work with outline by</p>

Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
	pretation – prepare plan for entire cen- tre and imple- ment  5. Training of Trail and Tour Guides and personnel to man Visitors Centre  6. Community Education through meet- ings with presentations	5. JCDT with Ma- vis Bank Citizens Assocn. and oth- er communities  6. JCDT with re- levant agencies e.g. FD, RADA	January, 2008          6. January, 2008	June, 2008          December, 2008	Heritage De- sign and source items and cost  Cost of con- struction and purchase of materials, fit- tings, furnish- ings  2 weeks train- ing          Personnel time  - 2 mtgs for yr  Transportation

Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
	<p>on the Peak Trail area and particularly issues threatening biodiversity and watershed management e.g. fires, agriculture and invasive species</p>				Refreshment
Community Relations	<p>1. Ensure involvement of stakeholders in planning meetings and conduct community meeting to share plans</p>	1. JCDT	January, 2008	December, 2008	<p>Personnel time</p> <p>Cost of Meetings e.g. transportation, refreshment</p>

Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
	2. Facilitate community benefits through training and events	2. JCDT	2. January, 2008	December, 2008	Training costs – above – JCDT has some funds for training in January JCDT will be working with the community for Peak related events in 2008
Resource Upgrading & Maintenance	1. Conduct assessment of Trails and develop plan with costing for repairs and maintenance	JCDT/USFS team	March, 2008	March, 2008	



Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
	<p>2. Source funds and implement repairs along with training for community</p> <p>3. Maintenance should be conducted on an on-going basis using information from the monitoring of the Trail to guide any necessary repairs or rehabilitation.</p>	JCDT	April, 2008	December, 2008	
Business Plan	1. Prepare Business Plan	JCDT/REACT	Jan, 2008	March, 2008	Personnel time

Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
	<p>(s) – Peak Trail and related for JCDT, and other for community</p> <p>2. Use Business Plan and information from all other plans to prepare proposal(s) to fund resource upgrading, public education etc.</p>	JCDT/REACT	April, 2008	June, 2008	Personnel time
Biodiversity Conservation	<p>1. Conduct research:-</p> <p>(a) botanical inventory along Peak</p>	JCDT mobilising UWI and IOJ implementing possibly during assessment	Jan, 2008	March, 2008	<p>Personnel time</p> <p>Transportation</p> <p>Accommoda-</p>

Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
	Trail, Portland Gap and Peak, using transects and quadrats – use methodology from Bright, 1986 etc (b) field visit to other Peaks (by helicopter if necessary) to assess vegetation and look for endemic species e.g. Tussock Grass – <i>Danthonia dominicensis</i> on Sir John's and	JCDT to organise with JDF and UWI & IOJ possibly during construction at Peak	July, 2008	August, 2008	tion & Meals  Personnel time  Transportation  Accommodation & Meals

Strategy	Action	Responsibility	Estimated Start	Estimated Completion	Cost
	High Peak  2. Use information from field studies/research to detail monitoring plan outlined below  3. Ongoing invasive species control	JCDT      JCDT	Sept, 2008      January, 2008	Sept, 2008      December, 2008	1dy workshop with relevant personnel      Personnel time (Rangers & Conservation Science Officer)

**Summary Workplan - 2008**

ACTIVITY	J	F	M	A	M	J	J	A	S	O	N	D
<b>Conduct Assessment &amp; Prepare Zoning Plan and draft other documents</b>			—									

ACTIVITY	J	F	M	A	M	J	J	A	S	O	N	D
(Trail Repair needs, zoning, biology, public ed. e.g. Interpretation)												
<b>Public Education</b>												
- Community Meetings			—*			—*				—*		
- Media				—	—	—	—				*	
- Brochure	—	—	—	—	—	—	—	—	—	—	—	—
- Poster	—						—	—	—			
- Interpretive Signage												
- Visitors Centre												
- Training												
<b>Community Outreach</b>												
- Involve in meetings												
- Facilitate development												
- Events (Hikes)			29			28				12		14
<b>Business Plan</b>												
<b>Proposal – seek funds</b>	—	—	—	—	—	—						
<b>Resource Upgrading incl. Education &amp; Training</b>												
<b>Biodiversity Conservation</b>												
- Inventory in Assessment			—				—					
- Special Plants								—				
- Detailed Monitoring Plan												
- Invasive Species Control												

## **12.0 Management Organization**

The Blue Mountain Peak Trail is managed by the Jamaica Conservation and Development Trust (JCDDT) a non-government organisation and registered charity established in 1988. The mission of the JCDDT is to promote environmental conservation and sustainable development, with particular emphasis on the BJCMNP, for the benefit of Jamaica and our people. Management of the Peak Trail, Portland Gap and the Peak, falls within the National Park's Recreation and Tourism Programme which has the goal of providing recreational opportunities for local and international visitors, using ecotourism principles, in order to generate income and support for the Park (JCDDT, 2005).

In 1988 shortly after the JCDDT was established, the Blue Mountain Peak Trail Improvement Project was launched as one of the organisation's first projects. The Protected Areas Resource Conservation (PARC) Project between 1989 – 1994 involved repairs to the Trail and Portland Gap. Between these two projects, extensive repairs were done to the Peak Trail and at Portland Gap, where an additional cabin was built and repairs to the Ranger Station. Signage was placed at several points along the Trail and in the neighbouring communities. In 1996, when the JCDDT first signed a delegation agreement for management of the BJCMNP, it began to be much more involved in the management of Peak Trail. In 1999, the JCDDT began charging an entry fee (entry had been free under the Forestry Department) and running the site on a more commercial basis. In 2002, JCDDT signed a new delegation agreement for management of the National Park, but due to limited human and financial resources, focus has been on Holywell improvements. Since 2004 during Management Planning, JCDDT began discussions with the Peak Trail communities from Mavis Bank up and by 2007, with funding from the Inter-American Development Bank and later USAID REACT, plans started to be made for sustainable tourism development in the area.

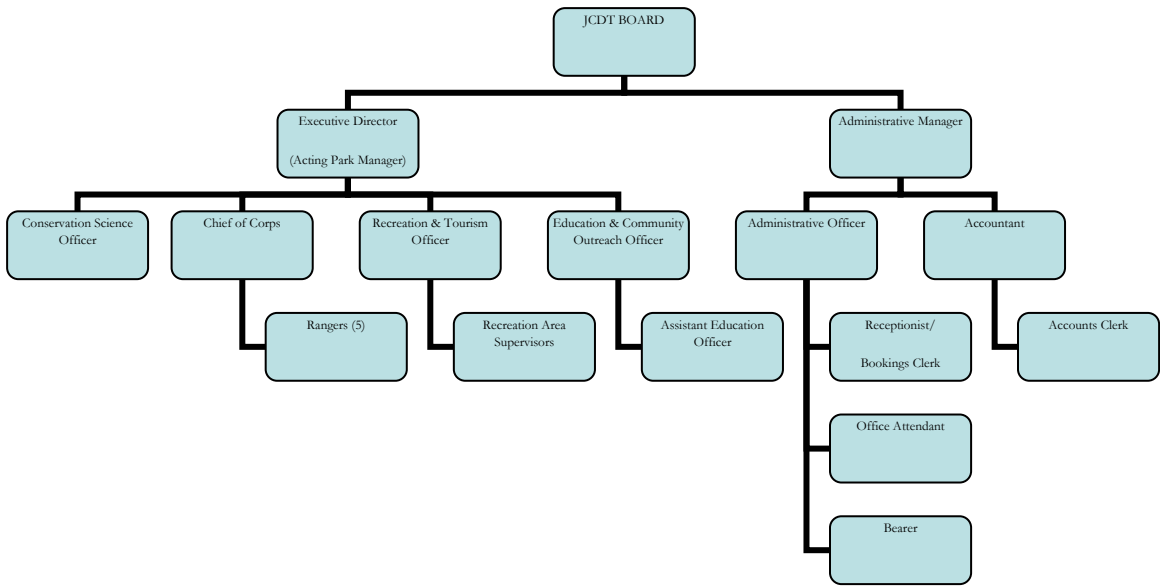
The use of the funds from the User/Entry Fee and also cabin rentals etc. for maintaining the Peak Trail, and operating the rest and accommodation sites at Portland Gap and the Peak is essential, as up to 2006/7 GOJ did not provide a management fee, or significant financial contribution to management of the national park. Prior to 2006/7, the GOJ's direct financial contribution amounted to only about 2% of the BJCMNP's budget, mainly in the form of assistance with vehicles. For the 2006/7 financial year, a subvention of about 25% of the Park's basic budget was provided, however in 2007/8 the subvention decreased to about 10%, and it is not clear that these funds will be awarded annually or in what amounts.

As indicated above, and similarly to Hollywell, the Peak Trail does not generate enough income to take care of its expenses. Further, the JA\$200 and US\$20 stated in the User Fee Regulations cannot be charged at this time, as visitors will not even pay the JA\$100 requested. Despite this, the Peak Trail is well used although there have been complaints raised regarding the poor condition, particularly of the facilities at the Peak. The wooden structures were damaged by Hurricane Gilbert and further decimated by use of the lumber for firewood, by hikers. The concrete structure has lost its roof, doors and windows in a similar fashion and the concrete is crumbling in sections.

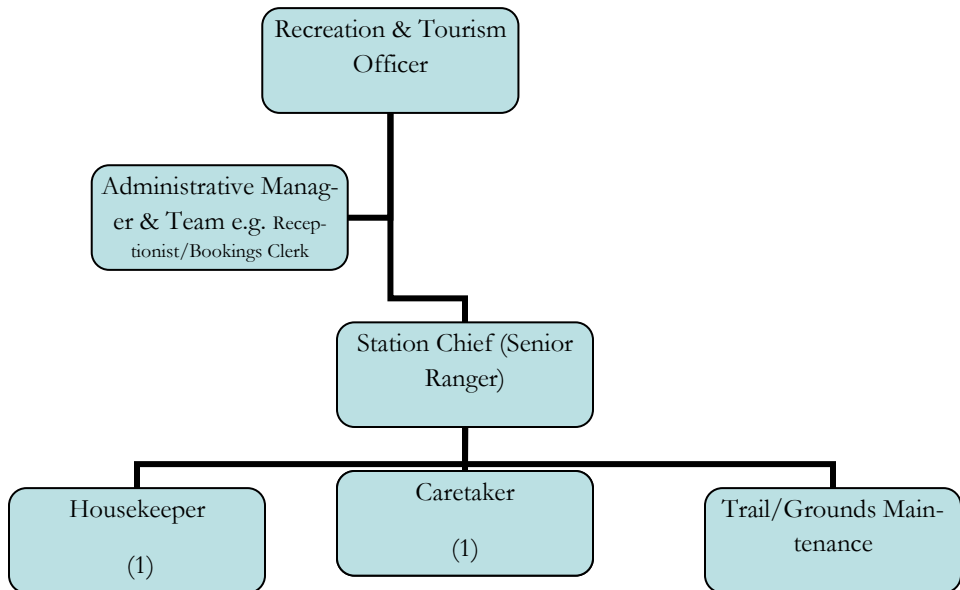
The Strategies and Actions section addresses steps to be implemented to better deal with income generation as well as resource upgrading and maintenance.

### **12.1 Structure**

JCDT's structure is as follows:



Portland Gap’s administrative and management structure is as follows:-





## ***11.2 Existing Capacity***

Currently, as at September, 2007 a senior Park Ranger – is assigned as Station Chief for the Portland Gap Ranger Station, however this does not effectively fill the position as the Station Chief currently only visits the site about twice a month on week-end visitor management duties and another Ranger alternates duties on the other week-ends. This results in a lack of continuity and focused attention. All the other staff are part-time casual labour working at the most four days per week. All staff, workers and service personnel e.g. plumber, carpenter, are from the neighbouring communities.

### ***11.2.1 Current Management***

The management of the Peak Trail, Portland Gap and the Peak is described by the two diagrams above.

With respect to visitor management, the majority of hikers are believed to visit on weekends, and these are mainly Jamaicans. There are some visitors during the week, mainly from the local guesthouses, and many of these are non-residents. Many of the hikers contact the JCDT prior to their visit, mainly because they wish to book the rustic dormitory style accommodation at Portland Gap or to organise a trail guide. These hikers pay all fees at JCDT's office in Kingston, and show a receipt at Portland Gap, but the other hikers should pay the caretaker or Ranger on duty.

### ***11.2.2 Staff***

There are currently 4 positions on staff at Portland Gap– the Station Chief, caretaker, one housekeeper and one grounds staff. Ms. Rudolph Poyser (a senior Ranger) is the Station Chief assigned responsibility for Portland Gap. He is generally responsible for supervising maintenance of the property and visitor management. In addition, at JCDT's office in Kingston, there is a receptionist/bookings clerk, administrative officer, administrative manager and executive director who each spend between 15% - 25% of

their time dealing with site development and management e.g. marketing, fund-raising and project management.

Records are kept and a monthly report is prepared detailing the numbers of visitors (resident and non-resident, adult and child) and the income from entry fee, accommodation, special packages etc. The JCDT's receptionist also acts as the BJCMNP Bookings Clerk, answering queries, taking bookings and sending out invoices. JCDT's Administrative Officer checks the records, prepares the monthly reports and otherwise supervises and assists the Bookings Clerk. JCDT's Administrative Manager provides assistance and direction, particularly with respect to billing for special packages.

### ***11.3 Resource Monitoring and Evaluation***

It has been demonstrated that hiking trails are prone to erosion, muddiness, shortcutting switchbacks, vegetation alteration (cover and species composition), soil compaction and soil litter cover changes. The effect of the trail on these parameters needs to be monitored to prevent any further deterioration of the trail and the adjacent forest.

Monitoring of the Peak Trail and environs should be conducted at least twice annually – once in late June before summer hiking starts (the beginning of the hurricane season), and in November before Christmas hiking (the end of the hurricane season). Monitoring should be comprehensive, involving a multi-disciplinary team if necessary, in order to cover all relevant components. Park Rangers with a senior officer should walk the trails and conduct the following checks, using GPS units to record location and a map of the trail, to make notations regarding necessary repairs etc. This should include taking necessary measurements to allow for estimating cost of trail repairs:-

- Check drains - are they clear and allowing for free passage of water off the trail ?
- Are there ruts or other evidence of erosion?
- Are there muddy areas?
- Width of trail – measure every 0.5 miles
- General observations – amount of leaf litter on trail vs edge of trail or forest verge; types of vegetation on centre of trail, edge and forest, signs of wildlife, signs of human use.

A report should be prepared based on this information and provided to Park management to guide necessary repairs.

UWI should be encouraged to repeat the botanical studies – using transects and quadrats over various sections of the trails from within the tread, the edge of the tread and in the forest. This will provide significant information over the years.

Site	Conservation Target - Ecosystem	Conservation Target - Species	Threat	Root Cause	Strategy	Description (How specific threats are addressed)
<u>Blue Mountain Peak Trail</u>	-	-	N.B. Threats not specific to an ecosystem			
-	<b>Mull Ridge</b>		Invasive species e.g. <i>Pitopsisporum</i>	- spread of existing plants - clearing of areas by trampling, fires, agriculture	Invasive Species eradication Lookout Point to Portland Gap focal area	Invasive species eradication programme - building on existing programme.
-		-			Impromptu trails	Training of community tour guides/trail maintenance crew (Trail Wardens?)
-	<b>Gully Forest</b>	-	Fires	- wind spreads nearby fires from agricultural land preparation near trail	Fire Management Education	Community meetings, posters (PARE), field workshops with farmers re: use of fire
-		-		- arsonists, idlers	Enforcement	Trail Wardens, Park Rangers
-	<b>High Altitude</b>	<u><b>Danthonia domingensis, Lobelia martagon, Odontocline lacinata</b></u>	Clearing for Agriculture	- encroaching farmers - escalation, coffee	Boundary demarcation	Issue of boundary demarcation being addressed by FD/JCDT through PARE
-		-			Alternative & Sustainable Livelihood Training	Appropriate farming practices
-		-			Enforcement	
-	<b>Dry Slope</b>	<b>Redwood, Burn Nose</b>			Garbage Receptacles	

## **I2.0 Summary**

Trails have long been a part of the Jamaican landscape facilitating movement of people and goods over difficult terrain. Some trails were always trails and others have evolved from parochial roads falling into disrepair. The Blue Mountain Peak Trail first facilitated communication with remote agricultural properties and has become the ultimate Jamaican outdoor nature experience taking hikers to the island's highest point. The trail should be maintained to allow persons to enjoy the beauty of the landscape and contact with flora and fauna found at high altitudes whilst preserving the unique ecosystems and species and preventing incursion of alien invasive species. A structured monitoring plan has been outlined to determine current baseline conditions to assess future changes and safeguard against further resource degradation.

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**UNESCO**  
**Nomination Dossier**

The Cultural and Natural Heritage  
of the  
**Blue and John Crow**  
**Mountains**

**Volume III – Further Appendices**  
**Legislation, Status Report, Other Plans**

## **APPENDICES VOLUME III**

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### **LEGISLATION**

Natural Resources (National Parks) Regulations 1993

Natural Resources Conservation Authority (Blue and John Crow Mountains National Park) (Declaration) Order, 1993)

Natural Resources Conservation Authority (Blue and John Crow Mountains National Park) (User Fees) Regulations 2003)

The Forest Act 1996

National Forest Management and Conservation Plan 2001

The Forest Regulations 2001

Jamaica National Heritage Trust (JNHT) Act 1985

Designation as Protected National Heritage – Blue & John Crow Mountains Cultural Heritage Site

Blue & John Crow Mountains Cultural Heritage Site Preservation Scheme

### **STATUS REPORTS**

Annual reports on status of annual workplans 2005, 2006 and 2007

Bird Monitoring Reports

Freshwater Monitoring Reports

### **OTHER PLANS**

Portland Sustainable Development Profile (extract Chapter 4: The Natural Environment)

Kingston and St Andrew Sustainable Development Plan (extract Sections 4.2 – 4.10)

**THE NATURAL RESOURCES CONSERVATION  
AUTHORITY ACT**

**REGULATIONS**  
*(under section 38)*

**THE NATURAL RESOURCES (NATIONAL PARKS) REGULATIONS, 1993**

*(Made by the Minister on the 26th day of February, 1993)*

L.N. 9a/93  
70H/2003

**PRELIMINARY**

1. These Regulations may be cited as the Natural Resources (National Parks) Regulations, 1993. Citation.

2. In these Regulations— Interpretation.

“authorized officer” means any officer employed to the Customs Department, any member or officer of the Jamaica Constabulary Force, any member or officer of the Jamaica Defence Force, any public officer designated a Fishery Inspector under the Fishing Industry Act, a person appointed a forest officer under the Forest Act, any person appointed a park manager or designated a national park ranger;

“national park ranger” means a person so designated pursuant to regulation 30;

“park manager” means a person appointed under regulation 29;

“sell” includes any attempt or offer to sell, barter, cause or permit to be sold or offered for sale, have in possession for sale or send or receive for sale;

“service” includes any accommodation or transportation.

**OFFENCES**

3.—(1) A person shall not, except with the written permission of a park manager, cause or allow an animal to enter a national park. Animals.

(2) Notwithstanding paragraph (1)—

(a) a person in need of the assistance of a guide dog may bring such dog into a national park if such dog is securely held or fastened to a leash which does not exceed 4 feet in length; or

- (b) a person may ride or lead a horse or donkey in a national park in any area set aside for that purpose by the park manager.

Litter.

**4.—(1) A person shall not, in a national park—**

- (a) deposit or leave any litter, bottle, broken glass, china, pottery, plastic article, rubbish, refuse or other waste material, except in an area or receptacle provided for that purpose;
- (b) deposit, discharge or leave any noxious, noisome, offensive or polluting substance, matter or thing;
- (c) deposit or leave any offal, dead animal, dung or other filth;
- (d) deposit in any receptacle provided for litter any domestic garbage;
- (e) willfully break any article of glass, china, pottery, plastic or other brittle material;
- (f) deposit, discharge or leave any material, mineral waste or other industrial waste or by-product thereof, oily liquids, acids or other deleterious, toxic or polluting substance.

(2) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

Pollution of waters.

**5.—(1) A person shall not pollute or cause to be polluted any water in a lake, stream, river, well, dam, reservoir or in any container.**

(2) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding fifty thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine and imprisonment.

Abandoned property.

**6. A person shall not, except with the written permission of a park manager, abandon or leave unattended for more than twenty-four hours, any personal property, in a national park.**

Disorderly behaviour.

**7.—(1) A person shall not behave in a disorderly, offensive or indecent manner or use any offensive or indecent language or create any disturbance in a national park.**

(2) A person shall not obstruct, disturb, interrupt or annoy any other person engaged in the proper use of a national park nor behave in a manner likely to create any disturbance.

(3) A person shall not in a national park throw, roll or discharge any stone, substance or missile to the danger of any person, animal or thing.

(4) A person shall not deface, paint, write, cut names or letters or otherwise make marks or affix bills on trees, rocks, gates, fences, buildings, signs or other property in a national park.

(5) A person shall not, within a national park, play or operate a radio, tape recorder, gramophone or other musical instrument in a manner which disturbs or is likely to disturb other users of the park.

(6) A person who contravenes a provision of this regulation commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

**8. A person who—**

- (a) refuses, neglects or fails to comply with any direction given to him by an authorized officer;
- (b) refuses or fails to produce any licence or permit that he is required to produce by an authorized officer;
- (c) assaults, resists or obstructs an authorized officer in the execution of his duty;
- (d) uses threatening language or behaves in a threatening manner towards an authorized officer in the execution of his duty;
- (e) refuses to leave a national park when ordered to do so by an authorized officer;
- (f) removes, alters or interferes with any article seized under these Regulations without the authority of an authorized officer; or
- (g) impersonates an authorized officer,

Refusal to  
comply with  
orders.

commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

## Camping.

9.—(1) A park manager may establish designated camping areas in a national park.

(2) A park manager may display signs or notices in any national park prohibiting or restricting the use of any site for camping or prohibiting or restricting the use of a caravan or similar vehicle.

(3) A person using a site for camping, or using a caravan or other vehicle, in any national park who fails to comply with a prohibition or restriction contained in a sign or notice displayed pursuant to paragraph (2) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

## Use of vehicles.

10.—(1) A person shall not take, drive, use or leave a vehicle in a national park in contravention of a prohibition or restriction contained in a sign or notice.

(2) A person shall not, except with the written permission of a park manager, take, drive, or use a vehicle on a road or track on any land that has been closed by a barrier erected by or under the authority of the Authority.

(3) A person shall not, except with the permission of a park manager, take, drive, or use any vehicle in a national park except on a road designated for that purpose.

(4) An authorized person may, for the purpose of regulating the use of any road within a national park or for the purpose of avoiding inconvenience or risk of danger to persons using a national park, give directions to any person driving or in charge of a vehicle prohibiting its being taken or being allowed to remain on any road, or any part of a road in a national park, or requiring its removal from any such road or part thereof.

(5) A person driving, using, or in charge of a vehicle in a national park who contravenes or fails to comply with—

- (a) a prohibition or restriction contained in a sign or notice displayed pursuant to paragraph (1);
- (b) any directions contained in a sign or notice so displayed; or
- (c) any directions given by an authorized person pursuant to paragraph (4),

commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

11.—(1) A person shall not, except with the written permission of the park manager, in a national park—

General provisions as to preservation of national parks.

- (a) erect any building or structure; or
- (b) make or mark out any track or route.

(2) A person who contravenes the provisions of paragraph (1), commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding ten thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine and imprisonment.

12.—(1) A person shall not, in a national park, light, maintain or use a fire other than a domestic fire in an area designated for that purpose.

Fires.

(2) A person who contravenes the provisions of paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding fifty thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine and imprisonment.

13.—(1) A person commits an offence who, except with the written permission of the park manager—

Other offences.

- (a) plants any plant, or sows or scatters the seed of any plant, or introduces any substances that he knows or ought to have known is injurious to plant or animal life, in any national park; or
- (b) occupies or uses any land in a national park for cultivation or any other purpose; or
- (c) wilfully damages or defaces any fence, building or equipment in any national park; or
- (d) takes or destroys or wilfully injures or in any manner disturbs or interferes with any protected animal or the nest or eggs of any protected bird as specified in the Wild Life Protection Act in any national park; or



(e) wilfully cuts or destroys any plant in a national park.

(2) A person shall not—

- (a) when required by notice from the park manager to remove from a national park any animal owned by him or under his control, fail to do so within the period specified in the notice; or
- (b) being the driver of any vehicle that is illegally in a national park or part thereof, fail or refuse to remove it from such national park or part thereof when required to do so by any national park ranger; or
- (c) do or cause to be done any act, matter, or thing for which such written permission is required under these Regulations; or
- (d) unlawfully alter, obliterate, deface, pull up, remove, interfere with, or destroy any boundary marks, stamp, mark, licence, lease, permit or other right or authority issued by the Authority.

(3) A person shall not use, receive, sell, or otherwise dispose of any property knowing it to have been unlawfully removed from any national park.

(4) A person shall not, except with the written permission of the park manager have in his possession in a national park any chainsaw or any trap, net or other like object.

(5) A person who contravenes the provisions of paragraph (1), (2), (3) or (4) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding twenty thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

(6) A person convicted of an offence under this regulation shall, in addition to any penalty for which he may be liable for the offence, be liable to pay the cost of repairing or restoring any damage done to a national park, or to any plant growing therein or property of a national park affected by the commission of such an offence.

Commercial  
activities.

**14.—(1)** Any person who is desirous of—

- (a) hiring or selling anything;

- (b) producing anything for hire or sale;
- (c) providing any service for reward;
- (d) carrying on any other commercial activity,

in a national park shall apply to the Authority, in such manner as the Authority may determine, for a commercial licence or a concession permit specified in paragraph (3), as the case may require.

(2) An application for—

- (a) a commercial licence shall be accompanied by an application fee of five hundred dollars; and
- (b) a concession permit shall be accompanied by an application fee of one thousand dollars.

(3) On receipt of an application under paragraph (1) the Authority may grant—

- (a) a commercial licence; or
- (b) a concession permit,

to any person who made an application under paragraph (2) having regard to the following—

- (i) the designated space to be allocated for the activity;
- (ii) the type of commercial activity;
- (iii) the gross annual earnings of the applicant;
- (iv) the size of operation and facilities that are provided by the Authority.

(4) A person shall pay to the Authority on the grant of—

- (a) a commercial licence—
  - (i) an annual licence fee of ten thousand dollars; or
  - (ii) a monthly licence fee of one thousand dollars; or
  - (iii) a weekly licence fee of two hundred and fifty dollars; or

(b) a concession permit, a permit fee of five thousand dollars.

(5) A person to whom a concession permit is granted shall, in addition to the permit fee payable under paragraph (4) (b), pay an annual franchise fee calculated—

(a) as a fixed sum based on an estimate of gross earnings; or

(b) as a percentage of the estimated profits to be made by,

the holder of the concession permit.

(6) The percentage of estimated profits referred to in paragraph 5 (b) shall be determined by the Authority on an annual basis.

(7) A concession permit granted under paragraph (3) may be granted for a period not exceeding three years and a commercial licence may be granted for a period of one week, one month or one year as the Authority thinks fit.

(8) A person who contravenes the provisions of paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding forty thousand dollars, and where the offence is a continuing one to a further fine of five hundred dollars per day for each day on which the offence continues after conviction.

(9) The Authority shall not grant permission for the carrying on of commercial activities under this regulation unless in its opinion the activity is likely to benefit persons engaged in the lawful use of the park or the wider public in general.

**14A.** Where the carrying on of a commercial activity under regulation 14 involves the exclusive use of any part of a National Park, the location fee in respect to that activity, specified in part B of the Schedule, shall be payable by the person carrying on the commercial activity.

**15.—(1)** A person shall not, except with the written permission of the Authority or except in accordance with the provisions of a licence granted under any other enactment, carry out any operation for the extraction or mining of minerals in a national park.

(2) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding ten thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years.

16.—(1) The Authority may, on such terms as it thinks fit, grant a permit for—

Research and collection of objects and specimens.

- (a) the carrying out of research; or
- (b) the collection of natural objects or specimens, animal or plant life in a national park for educational, commercial, scientific or environmental purposes.

(2) The Authority shall not grant a permit under paragraph (1) where the carrying out of any research or collection is likely to damage the national park or interfere unduly with the management of the flora or fauna.

(3) An application for a permit under paragraph (1) shall be in the form set out as Form A in Part A of the Schedule and shall be accompanied by a fee of—

Schedule.  
Form A.

- (a) one thousand dollars, in the case of an application to conduct research or collect specimens for purposes other than commercial purposes; or
- (b) two thousand dollars in the case of an application to conduct research or collect specimens for purposes that are commercial.

(4) Where the application for a permit under paragraph (1) is approved, the applicant shall pay a fee of—

- (a) three thousand dollars where the permit is for research or collection of specimens for purposes other than commercial; and
- (b) six thousand dollars where the permit is for research or collection of specimens for purposes that are commercial.

(5) An application shall be made in respect of each natural object or species of plants or animals.

(6) The Authority shall grant a permit to carry out research in the form set out as Form B in Part A of the Schedule.

Form B.

Form C.

(7) The Authority shall grant a separate permit in the form set out as Form C in Part A of the Schedule for each natural object and each species of plant or animal.

(8) Where the Authority refuses to grant a permit under paragraph (1), it shall, in writing, inform the applicant of the reasons for the refusal and the right of appeal under section 35 of the Act.

(9) A person who carries out any form of research or collects any object, specimen, animal or plant life in a national park without a permit issued under this regulation commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding ten thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine and imprisonment.

Parking, etc. of  
vehicles and  
mooring of vessels.

**17.—**(1) A person shall not, in a national park—

- (a) park a vehicle or moor a vessel in any place other than in a parking lot, mooring area or a place designated for such purpose by the Authority;
- (b) park a vehicle or moor a vessel in such manner as to obstruct or to be a danger to persons in the national park;
- (c) abandoned a vehicle or vessel or leave it in such a position, condition or circumstances that it appears to be abandoned.

(2) A vehicle or vessel shall be deemed to have been abandoned if it is left unattended for a period or forty-eight hours or more.

(3) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding two thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

Exemptions.

**18.—**(1) In granting a permit under these Regulations with respect to the carrying on of an activity, the park manager may exempt the person to whom the permit was granted from such of the provisions of these Regulations as are necessary to enable such person to carry on the activity.

(2) An exemption under this regulation may be in general terms or may be limited to the activities, area and period specified in the permit.

**19.—**(1) A person shall not fish in a national park without the written permission of the park manager; and such permission may contain any term or condition as is necessary for the management of the fishing resources of the park. Fishing.

(2) The Authority may declare in writing that an area of water in a national park is an area where, at any time or for a period specified by the Authority in such declaration, fishing is prohibited.

(3) The Authority may declare in writing that an area of water in a national park is an area in which fishing is allowed subject to conditions relating to—

- (a) the kind of fish which may be caught or, as the case may be, the kind of fish in respect of which fishing is prohibited;
- (b) the number of fish that may be caught by a person in a day;
- (c) the type of fishing equipment that may be used; or
- (d) the devices which may be used for fishing.

(4) A person shall not fish in an area of water in a period during which fishing is prohibited under paragraph (2).

(5) A person shall not, in a national park, use any poisonous substance, electrical charges or any other similar device for the catching or killing of fish.

(6) A person who contravenes paragraph (1), (4) or (5) commits an offence and is liable to a fine not exceeding ten thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine and imprisonment.

(7) A person who contravenes any term or condition imposed by the Authority under paragraph (1), (2) or (3) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment for a term not exceeding two years or to both such fine and imprisonment.

**20.—**(1) A person shall not wilfully mark, deface or injure in any way, or remove or interfere in any way with any mooring, buoy, national park sign, notice or placard, whether temporary or permanent, or with any monument, stake, post or other boundary marker in any national park. Markers.

(2) A person who contravenes paragraph (1) commits an offence

and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding two years or to both such fine and imprisonment.

**Signs.**

**21.—**(1) A person shall not, except with the written permission of the Authority, erect, exhibit, display or cause to be erected, exhibited or displayed in a national park any notice, sign, slogan or other device containing any advertising or other kind of message.

(2) A person shall not, except with the written permission of the Authority, remove, damage, obscure or otherwise interfere with a notice, sign, slogan or other device, erected by the Authority in a national park.

(3) The park manager may authorize the erecting, placing or displaying of signs in a national park for the purpose of—

- (a) regulating, prohibiting or restricting the stopping or parking of vehicles, or defining the manner in which vehicles may be parked;
- (b) designating a part of a national park as an area within which the parking of vehicles is permitted or the mooring of vessels;
- (c) designating a part of a national park as an area within which camping is permitted;
- (d) conveying information or warning to persons using such national park.

(4) A sign erected for the purpose of designating a part of a national park as an area within which the parking of vehicles is permitted shall, in addition to the words designating that part, bear the words "PARKING AREA".

(5) A sign erected for the purpose of designating a part of a national park as an area within which camping is permitted shall, in addition to the words designating that part, bear the words "CAMPING AREA".

(6) A sign, or other device erected, placed or displayed in a national park indicating that it has been approved by the Authority shall, unless the contrary is established, be taken to have been erected, placed or displayed, as the case may be, by the Authority.

(7) A person who contravenes paragraph (1) or (2) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars or to imprisonment with or without hard labour for a term not exceeding one year or to both such fine and imprisonment.

(8) Any person who wilfully defaces, destroys, damages, obliterates, pulls up, removes, obscures or otherwise interferes with any sign erected, placed or displayed pursuant to paragraph (3) commits an offence.

22. Where a person is convicted of an offence of removing any property from, or causing any damage to, a national park or any plant or animal therein, the Court before which he is convicted may, in addition to any penalty for which he may be liable under these Regulations, order him to pay to the Crown the full market value or the cost of rehabilitation (whichever is the greater) as assessed by the Court, of the property removed or of the damage done to the national park or any plant or animal therein.

Court may order payment.

23. If, in the vicinity of a national park, any person is found in possession of any plant, stone, mineral, nest, animal, artifact, or relic, or any part thereof which belongs in that national park and upon being required by a national park ranger that person fails or refuses to give a satisfactory account of the manner in which he came into possession of such plant, stone, mineral, nest, animal, artifact or relic or part thereof, it shall be presumed that he has removed it from such national park.

Presumptions re offences.

24. A person who commits an offence against these Regulations for which no penalty is provided is liable on summary conviction before a Resident Magistrate—

Penalty for offences.

- (a) where the offence is committed by an individual, to imprisonment for a term not exceeding one year or to a fine not exceeding twenty thousand dollars and where the offence is a continuing one to a further fine not exceeding five hundred dollars per day for each day on which the offence continues after conviction;
- (b) where the offence is committed by a body corporate, to a fine



not exceeding twenty thousand dollars and where the offence is a continuing one to a further fine not exceeding five hundred dollars per day for each day on which the offence continues after conviction.

#### ENFORCEMENT

Seizure and  
forfeiture.

**25.—(1)** If any authorized officer has reasonable cause to suspect that any vehicle, vessel, article or thing is being used or has been used in the commission of an offence against these Regulations, he may seize and detain such vehicle, vessel, article or thing and may—

- (a) without a warrant, search such vehicle, vessel, article or thing; and
- (b) if such search reveals evidence that the vehicle, vessel, article or thing is being used or has been used for the commission of any offence, seize and detain such vehicle, vessel, article or thing.

(2) Where any vehicle, vessel, article or thing is seized pursuant to paragraph (1) and—

- (a) any person is convicted of an offence against these Regulations; and
- (b) the Court is satisfied that—
  - (i) the person owns the vehicle, vessel, article or thing used in the commission of the offence; or
  - (ii) the owner thereof permitted it to be so used; or
  - (iii) the circumstances are otherwise such that it is just so to do,

the Court shall, upon the application of the Authority, order the forfeiture of the vehicle, vessel, article or thing.

(3) On the application of the Authority before a Resident Magistrate's Court having jurisdiction in the area where a vehicle, vessel, article or thing is seized pursuant to paragraph (1), the Court may, notwithstanding that the conditions mentioned in paragraph (2) have not been satisfied, order the forfeiture of the said vehicle, vessel, article or thing if the Court is satisfied that—

- (a) the vehicle, vessel, article or thing has been abandoned; or
- (b) the circumstances in which it was seized give reasonable cause to suspect that it was being used or has been used in the commission of an offence against these Regulations; or

(c) it is otherwise just to do so.

(4) Where the Authority proposes to apply for forfeiture of a vehicle, vessel, article or other thing under paragraph (3), it shall, subject to paragraph (5), give to any person who, to its knowledge, was at the time of the seizure the owner thereof, notice of the seizure and of the intention, after the expiration of thirty days from the date of the notice, to apply for forfeiture thereof and of the grounds therefor.

(5) Notice shall not be required under paragraph (4) if the seizure was made in the presence of the owner or any of the owners of the vehicle, vessel, article or thing seized or any servant or agent of the owner.

(6) Without prejudice to any other form of service, notice under paragraph (4) may be published in a daily newspaper circulating in the Island.

(7) Any person having a claim to any vehicle, vessel, article or thing seized under this regulation may appear before the Court at the hearing of the application and show cause why an order for forfeiture should not be made.

(8) Where, at the hearing of an application pursuant to paragraph (3), no person appears before the Court to show cause why an order for forfeiture should not be made, the Court shall presume that the vehicle, vessel, article or thing has been abandoned.

(9) If, upon the application of any person prejudiced by an order made by the Court under paragraph (2) or (3), the Court is satisfied that it is just to revoke such order, the Court may revoke such order upon such terms and conditions as it deems appropriate, and without prejudice to the generality of the foregoing, shall require such person, to pay in respect of storage, maintenance, administrative expenses, security and insurance of the vehicle, vessel, article or thing such charges as may be charged by the person in whose custody the vehicle, article or thing is and is approved by the Court, not exceeding one and one-half times the value thereof as determined by the Court.

(10) An application to the Court under paragraph (9) for the revocation of an order, shall be made within thirty days of the date of the order or within such greater time as the Court may allow, not exceeding six months from the date of the order.

Arrest without  
warrant.

**26.—(1)** An authorized officer may, without warrant, arrest any person where the authorized officer reasonably believes that—

- (a) the person has committed an offence against these Regulations; and
- (b) proceedings against the person by summons would not be effective.

(2) Where an authorized officer arrests a person under paragraph (1), he shall produce his identity card for inspection by that person unless it is not reasonably practicable to do so.

(3) Where a person is arrested under paragraph (1), an authorized officer shall immediately bring the person, or cause him to be brought, to the nearest police station.

(4) Nothing in this section shall prevent the arrest of a person in accordance with any other law.

#### ZONES

Zones.

**27.—(1)** The Authority may, as it thinks fit, zone areas of a national park and may—

- (a) assign a name or other designation for each zone;
- (b) make provisions with respect to the purposes for which each zone may be used; and
- (c) attach terms and conditions with regard to the use of each zone.

(2) A person who uses a zone for a purpose other than one for which provision is made or contravenes any term or condition with regard to the use thereof commits an offence.

#### MANAGEMENT PLANS

Preparation  
of manage-  
ment plans.

**28.—(1)** As soon as is reasonably practicable after a national park has been declared, the Authority shall prepare or cause to be prepared, a plan of management in respect of such national park.

(2) A plan of management prepared pursuant to paragraph (1) may include provisions in relation to any area that is proposed to be added to such national park so, however, that such provisions shall not have effect until such area is added to the national park.

## ADMINISTRATION

**29.**—(1) Subject to paragraph (2), the Authority may appoint a park manager for each national park who shall be responsible for the day to day management of the national park subject to the direction of the Authority.

Appointment of manager.

(2) The Authority may appoint any other person to assist the park manager in the performance of his functions under these Regulations.

**29A.** A park manager may designate and open hiking trails for use by the public for recreational purposes and may close such trails in the interest of public safety.

**30.**—(1) The Authority may from time to time, where it considers it expedient to do so, designate as national park rangers, for the purposes of these Regulations and on such terms and conditions as it thinks fit—

Designation of national park ranger.

- (a) a member of staff of the Authority; or
- (b) any other person who by training or experience is qualified to be so designated.

(2) The designation of a person as a national park ranger under this regulation shall be notified in the *Gazette*.

**31.**—(1) The chairman shall issue to each national park ranger, an identity card signed by the Executive Director and containing a photograph of the national park ranger and his signature.

Identity card.

(2) A person to whom an identity card is issued under paragraph (1), shall return that card to the Executive Director on the termination of his employment as a national park ranger.

**32.**—(1) The functions of a national park ranger shall be to patrol the area of each national park, to protect the resources of that national park and without prejudice to the generality of the foregoing, to—

Functions of national park ranger.

- (a) patrol and monitor the various zones of the national park;
- (b) enforce these Regulations;
- (c) maintain patrol vehicles, marking facilities and trails;
- (d) provide first-aid, emergency or rescue assistance to national park users in the event of accident or injury; and
- (e) assist in the conduct of environmental monitoring programmes.

(2) In the exercise of his functions within the national park, a national park ranger may—

- (a) require any person to refrain from any unlawful act or any act which in his opinion appears likely to result in the damage or destruction of any property, real or personal, which is owned by, in the possession of, or under the management of the national park or any user of the national park;
- (b) require any person whom he finds committing or whom he reasonably suspects of having committed any such act to state his full name and true place of residence or leave the national park immediately;
- (c) require the holder of a permit or licence to produce his permit or licence, as the case may be, for inspection;
- (d) seize any weapon, trap or device of any kind with which an offence appears to have been committed;
- (e) search any person whom he may reasonably have cause to suspect of contravening any provision of these Regulations.

**33.** For the purposes of these Regulations a member or officer of the Jamaica Constabulary Force, the Jamaica Defence Force and the Island Special Constabulary Force respectively shall be deemed to be a national park ranger.

**34.—(1)** The Authority may by notice published in the *Gazette* appoint an Advisory Council (hereinafter referred to as the Council) for national parks.

(2) The Council appointed under paragraph (1) shall consist of—

- (a) the Executive Director of the Authority or his nominee;
- (b) the park manager of each national park;
- (c) a representative of the Forestry Division of the Ministry of Agriculture;
- (d) a representative of the Fisheries Division of the Ministry of Agriculture;
- (e) a representative of the Jamaica Conservation Development Trust;
- (f) a representative of the Ministry of Finance and Planning;
- (g) a representative of the Ministry of Production, Mining and Commerce;
- (h) a representative of the National Environment Societies Trust;
- (i) a representative of the Planning Institute of Jamaica;
- (j) a representative of the Jamaica National Heritage Trust;
- (k) a representative of the Town Planning Department; and
- (l) four other persons of whom one shall be qualified in geology.

(3) The members of the Council shall hold office for such period not exceeding two years as the Authority may determine and shall be eligible for reappointment.

(4) The Authority shall appoint one of the members of the Council to be chairman thereof.

(5) The Authority may appoint any person to act in place of the chairman or any other member of the Council in the case of the absence or inability to act of the chairman or other member.

(6) The meetings of the Council shall be held at such time and such places as the chairman may from time to time appoint.

(7) Five members of the Council shall form a quorum at any meeting.

(8) The decisions of the Council shall be by a majority of the members, and in addition to an original vote, the chairman shall have a casting vote in any case in which the voting is equal.

(9) The functions of the Council shall be to make recommendations to the Authority on the preservation of the ecological system of each national park and, without prejudice to the generality of the foregoing, to—

- (a) advise the Authority on matters relating to the administration, control and preservation of the resources of each national park and for the development of such national park on a national basis;
- (b) advise the authority on a management plan for the proper operation and management of each national park and to review that plan annually;
- (c) advise the Authority on management strategies to ensure that such management strategies achieve their desired effect; and
- (d) institute programmes to raise revenue for each national park.

(10) In performing the functions specified in paragraph (9), the Council may—

- (a) advise on educational programmes to ensure community involvement in the preservation of each national park;
- (b) advise the Authority on zoning and the establishment of boundaries in each national park.

**35.** A certificate by the Executive Director that an area is within a national park shall be *prima facie* evidence of that fact.

Certificate.

**36.** The Authority shall be entitled to recover any debt due to the Authority as a civil debt in a Resident Magistrate's Court, notwithstanding any limitations as to amount recoverable under the Judicature (Resident Magistrates) Act.

Recovery of civil debts.

SCHEDULE

(Regulations 14A and 16)

PART A

FORM A

(Regulation 16 (3))

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES (NATIONAL PARKS) REGULATIONS, 1993

*Application for Permit to Carry Out Research or for the Collection of Natural Objects or Specimen Animal or Plant Life in a National Park*

A. *General Information*

- 1. Name of Applicant(s) \_\_\_\_\_
- 2. Postal Address of Applicant(s) \_\_\_\_\_
- 3. Telephone No(s) \_\_\_\_\_ Facsimile No(s) \_\_\_\_\_  
E-mail Address \_\_\_\_\_

B. *General Projects Information*

- 4. Title of Project \_\_\_\_\_
- 5. Agency or Institution on behalf of which the Application is being made, if any: \_\_\_\_\_
- 6. Name and Institutional Address of Principal Investigator: \_\_\_\_\_
- 7. Qualification of Principal Investigator: \_\_\_\_\_
- 8. Names and qualifications of Associates who will work on the project (attach very brief C.Vs): \_\_\_\_\_

PART A, *contd.*

FORM A, *contd.*

9. Why was Jamaica selected as the research site?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

C. *Research Project Information*

1. Give short description of the proposed research including its objectives (a copy or separate sheet may be attached if required):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. State precisely the proposed location of the project and the site(s) at which research will be conducted:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. State the duration of the project:

\_\_\_\_\_

4. Expected output at end of the project:

\_\_\_\_\_  
\_\_\_\_\_

5. What kinds of materials or information are to be collected or produced?

- \_\_\_\_\_ Specimen or Sample Collection
- \_\_\_\_\_ Recordings (Audio/Video)
- \_\_\_\_\_ Photographs
- \_\_\_\_\_ Written notes
- \_\_\_\_\_ Computer entries
- \_\_\_\_\_ Reports
- \_\_\_\_\_ Articles and Scientific Papers
- \_\_\_\_\_ Other outputs (specify)



PART A, *contd.*

FORM A, *contd.*

- 6. Name the slated transitional and final destinations to which all information, results, specimens and materials are to be sent.

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- 7(a). Is your project meant to facilitate commercial, industrial or exclusively academic purposes?

- 7(b). *NOTE: Commercial purposes here include but are not limited to:*

- (i) The use of samples or specimens, photographic and audio-visual materials and illustrations, for commercial purposes.
- (ii) Chemical, pharmacological and biotechnological study.
- (iii) The use of materials or specimens for propagation or breeding purposes.

Academic purposes here refer to only taxonomic, conservation, ecological and biogeographical investigations.

- 8. Proposed linkage(s) with local institution(s), if any. (State whether each institution has been formally approached and indicate very briefly its response).

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- 9. Indicate any training component for local counterparts:

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- 10. Do you intend to conduct research on lands legally owned or occupied by indigenous or local communities? If so, where?

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- 11. Please state briefly how Jamaica will benefit from the research including levels of compensation be they in the short, medium or long term which will accrue to Jamaica (e.g. cash, sharing of future research, production possibilities, royalties, equipment and materials, etc.):

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PART A, *contd.*

FORM A, *contd.*

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D. *Collection of Specimens*

Researchers desiring to collect specimens should provide the following information:

1. What are the scientific and common names of the organisms to be collected (if any are endemic to Jamaica or non-classified, i.e. a new species, please state):

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2. Indicate the total number of specimens of each species which is required for collection (If animals are to be collected, state sex):

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3. Number of specimens to be collected:  alive  dead

- 4a. Frequency of collection:

weekly  monthly  quarterly  semi-annually  annually

- 4b. Please indicate the collection period:  Day  Month  Year

- 5a. Method of collection to be employed:

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- 5b. Experience in collection of specimen:

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6. Method of storage/transportation of specimen: \_\_\_\_\_

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7. Purpose for which specimens are to be collected:

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PART A, *contd.*

FORM A, *contd.*

8. If specimens are to be exported, indicate the institution at which they are to be deposited:

9. Specimens will be:

a. Deposited in a national institution:  yes  no

If yes, name and address of institution: \_\_\_\_\_

b. Used for laboratory experiments:  yes  no

If yes, name and address of institution: \_\_\_\_\_

c. Re-introduced:  yes  no

If yes, name of location: \_\_\_\_\_

*I/We hereby apply for permission to conduct this research and I/We agree to submit to the Natural Resources Conservation Authority (NRCA) two (2) copies of all publications and/or other written reports arising from this research. I/We also understand that depending on the type of research to be conducted in Jamaica a Material Transfer Agreement may need to be negotiated.*

\_\_\_\_\_  
*Signature of Applicant*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Endorsed by*

\_\_\_\_\_  
*Date*

FORM B

(Regulation 16 (6))

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES (NATIONAL PARKS) REGULATIONS, 1993

*Permit to Conduct Research*

Permit No.: \_\_\_\_\_

Pursuant to an application under regulation 16 (5) of the Natural Resources (National Parks) Regulations, 1993 the Authority hereby grants a permit to—

Name of Permittee \_\_\_\_\_

Address of Permittee \_\_\_\_\_

Type of Research \_\_\_\_\_ in \_\_\_\_\_

Name and Location of Research Site \_\_\_\_\_

\_\_\_\_\_ Parish \_\_\_\_\_

For the purpose herein mentioned \_\_\_\_\_

Objectives \_\_\_\_\_

Type of specimen \_\_\_\_\_

Valid from \_\_\_\_\_ to \_\_\_\_\_

This Permit is subject to the conditions contained in the Schedule.

Any contravention of any condition(s) may result in suspension or revocation of this Permit.

*N.B.: A person who carries out any form of research or collects any objects, specimens of animal or plant life in a National Park without a valid permit commits an offence under Regulation 16 (8) of the National Parks regulations.*

SCHEDULE

(Specify conditions)

Dated

SEAL

\_\_\_\_\_  
*Authorized Officer*

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES (NATIONAL PARKS) REGULATIONS, 1993

*Permit to Conduct Collection of Natural Objects and Specimens  
of Plants or Animals within the National Park*

Permit No.: \_\_\_\_\_

Pursuant to an application under regulation 16 (5) of the Natural Resources (National Parks) Regulations, 1993 the Authority hereby grants a permit to—

Name of Permittee \_\_\_\_\_

Address of Permittee \_\_\_\_\_

To carry out research in \_\_\_\_\_

Location of Research Site \_\_\_\_\_ Parish \_\_\_\_\_

For the purpose herein mentioned \_\_\_\_\_

To collect \_\_\_\_\_ specimens

Type of specimens/objectives \_\_\_\_\_

Valid from \_\_\_\_\_ to \_\_\_\_\_

This Permit is subject to the conditions in the Schedule.

Any contravention of any condition (s) may result in suspension or revocation of this Permit.

*N.B.: A person who carries out any form of research or collects any objects, specimens of animal or plant life in a National Park without a valid permit commits an offence under regulation 16 (8) of the National Parks Regulations.*

SCHEDULE

(Specify conditions)

Dated

SEAL

\_\_\_\_\_  
*Authorized Officer*

## PART B

(Regulation 14A)

*Activities and Location Fee payable in respect of Research*

The location fees referred to are—

(a)	concerts, parties and any other such activities	..	..	..	..	..	\$60,000.00
(b)	the making of commercial films/ television, documentaries or advertisements	..	..	..	..	..	\$75,000.00
(c)	weddings and sporting events	..	..	..	..	..	\$30,000.00

**THE NATURAL RESOURCES CONSERVATION  
AUTHORITY ACT**

**ORDER**

*(under section 5 (1) (b))*

**The Natural Resources Conservation (Coral Spring-Mountain Spring Protected Area) Order, 1998** L.N. 72/98

*Similar Order made in respect of—*

*Palisadoes—Port Royal Protected Area* L.N. 73/98

*Portland Bight Protected Area* L.N. 60/99

*Ocho Rios Marine Park Protected Area* L.N. 117/99

*Mason River Protected Area* L.N. 129/2002

**ORDER**

*(under section 5 (1) (c))*

**The Natural Resources (Montego Bay Marine Park) Order, 1992** L.N. 41/92

*Similar Order made in respect of—*

*Negril Marine Park* L.N. 17/98

**ORDER**

*(under section 9 (1))*

**The Natural Resources (Prescribed Areas) (Prohibition of Categories of Enterprise, Construction and Development) Order, 1996** L.N. 191/96  
150/2003

**ORDER**

*(under section 33)*

**The Natural Resources Conservation (Negril Environmental Protection Area) (Declaration) Order, 1997** L.N. 131/97

**REGULATIONS**

*(under section 38)*

**The Natural Resources (Marine Parks) Regulations, 1992** L.N. 41/92  
7/2003

L.N. 9G/93  
70H/2003

The Natural Resources (National Parks) Regulations, 1993

L.N. 89H/96

The Natural Resources Conservation (Ambient Air Quality Standards) Regulations, 1996

L.N. 190/96

The Natural Resources Conservation (Permits and Licences) Regulations, 1996

L.N. 149A/2002

The Natural Resources (Hazardous Waste) (Control of Transboundary Movement) Regulations, 2002

L.N. 70G/2003

The Natural Resources (Blue and John Crow Mountains National Park) (User Fees) Regulations, 2003

ORDER  
(*under section 38*)

L.N. 9F/93

The Natural Resources Conservation (Blue and John Crow Mountains National Park) (Declaration) Order, 1993



THE NATURAL RESOURCES CONSERVATION  
AUTHORITY ACTREGULATIONS  
(under section 38 (1) (h))THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW  
MOUNTAINS NATIONAL PARK) (USER FEES) REGULATIONS, 2003

(Made by the Minister on the 16th day of June, 2003)

L.N. 706/2003

1. These Regulations may be cited as the Natural Resources Conservation (Blue and John Crow Mountains National Park) (User Fees) Regulations, 2003.

2. In these Regulations—

“annual pass” means a pass issued for a period of twelve months;

“hiking ticket” means a ticket issued by the Park Manager entitling the holder to utilize the main recreational hiking trail;

“recreational area” means that portion of the Park designated for recreational purposes and for which a pass is required for entry;

“Park” means the Blue and John Crow Mountains National Park, the boundaries of which are set out in the Natural Resources Conservation (Blue and John Crow Mountains National Park) (Declaration) Order, 1993;

“pass” means a pass issued by the Park Manager entitling the holder to utilize a recreational area in the Park.

3.—(1) Subject to paragraph (3) a person shall not enter the grounds of any recreational area unless he holds a valid pass which he has in his possession at the time of entry.

(2) The Park Manager may, in respect to the Hollywell Recreational Area issue—

(a) a pass for a single entry; or

(b) an annual pass for multiple entries.

(3) An authorized officer under the Natural Resources (National Parks) Regulations, 1993 may enter the Hollywell Recreational Area without a pass.

(4) The Park Manager with the approval of the Authority may exempt any person from the provisions of paragraph (1).

(5) The fees specified in Part I of the Schedule shall be payable in respect to a pass issued under this regulation.

4. Every person who intends to utilize the main recreational hiking trail from Portland Gap to the Blue Mountain Peak shall pay the appropriate fee set out in Part II of the Schedule.

5.—(1) Every person who intends to camp in a designated campground in the Park shall pay the fee specified in Part III of the Schedule.

(2) A person shall not camp in any area of the Park unless such an area is a designated campground.

6.—(1) The Park Manager shall establish an account into which fees collected under regulations 3, 4 and 5 shall be deposited.

(2) The Park Manager shall within three months after the end of each calendar year present to the Authority an audited report of the account.

(3) The Authority shall within two months after receiving the report forward a copy thereof to the Minister.

SCHEDULE

(Regulations 3, 4 and 5)

PART I

*Fees payable for passes issued under  
Regulation 3*

Type of Pass	Amount of Fee
<i>Single Entry</i>	
1. Persons ordinarily resident in Jamaica	<p>\$100.00 for each adult and child over the age of 12 years.</p> <p>\$50.00 for each child 6 to 12 years of age.</p> <p>No fee is charged in respect of a child under the age of 6 years.</p>
2. Persons not ordinarily resident in Jamaica	<p>US\$10.00 or the equivalent in Jamaican currency for each adult and child over the age of 12 years.</p> <p>US\$5.00 or the equivalent in Jamaican currency for each child 6 to 12 years of age.</p> <p>No fee is payable in respect of a child under 6 years of age.</p>
3. A group of ten or more adults ordinarily resident in Jamaica	\$70.00 for each person.
4. A group of ten or more adults not ordinarily resident in Jamaica	US\$7.50 or the equivalent in Jamaican currency for each person.
<i>Annual</i>	
1. A person ordinarily resident in Jamaica	\$1,000.00
2. A person not ordinarily resident in Jamaica	US\$30.00 or the equivalent in Jamaican currency.

*THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW MOUNTAINS  
NATIONAL PARK) (USER FEES) REGULATIONS, 2003*

SCHEDULE, *contd.*

PART II

*Fees payable for hiking trail under regulation 4*

Type of Pass	Amount of Fee
1. Persons over 12 years of age ordinarily resident in Jamaica	\$200.00
2. Persons over 12 years of age not ordinarily resident in Jamaica	US\$20.00 or the equivalent in Jamaican currency.
3. Children 12 years of age and under	\$50.00

PART III

*Fee payable for camping in a designated campground*

Type of Pass	Amount of Fee
Camp fee	\$100.00 per night for each adult and child over the age of 12 years. \$50.00 per night for each child 6 to 12 years of age.

THE NATURAL RESOURCES CONSERVATION  
AUTHORITY ACT

ORDER  
(under section 38)

THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW  
MOUNTAINS NATIONAL PARK) (DECLARATION) ORDER, 1993

*(Made by the Minister on the 26th day of February, 1993, upon the  
recommendation of the Natural Resources Conservation Authority)*

L.N. 97/93

[26th February, 1993]

1. This Order may be cited as the Natural Resources Conservation  
(Blue and John Crow Mountains National Park) (Declaration) Order,  
1993.

2. The boundaries of the Blue and John Crow Mountains National  
Park shall be as set out in the Schedule.

Schedule.

**THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW  
MOUNTAINS NATIONAL PARK) (DECLARATION) ORDER, 1993**

**SCHEDULE**

(Paragraph 2)

All that piece or parcel of Crown Land known as Silver Hill and Chestervale Plantation situated in the parishes of St. Andrew and Portland containing by survey 206.88 hectares and butting:

- NORTHERLY:** On Silver Hill in possession of the Chief Secretary
- EASTERLY:** On part of Chestervale in possession of the Chief Secretary and Clydesdale Forest Reserve
- SOUTHERLY:** On part of Clifton Mount in possession of the Commissioner of Lands and part of Chestervale in possession of Yallahs Valley Land Authority
- WESTERLY:** On part of Silver Hill in possession of the Chief Secretary, Wallenford in possession of Ina Benn, main road from Buff Bay to St. Peters,

or however otherwise the same may be butted, bounded, known, distinguished or described.

All that piece or parcel of Crown Land part of the Tom's Hope Land Settlement in the parish of Portland containing by survey 29.67 hectares and butting:

- NORTHERLY:** On parts of the Tom's Hope Land Settlement allotted to small settlers east on a portion of the property known as Mt. Lebanon in the possession of Valdin Morrison and on Crown Lands known as Adam Brandon's patent south on a portion of Adam Brandon's patent in the possession of Charles Moresby west on a parochial road leading from Windsor to Park Mount and on a reserved road save and except:
- (a) that portion of the parochial road 149.8 metres wide leading from Windsor to Park Mount and passing through the area above described; and
- (b) that portion of a road reserved 62.42 metres wide leading from lot 156 of the Tom's Hope Land Settlement to Mt. Lebanon and passing through the area above described.

All those parcels of Crown Lands in the parishes of St. Mary, St. Andrew, Portland, and St. Thomas known as the Blue Mountain Forest Reserve and containing by estimation 41,939.87 hectares more or less and including the following blocks:

*Ginger River Block (District 17)*

Comprising the following patents or parts thereof—  
Cottage, Andover, Joppa, Keith Hall, Mullet Hall and Killi-Krankie part of Knowsley, Westminster Cottage, remainder of Westminster Cottage, Unpatented Land, Fair Hill, Shooter's Hill, Osbourne Mountain part of Samuel Hyde, J. Gordon and Edward McGeachy, Warminster, Daniel D'Luskie, part of Dry River Retreat, part of Juniper Grove and butting:

- NORTHERLY:** From Good Hope, Hermitage, Dumfries and Port George Pen
- EASTERLY:** On Mount Joseph, Lovely Grove and Alexander Gordon Plantation, Dry River Retreat in the possession of small settlers, Shantamee and Birnamwood Plantations and part of the Blue Mountain Forest Reserve, District 18
- SOUTHERLY:** On Wm. Whitfield and Mt. Cressy, Mt. Olive, New Garden, Mt. Prospect
- WESTERLY:** On Mt. Horeb, Mt. Sinai and Belle Air, Prospect Hill or however otherwise the same may be butted, bounded,

**SCHEDULE, contd.**

known, distinguished or described save and except those parcels of land in the possession of small settlers.

*Juniper Block (District 17)*

All that portion of Crown Land forming part of the Blue Mountain Forest Reserve and butting:

- NORTHERLY:** On part of the Blue Mountain Forest Reserve, District 18  
**WESTERLY:** On Mt. Moses, Tweedside and Wm. Whitfield in the possession of the Water Commission,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Springfield Block (District 17)*

Comprising the following patents or parts thereof—  
Springfield, Heirs of Bains and butting:

- NORTHERLY:** On Summer Hill  
**EASTERLY:** On part of the Blue Mountain Forest Reserve, District 18 and Hermitage in the possession of the Water Commission  
**SOUTHERLY:** On Norwich Castle and part of Campbell's Mount in the possession of the Water Commission  
**WESTERLY:** On Moresham and Muff Castle in the possession of the Water Commission,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Newcastle Block, Western (District 18)*

Comprising the following patents or parts thereof—

Juniper Grove, Old England, Heirs of Dodd, Oathley, Castle Dawson, Green Hills, Hollywell, Mt. Horeb and West Vale, Cold Spring, Clifton Mt., Limerick Mtn., Silver Hill, Jamaica Spa, Pleasant Hill, Middleton, Greenwich Hill, Caledonia, part of Lancaster, Southfield, part of Smithfield, Copper Castle, Newcastle and butting:

- NORTHERLY:** On part of the Blue Mountain Forest Reserve, Shantamee and Birnamwood Plantations  
**EASTERLY:** On Shantamee and Birnamwood Plantations, part of Smithfield, part of Lancaster in possession of small settlers, Wakefield Plantation in possession of H. H. Burgher, Cedar Valley Plantation in possession of Mrs V. Benn *et al* part of Middleton, Elderslie, part of Castle Dawson, Green Hills, Marlborough Castle, Wallenford, Jamaica Spa, part of Silver Hill, Clifton Mount, part of Pleasant Hill, and Mt. Lebanon  
**SOUTHERLY:** On Charlottenburgh, Little Pleasant Hill, part of Middleton, part of New Castle and Hopewell Plantation  
**WESTERLY:** On Maryland Plantation, Mt. Dorothy and part of the Blue Mountain Forest Reserve District 17,

or however otherwise the same may be butted, bounded, known, distinguished or described, save and except those parcels of land in the possession of small settlers.

**THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW  
MOUNTAINS NATIONAL PARK) (DECLARATION) ORDER, 1993**

**SCHEDULE, *cont'd.***

*Silver Hill Block, Eastern (District 18)*

Comprising the following patents or parts thereof—

John Ferguson's patent, part of Chestervale Plantations, Ross Patent, part of Silver Hill, part of Cedar Valley Plantation, part of Spring Hill, and Clydesdale and butting:

- NORTHERLY:** On part of the Blue Mountain Forest Reserve, District 19  
**EASTERLY:** On part of the Blue Mountain Forest Reserve, Districts 19 and 26  
**SOUTHERLY:** On Pleasant Hill and part of Chestervale Plantation  
**WESTERLY:** On part of Wallenford, part of Cedar Valley Plantation, Spring Hill and Chestervale,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Trafalgar Block (District 19)*

Comprising the following patents or parts thereof—

Part of Geo. Wright, part of Sportsman's Hall, Patality, part of Atkinson and Hanbury, Colthirst's Run, Trafalgar Plantation, part of Leighfield, part of Pleasant Mount, John Buck's Patent, Westphalia, Edward McGeachy, Samuel Linwood, and Wm. Linwood, Robert B. Hugh, New Haven part of Wood and Plummer, part of Geo. Burrell, Richard Faith part of Hall's Delight and unreserved Crown Land—part of Geo. Wright and part of Sportman's Hall, and butting:

- NORTHERLY:** On Retreat, M. Biggs, part of Hall's Delight, part of Atkinson and Hanbury, Resource and Trouble Hill  
**EASTERLY:** On part of the Blue Mountain Forest Reserve, Districts 20 and 26  
**SOUTHERLY:** On part of Blue Mountain Forest Reserve, District 26  
**WESTERLY:** On part of Blue Mountain Forest Reserve, District 18 Breman Valley, part of Leighfield in the possession of small settlers, and the Brook Plantation,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Swift River Block (District 20)*

Comprising the following patents or parts thereof—

Part of Friendship Hall, part of Thomas Cockburn, Sartoga, part of Wm. Pearch, Geo. McKeand, part of Geo. Burrell, part of Wood and Plummer, part of Wm. Collard, unpatented bound part of Colthirst's Run, John Reader, part of Scotland, part of Bengal, Holland, Wm. Lee, John Anguin, Boston, part of John Sanderson, Batavia, John Symes, unreserved Crown Land—Richard Ivy Mann, Robert McKoy, part of Fruitful Vale, Davis Sherrif, James Jenkins, Geo. Brooks, part of Friendship Hall, part of Wm. Pearce, part of Wm. Collard, part of Scotland, part of Bengal and butting:

- NORTHERLY:** On Allany, Pippingford, Shirley Castle, Liberty Hill, Rev. Geo. Hall, Pigeon Hill, Ashcott, Jno. Lowe, Twichenham Plantation, part of Fruitful Vale, Dunbar, Burton Hill, Manchester, part of unpatented Land  
**EASTERLY:** On part of the Blue Mountain Forest Reserve, District 21  
**SOUTHERLY:** On part of the Blue Mountain Forest Reserve, District 21  
**WESTERLY:** On part of the Blue Mountain Forest Reserve Districts 26 and 19,

or however otherwise the same may be butted, bounded, known, distinguished or described.



SCHEDULE, *contd.*

*John's Hall Block (District 21)*

Comprising the following patents or parts thereof—

Part of Charles Stewart, part of John Sanderson, John Neilson, Thomas Reece, John Swarbeck, Paul Phipps, Jno. P. Baker, Wm. Smellie, James Farrier, James Campbell, Wm. Lane, Colin McKenzie I and II, Anne Lane, Charles Phipps I and II, Abigail Phipps, Edward P. Wallen I and II, Thomas Gray, Thomas Cushnie, Mark Howard, Elizabeth Ann Adams and unreserved Crown Land, that is part of John Sanderson, Tuscany, Madrid, part of John Swarbeck, part of Friendship Hall, part of Geo. Christie, and butting:

NORTHERLY: On unpatented Land, Brook Dale and Golden Vale Estate

EASTERLY: On Rose Hill, Garland, Grove, Kensington Plantation, Experiment Hill, Brownsfield and part of the Blue Mountain Forest Reserve, District 22

SOUTHERLY: On part of the Blue Mountain Forest Reserve, District 25

WESTERLY: On part of the Blue Mountain Forest Reserve, District 20,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Rio Grande Block, Western (District 22)*

Comprising the following patents or parts thereof—

Part of Geo. Christie, Patk. Johnson Natty, Fraser and Kinneard Wm. Smellie I and II, Edward Barry I and II part of Marshall Hall, Alex. Cumming I, II and III, part of Daniel Moore, Edward West, part of Robert McDermott, Kings Land, Edward Bernard, Geo. French I, II and III, part of Thomas Cockburn, Francis Moore, part of John Moore I and II, and part of Edgar's Rio Grande Pen, and butting:

NORTHERLY: On Kent

EASTERLY: On Claremont, Marshall's Hall, Altimont Township, Mill Bank, Bowden Pen, part of Edgar's Rio Grande

SOUTHERLY: On part of the Blue Mountain Forest Reserve, District 24

WESTERLY: On part of the Blue Mountain Forest Reserve, Districts 21 and 25,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*Rio Grande Block, Eastern (District 22)*

Comprising the following patents or parts thereof—

Part of Holland Mountain, part of Silvera's Run, part of Joe Hill, part of Adam Brandon, James Barton and Gardner, Wm. Fullerton I and II, Robert Graham, Thos. Wainsborough, part of James Lindsay, Mt. Gambier, John Proctor, The Alurement, part of Mt. Rodney, Come-and-see-me, part of Hollana Rio Grande Pen, part of Alex. Bell Patrick Grant, John McLean, Allan and John McLean, Charles Grant, and unreserved Crown Land, that is Mt. Lebanus and butting:

NORTHERLY: On Caledonia and Cambridge Back Lands

EASTERLY: On part of the Blue Mountain Forest Reserve, District 23

WESTERLY: On part of Alex Bell, part of Holland Rio Grande, part of Holland Mtn., part of Silvera's Run, Fish Brook, Rio Grande River, Cornwall Pen, Nottingham Pen, Moore Town Maroon Land, part of Joe Hill, Windsor Estate, Small Settlers' Lots, Tom's Hope Estate,

or however otherwise the same may be butted, bounded, known, distinguished or described.

*THE NATURAL RESOURCES CONSERVATION (BLUE AND JOHN CROW  
MOUNTAINS NATIONAL PARK) (DECLARATION) ORDER, 1993*

*SCHEDULE, contd.*

*John Crow Block (District 25)*

Comprising the following patents or parts thereof—

Part of John McRoberts, Sm. Baillie, part of James Baillie, Elizabeth Baillie, part of John Salmon, John Moodie I and II, Allan McLean I, II and III, part of Wm. Ross, part of Thomas Weir, part of Hodgson, and Malgred, unclaimed Land south of Cambridge Back Lands, H. Littlejohn, Wm. Fulton III, Thomas Wainsborough, Hospitality, part of John Scarlett, part of Windsor Castle Mtn., Thomas Davidson I and II, Robert Locke, Geo. Ball, Geo. French IV, part of Edward Stanton, Lawrence Arglesworth and unreserved Crown Lands, that is, part of Jno. Salmon, part of John Scarlett, part of Windsor Castle Mountain, part of Edward Stanton, Greenfield, Bellevue and butting:

**NORTHERLY:** On Cambridge Back Lands, part of John McRoberts

**EASTERLY:** On part of John McRoberts, part of Thos. Weir, Hodgson and Malgren, part of Wm. Ross, Vineyard Hill, Eccles-down Pen, Spring Valley, part of James Baillie in possession of small settlers, Muirton Back Lands, Eddingham Plantation, Haining Estate

**SOUTHERLY:** On Rowlandsfield, part of the Blue Mountain Forest Reserve, District 24

**WESTERLY:** On part of the Blue Mountain Forest Reserve, District 24 or however otherwise the same may be butted, bounded, known, distinguished or described.

*Plantain Garden Block (District 24)*

Comprising the following patents or parts thereof—

Wind Hill, Duart Castle and Farm, Craighead, Nathaniel Beckford, Donald Taylor Henry Lumsden, Alex Sheriff I, II and III, Wm. Craigie, part of John McKinley, Cave, Bottom Pound Hill, Wm. Probart, Aeneas Grant, John Nimmo, Lots Mt. Donald, Edward East, part of Cedar Grove and butting:

**NORTHERLY:** On part of the Blue Mountain Forest Reserve, Districts 22 and 23

**EASTERLY:** On part of the Blue Mountain Forest Reserve, District 23

**SOUTHERLY:** On Kent, Lebanon, part of Cedar Grove, Dr. Alex. McLean, Wm. Forbes, part of Mt. Donald, Murray's Plantation Walk, part of John McKinley, House Hill, Greenwood Castle and Golden Valley, White Hall

**WESTERLY:** On part of the Blue Mountain Forest Reserve, District 25, or however otherwise the same may be butted, bounded, known, distinguished or described.

*Trinityville Block (District 25)*

Comprising the following patents or parts thereof—

Francis Rigley Broadbelt, David Henriques, Dunrobin, Doncan McGlathan, Newington, part of Union Hill, Parket Bennett Franklin, James Gardner, Nicholas Bourke, Geo. Hall, Robert Sutherland, Daniel Moore, Thos. Fearon, Robert Areedeekne, Wm. Hall Willeys I, II and III, Wm. Willeys IV and V, John H. Cudgar, Elizabeth Willeys, H. Andrew Franklin, Geo. Munroe, Wm Logan, Wm. Pollack, Geo. Campbell I, II and III, James Farrier, James Campbell, Edward P. Wallen I and II, Alex. Brown, Augustus Vallett, Mark Howard, Chas. Mais I and II, John Mais, Geo. Parker, Elizabeth Ann Adams, Moy Hall, Garerand Hall and butting:

**NORTHERLY:** On part of the Blue Mountain Forest Reserve, District 25

SCHEDULE, *contd.*

- EASTERLY: On part of the Blue Mountain Forest Reserve, Districts 22 and 24
- SOUTHERLY: On property known as Spring, Hillside, Mullet Hall and Garbrand Hall, part of Union Hill in the possession of small settlers, Island Head, Benn Lomond, Newfield, Newton, Moy Hall and Windsor
- WESTERLY: On part of the Blue Mountain Forest Reserve, District 26,  
or however otherwise the same may be butted, bounded, known, distinguished or described.

*Cinchona Block (District 26)*

Comprising the following patents or parts thereof—

Part of Pleasant Hill, Bellevue, remainder of Crichton Run, Dulee Domum, Markham Hill, part of Woodland, part of Strawberry Hill, Helen Whair, Thos. Rurpin, unpatented land (north of Hibernia), Old England, part of Mt. Teviot, J. Fowles I and II, Wm. Cowan, Alex. Robertson, Alex. Stephenson, S. J. Dallas, Portland Gap I, II and III, part of Abbey Green, part of Whitfield Hall, part of Radnor, Ector's Patent, Wm. Gordon, unpatented land (North of Portland Gap), Anthony Davis, Henry Stanley, Iron River, Henry Turpin, W. H. Hall, John Hall and Sheldon Black Land, Maria French and butting:

- NORTHERLY: On part of the Blue Mountain Forest Reserve, Districts 19 and 20
- EASTERLY: On part of the Blue Mountain Forest Reserve, Districts 20, 21 and 25
- SOUTHERLY: On Arntully, Sherwood Forest, remaining portions of Radnor, Abbey Green and Whitfield Hall, Sheldon, remaining portions of Mt. Teviot, Old England, Strawberry Hill and Woodlands and Mount Hybla
- WESTERLY: On Resource, Pleasant Hill and part of the Blue Mountain Forest Reserve, District 18,

or however otherwise the same may be butted, bounded, known, distinguished or described.

## ARRANGEMENT OF SECTIONS

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PART VI. *General*

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Schedule.

**1. Short title.**

1. This Act may be cited as the Forest Act, 1996.

**2. Interpretation.**

2. In this Act, unless the context otherwise requires -

"allowable annual cut" means a rate of timber harvesting specified for an area of land;

"authorized officer" means a forest officer, a member of the Jamaica Constabulary Force or any other person designated as such by the Minister;

"cattle" includes horses, mules, asses, goats, sheep and swine;

"Conservator" means the Conservator of Forests;

"Crown land" includes all waste or vacant land in the Island vested in the Commissioner of Lands in trust for the Government of Jamaica, and all land leased by the Commissioner of Lands on behalf of the Government of Jamaica as forest reserves;

"Forest Management and Conservation plan" means the national Forest Management and Conservation plan prepared under section 16;

"forest management area" means any area of land declared under this Act to be a forest management area;

"forest officer" means the Conservator and any other person appointed to be a forest officer;

"forest produce" includes -

(a) trees, plants, fauna, stones, sand and soil existing in or taken from a forest reserve, Crown land or forest management area; or

(b) all parts and produce of such trees and plants;

"forest reserve" means any area of land declared by or under this Act to be a forest reserve;

"functions" includes duties and powers;

"private land" means land that is not Crown land;

"protected area" means any area of land declared by the Minister pursuant to section 23 to be a protected area;

"timber" means -

(a) trees, whether standing, fallen, living, dead, limbed, bucked or peeled; and

(b) logs;

"tree" includes shrubs and bushes of all kinds, seedlings, saplings and reshoots of all ages, and any part of a tree.

### **3. Establishment of Forestry Department.**

3. (1) There is hereby established a department of Government to be called the Forestry Department, hereinafter referred to as the Department.

(2) For the due administration of the Department, the Governor-General may appoint -

(a) a Conservator of Forests;

(b) such other officers and employees as may be necessary for the efficient operation of the department.

(3) On the application of a person who is engaged in the establishment or conservation of a forest in a forest management area or on land leased from the Commissioner of Lands, the Conservator may, by instrument in writing, designate as a special forest officer, any person whom the applicant wishes to exercise the powers of a forest officer under this Act in relation to the applicant's forest.

(4) A person who makes an application referred to in subsection (3) may make a written request to the Conservator for revocation of the designation referred to in that subsection.

(5) A special forest officer -

(a) may exercise the powers of an authorized officer under sections 27 and 29 and any other powers conferred on special forest officers by regulations relating to forest management areas or lands leased from the Commissioner of Lands;

(b) shall not, by reason only of his designation as a special forest officer, be subject to the control of the Conservator or be entitled to receive any remuneration from the Government;

(c) shall cease to be a special forest officer when the Conservator withdraws the designation, whether or not upon a request made under subsection (4).

#### **4. Functions of the Department.**

4. The functions of the Department shall include -

(a) sustainable management of forests in Crown lands or in forest reserves and the effective conservation of those forests;

(b) directing and controlling the exploitation, in a rational manner, of forest resources by the introduction of adequate systems for renewal of those resources;

(c) preparing and implementing a national forest management and conservation plan;

(d) promoting the development of forests on private lands;

(e) promoting, establishing and maintaining a forest research programme with a view to -

(i) enhancing forest management and development;

(ii) identifying and obtaining silvicultural data to be used in improving financial yields of species important to the national economy;

(iii) ensuring reforestation of suitable lands;

(f) establishing and promoting public education programmes to improve understanding of the contribution of forests to national well-being and national development;

(g) establishing and maintaining recreational facilities in such forest conservation areas and forest management areas as may be designated for that purpose;

(h) promoting agroforestry and social forestry programmes for the benefit of farmers, schools and any other interested persons, or groups of persons;

(i) determining, with the approval of the Minister, fees for licences or permits granted under this Act or any services rendered by the Department;

- (j) preparation of forest inventories and the demarcation and maintenance of forest boundaries;
- (k) control and supervision of the cutting, harvesting, milling and sale of timber and other forest produce;
- (l) granting of licences and permits under this Act;
- (m) compiling information and statistics concerning the use of timber and other forest produce;
- (n) protection and preservation of watersheds in forest reserves, protected areas and forest management areas;
- (o) developing programme for proper soil conservation;
- (p) taking steps to enforce compliance with the provisions of this Act; and for this purpose the Conservator and other forest officers shall have the powers of a Constable under the Constabulary Force Act;
- (q) such other functions as may be assigned under this Act or any other enactment.

**5. Declaration of forest reserve.**

5. Subject to section 10, the Minister may by order, subject to affirmative resolution, declare to be forest reserves -

- (a) any Crown lands; or
- (b) any private land if the owner thereof applies in writing for such a declaration.

**6. Purpose of forest reserve.**

6. (1) Forest reserves shall be used primarily for the following purposes -

- (a) the conservation of forests existing naturally in the area of those forest reserves;
- (b) the provision of land for the development of forest resources, including the establishment of forest plantations;
- (c) the generation of forest products;
- (d) the conservation of soil and water resources;
- (e) the provision of parks and other recreational amenities; and
- (f) the protection and conservation of endemic flora and fauna.



(2) A lease of any parcel of land in a forest reserve shall be regulated by the following conditions -

(a) the land may only be used for purposes compatible with subsection (1); and

(b) if the parcel of land includes any Crown lands, the Commissioner of Lands shall not grant lease without the approval in writing of the Conservator.

**7. Declaration of forest management areas.**

7. (1) The Minister may, by order, declare to be forest management areas -

(a) any Crown lands not in a forest reserve;

(b) any private lands, if he is satisfied that the use of the land should be controlled for the protection of the national interest.

(2) Forest management areas shall be used primarily for the purposes specified in section 6 (1) in relation to forest reserves.

**8. Forest management plans.**

8. (1) The Conservator shall, every five years, prepare and submit to the Minister for his approval a forest management plan for each forest reserve and each forest management area.

(2) Every forest management plan shall contain such particulars and proposals as shall be prescribed in relation to -

(a) the land to which the plan relates;

(b) the forests and other natural resources on that land;

(c) the determination of an allowable annual cut and the production of other forest products in relation to the forests mentioned in paragraph (b);

(d) forest plantations proposed to be established and other silvicultural practices to be carried out;

(e) a conservation and protection programme;

(f) portions of the land proposed to be leased, the purposes for which the leased areas are to be used and the terms and conditions of the lease;

(g) the role of the Department and other government agencies or statutory authorities in the implementation of the plan.

(3) Where the Minister has approved a forest management plan, the Director shall ensure that the forest reserve and forest management area to which it relates are managed in accordance with the plan.

**9. Compulsory acquisition of land for forest reserve.**

9. Where, on the recommendation in writing of the Conservator, the Minister is satisfied that it is necessary to acquire any private land for the purposes of forest reserves, the Minister may proceed to acquire that land in the manner prescribed in the Land Acquisition Act.

**10. Notice of proposed declaration of forest reserve.**

10. (1) The Minister shall, at least ninety days before the making of an order under section 5 -

(a) publish in the Gazette and in such other medium as the Minister thinks fit, a notice of his intention to make the order;

(b) invite, in such manner as he thinks fit, comments from members of the public in relation to the proposed order.

(2) The Minister shall take into account any comments received before making an order under section 5.

(3) Whenever the Minister proposes to amend or revoke an order under section 5 he shall give public notice of his intention and provide an opportunity for public comment as mentioned in subsection (1) (b).

**11. Interim protection measures for forest reserves and management areas.**

11. (1) The Minister may, in respect of a forest reserve or a forest management area or proposed forest reserve or forest management area, provide such interim measures as may, in his opinion, be necessary to protect such reserve or management area or proposed reserve or management area.

(2) Any measures provided for pursuant to this section shall remain in force for no longer than six months.

**12. Appointment of local forest management committees.**

12. (1) For the purposes of this Part the Minister may, after consultation with the Conservator, appoint a forest management committee for the whole or any part of a forest reserve, forest management area or protected area.

(2) Whenever possible, each forest management committee shall include at least two members having local knowledge of the area, or part thereof, in which the forest reserve, forest management area or protected area is located.

(3) The Conservator shall, from time to time, make available to any forest management committee such technical advice and assistance as may be necessary to assist the committee in its functions.

**13. Functions of forest management committee.**

13. The functions of a forest management committee shall include manage

- (a) monitoring of the condition of natural resources in ambles, the relevant forest reserve, forest management area or protected area;
- (b) holding of discussions, public meetings and like activities relating to such natural resources;
- (c) advising the Conservator on matters relating to the development of the forest management plan and the making of regulations;
- (d) proposing incentives for conservation practices in the area in which the relevant forest reserve, forest management area or protected area is located;
- (e) assisting in the design and execution of conservation projects in that area; and
- (f) such other functions as may be provided by or under this Act.

**14. Determination of allowable annual cut.**

14. (1) For the purpose of this Act and regulations made under section 37, the Conservator shall determine the allowable annual cut for -

- (a) any forest reserve;
- (b) any area within a forest reserve and shall designate the boundaries of any area referred to in this paragraph; or
- (c) any forest management area.

(2) In determining an allowable annual cut under subsection (1) the Conservator shall consider

- (a) the rate of timber production that may be sustained on the area of a forest reserve or any part of that area, taking into account -
  - (i) the composition of the forest and its expected rate of growth;
  - (ii) the expected time that it will take the forest to become re-established following denudation;
  - (iii) silvicultural treatments to be applied in the area;

(iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting;

(v) any other information that, in his opinion, relates to the capacity of the area to produce timber;

(b) the short and long term implications to Jamaica of alternative rates of timber harvesting from the area;

(c) the economic and social objectives of the Government for the area, the general region and Jamaica;

(c) abnormal infestations in, devastations of, and major salvage programmes planned for, timber on the area.

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### **15. Inventory and classification of forests and forest lands.**

15. (1) The Conservator shall develop and maintain an inventory of forest and land suitable for the development of forests in Jamaica.

(2) The Conservator shall make an assessment of the land referred to in subsection (1) in order to determine its potential for -

(a) growing trees continuously;

(b) the protection and enhancement of water and soil resources;

(c) providing forest oriented recreation;

(d) producing forage for livestock and wildlife;

(e) forest conservation purposes;

(f) maintaining and enhancing the biodiversity of Jamaica's flora and fauna;

(g) accommodating other forest uses.

### **16. National Forest Management and Conservation plan.**

16. (1) Within two years of the commencement of this Act, the Conservator shall prepare a draft national Forest Management and Conservation plan.

(2) The draft plan shall contain -

(a) a statement of the forest resource management and conservation policy;

- (b) an inventory and description of forest lands;
- (c) provision for the protection, conservation and production of forest resources;
- (d) proposals for the protection of watersheds, soil, water, wildlife and other forest resources;
- (e) an outline of the economic objectives for the sustainable development of wood-based industries in Jamaica;
- (f) programmer for social forestry, community development and forest related education;
- (g) proposals for implementation of the plan.

(3) In preparing the draft plan, the Conservator shall consult with such statutory authorities, government departments or agencies and private conservation organizations as, in the opinion of the Conservator, may be relevant, having regard to the contents of the draft plan.

(4) The draft plan shall, in such manner as the Conservator thinks appropriate, be made available for public comment.

#### **17. Revision and approval of draft plan.**

17. (1) The Conservator may revise the draft plan in such manner as he thinks fit, having regard to any comments received from members of the public.

(2) The Conservator shall submit the draft plan, including where relevant, any revisions made thereto, to the Minister for his approval.

(3) Where the Minister is satisfied that the implementation of the draft plan is likely to be in the public interest he shall approve it with or without modification and shall cause the plan as so approved (hereinafter referred to as the "Forest Plan") to be laid on the table of both Houses of Parliament.

#### **18. Periodic review of plan.**

18. (1) The Conservator shall at intervals of not more than five years, review the provisions of the Forest Plan and, if he thinks necessary, prepare amendments thereto.

(2) The provisions of subsections (3) and (4) of section 16 and section 17 shall apply in relation to amendments proposed under this section in like manner as they apply to a draft plan.

#### **19. Development of forests.**

19. It shall be the duty of the Conservator to develop and implement programmes for the establishment of nurseries, the provision of seedlings and other planting material,

reafforestation and such other facilities as he considers necessary for the establishment and maintenance of trees and other forest crops

**20. Recreational facilities in certain forests.**

20. (1) The Conservator may establish recreational facilities in such forest reserves or forest management areas as he considers appropriate and such facilities may include -

- (a) parks;
- (b) roads and trails;
- (c) camp grounds;
- (d) picnic sites;
- (e) such other facilities as the Conservator may determine.

(2) Regulations made under section 37 may prescribe fees to be paid for the use of facilities provided pursuant to subsection (1).

**21. Public education programme.**

21. The Conservator may formulate and implement public education programmes with a view to increasing public awareness of the importance of forestry to the national interest.

**22. Forest research.**

22. (1) The Conservator may designate areas of land in a forest reserve for the purpose of research with a view to -

- (a) improving knowledge of Jamaica's forests and trees;
- (b) increasing the yields of forest crops;
- (c) encouraging good forest practices.

(2) The Conservator shall prepare and submit to the Minister an annual report of all activities and expenditure relating to research undertaken or sponsored by the Department.

**23. Declaration of protected area.**

23. (1) The Minister may declare any Crown land to be a protected area if it appears to him to be desirable for the following purposes -

- (a) protection against storms, winds, rolling stones, floods and landslides;
- (b) preservation of soil on the ridges and slopes and in the valleys of hilly tracts;

- (c) prevention of the formation of ravines and torrents;
- (d) protection against erosion or deposits of sand, stones or gravel;
- (e) maintenance of water supply in springs, rivers, canals and tanks;
- (f) protection of roads, bridges, railways and other lines of communication;
- (g) protection against forest fire;
- (h) preservation of public health;
- (i) protection of national amenities, flora and fauna.

(2) The Minister may -

- (a) on the application of any owner of private land; and
- (b) on the recommendation of the Conservator, declare such land to be a protected area for the purposes specified in subsection (1).

(3) The Minister may by regulations prohibit or regulate in any protected area -

- (a) the breaking up or clearing of lands for cultivation;
- (b) the depasturing of cattle; and
- (c) the burning or clearing of vegetation.

(4) Where a declaration is made under subsection (1) notice thereof shall be published in the Gazette and in such other medium as the Minister thinks fit.

#### **24. Power of entry, etc.**

24. It shall be lawful for a forest officer or any person authorized in writing by the Conservator, to enter upon -

- (a) any lands in a protected area, forest reserve or forest management area; or
- (b) any lands which, in the opinion of the Conservator, may need to be declared a protected area or forest reserve or forest management area, and to carry out surveys and inspect the same.

#### **25. Remission of property tax.**

25. If, and for so long as, the owner of private land in a protected area or forest management area declared forest reserve complies with the regulations or directions under this Act in relation to that land -

(a) he shall in each financial year, on application to the Conservator, be granted a certificate to that effect; and

(b) be entitled to remission of property tax in respect of that land in that financial year

## **26. Acquisition of lease.**

26. (1) Where the owner of private land in a protected area fails to comply with regulations or directions under this Act relating to that land, the Conservator may assume control of the said land or lease from the owner for such term as the Conservator may deem necessary to retain the land under the Conservators control.

(2) If the owner of the land agrees to the grant of a lease pursuant to subsection (1), the amount of annual rent to be reserved and all other questions arising between the owner (or persons claiming to be the owner) shall be determined by agreement between the Conservator and the owner.

(3) In default of an agreement pursuant to subsections (1) and (2), the Conservator may take steps to have the land acquired for public purposes by the Government in accordance with the Land Acquisition Act.

## **27. Power of authorized officers.**

27. (1) An authorized officer may at any reasonable time -

(a) enter any premises within a forest reserve, protected area or forest management area for the purpose of ensuring compliance with this or any other enactment pertaining to the protection of forests;

(b) enter any premises on which the authorized officer has reasonable cause to believe that any unlawful forest produce is stored or generated, and shall, if required to do so by the person in charge of the premises, produce to such person his authority for so entering.

(2) Any person who assaults or obstructs an authorized officer acting in the execution of his duty under subsection (1) commits an offence and shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding one hundred thousand dollars or to imprisonment for a term not exceeding twelve months.

## **28. Licences and permits.**

28. Subject to this Act and the regulations, the Conservator may grant such licences and permits as may be prescribed, in relation to the following -

(a) harvesting of timber on Crown lands;

(b) processing of timber and other forest products;

(c) sale of timber;



- (d) sawmilling activities;
- (e) removal of dead or damaged timber;
- (f) research activities;
- (g) recreational facilities established under section 20;
- (h) any other purposes approved by the Conservator.

**29. Power of inspection of land.**

29. (1) Subject to subsection (2), an authorized officer may at any reasonable time -

(a) enter upon any land within a forest reserve, protected area or forest management area for the purpose of -

(i) inspecting the condition of the land and of any work which is being, or has been done thereon;

(ii) ascertaining what plants are cultivated or are most suitable to be cultivated on the land and the conditions under which those plants are or should be so cultivated;

(b) on any such land as aforesaid take such angles, bearings or measurements and such samples of the soil as may be necessary for determining the purpose for which the land may be used.

(2) A person shall not enter upon any private land pursuant to subsection (1) -

(a) except with the consent of the owner of the land; or

(b) unless he has given to the occupier not less than three days notice of his intention to enter on the land; or

(c) if the name or address of the occupier is not known to and cannot reasonably be ascertained by him and a period of not less than three days has elapsed since he posted on or near to the land, a notice of his intention to enter upon that land.

**30. Prohibition on cutting of trees in forest reserve.**

30. (1) Subject to subsection (3), no person shall cut a trees in a forest reserve unless he is the holder of a licence or permit issued by the Conservator for that purpose.

(2) Any person who contravenes subsection (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred thousand dollars or to imprisonment for a term not exceeding two years or to both such fine and imprisonment.

(3) The provisions of this section shall not apply in relation to private lands unless the owner of that land has entered into a special agreement with the Conservator for the application of that section to that land.

### **31. Offences**

31. (1) Subject to the provisions of subsection (3), any person who, in any forest reserve, protected area or forest management area -

(a) fells, cuts, girdles, marks, lops, taps, uproots or burns any tree, or strips off the bark or leaves from or otherwise damages any tree;

(b) wilfully or by gross negligence causes any damage in felling any tree or cutting or dragging any timber;

(c) kindles, keeps or carries any fire;

(d) without reasonable cause lights or throws down or drops any match or other lighted inflammable material;

(e) clears, cultivates or breaks up any land for cultivation or for any other purpose;

(f) establishes or carries on any forest industry;

(g) carries any saw, axe, adze, auger or cutlass;

(h) removes soil, sand or gravel;

(i) kills, wounds or captures any wild birds or animals, shall be guilty of an offence and shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding two hundred thousand dollars and in default of payment to imprisonment for a term not exceeding two years.

(2) Any person who, in any forest reserve, protected area or forest management area -

(a) except in the circumstances mentioned in subsection (3), erects any building or shelter, or removes any forest produce, or carries a firearm;

(b) knowingly counterfeits on any tree or timber, or has in his possession any implement for counterfeiting a mark used by forest officers to indicate that any tree or timber is the property of Government or of some person or may be lawfully felled or removed by some person;

(c) unlawfully or fraudulently affixes to any tree or timber a mark used by forest officers;

(d) alters, defaces or obliterates any mark placed on any tree or timber by or under the authority of a forest officer;

(e) pastures cattle or permits cattle to trespass;

(f) damages, alters or removes any notice-board, landmark, wall, fence, ditch, embankment, hedge or railing;

(g) assaults or obstructs a forest officer, a constable or any other person acting in the execution of his duty under this Act, shall be guilty of an offense and shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding one hundred thousand dollars and in default of payment to imprisonment for a term not exceeding twelve months.

(3) Nothing in this section shall be construed as prohibiting or rendering punishable any act done -

(a) in accordance with the permission in writing of the Conservator or a forest officer; or

(b) by or in accordance with the permission of the owner or lessee of the land on which the act is done; or

(c) pursuant to and in accordance with any licence or permit granted under this Act.

### **32. Power of arrest.**

32. Any forest officer or any constable may arrest without a warrant any person who has committed, or attempted to commit, or is reasonably suspected by that forest officer or constable of having committed or attempted to commit, an offense against this Act, if he has reasonable grounds for believing that that person will abscond unless arrested or if the name and address of that person are unknown to and cannot reasonably be ascertained by him.

### **33. Seizure and forfeiture of conveyance.**

33. (1) If any forest officer or any constable has reasonable cause to suspect that any conveyance is being used or has been used for the commission of an offence against this Act, he may without a warrant search that conveyance and, if the search reveals that the conveyance is being used or has been used for the commission of an offence against this Act, seize and detain it.

(2) If any forest officer or any constable has reasonable cause to suspect that an offence against this Act has been committed in respect of any forest produce, he may seize and detain that forest produce and any tools, ropes, chains and cattle used or suspected to be used in committing the offence.

(3) On the conviction of any person for an offence against this Act, the court shall, upon the application of the prosecution, order the forfeiture of any conveyance, forest produce or any other thing seized pursuant to this section, if the court is satisfied that -

(a) the person so convicted owns that conveyance or other thing, or the owner thereof permitted it to be used for the commission of the offence; or

(b) the circumstances are otherwise such that it is just to order the forfeiture.

(4) If, upon the application of any person prejudiced by an order made by the court under subsection (3), the court is satisfied that it is just to revoke the order, the court may revoke the order upon such terms and conditions (if any) as it thinks fit.

(5) Any application to the court under subsection (4) for the revocation of an order shall be made within three months of the date of the order unless the court extends that period (whether it has expired or not) upon being satisfied by the applicant that, in the special circumstances of the case, it was not reasonably practicable for him to make the application within that period.

#### **34. Appeal tribunal.**

34. (1) There is hereby established an Appeal Tribunal for the purposes of this Act and the provisions of the Schedule shall have effect as to the constitution of the Tribunal and otherwise in relation thereto.

(2) The Tribunal shall hear appeals made to it under this Act and in respect to any such appeal the Tribunal may, subject to this section, make such order as it thinks fit.

(3) Before determining an appeal the Tribunal shall give the appellant, who may be represented by an attorney-at-law or any other person, the opportunity of being heard by the Tribunal.

(4) A decision of the Tribunal shall be final.

#### **35. Appeal.**

35. (1) An aggrieved person may appeal to the Tribunal against a decision of the Conservator in relation to a permit or licence and the appeal shall be made in writing within twenty-eight days or within such further period as the Tribunal may in any special circumstances allow.

(2) For the purpose of this section an aggrieved person is a person -

(a) who has been refused a permit or licence or who objects to the terms and conditions subject to which a permit or licence is granted;

(b) who is the holder of a licence or permit and who objects to a decision of the Conservator in respect of such permit or licence.

### **36. Effect of lodging an appeal.**

36. Where an appeal is made under section 35, the lodging of the appeal shall not, unless the Tribunal otherwise directs, operate as a stay of execution of the decision which is the subject matter of the appeal.

### **37. Regulations.**

37. (1) The Minister may make regulations generally for the proper carrying out of the provisions and purposes of this Act, and in particular, but without prejudice to the generality of the foregoing, may make regulations -

(a) providing for the grant of licences and permits for the exploitation and taking of forest produce in forest reserves and other Crown land, the terms and conditions applicable to those licences and permits, the making of reports and returns by the holders of licences and permits and the fees and royalties payable for licences and permits;

(b) prohibiting or regulating in forest reserves, protected areas and forest management areas the felling, collection, removal and transport of timber and other forest produce;

(c) regulating the practice of forestry on lands in forest management areas;

(d) providing for the marking of timber and the manufacture, use and possession of marking instruments;

(e) regulating the granting of leases of land in forest reserves, the contents of leases and the conditions subject to which leases shall be granted;

(f) providing for the seizing and impounding of cattle found trespassing in forest reserves, protected areas and forest management areas;

(g) providing for the preservation of endemic or endangered species of trees or trees remarkable for size, variety or beauty whether on Crown land or private land;

(h) providing for the recreational use of land in forest reserves;

(i) providing that areas of land defined in the regulations shall be treated as areas of particular ecological or scientific interest and providing for the conservation of those areas;

(j) prescribing any other matter or anything which may be, or is required by this Act to be prescribed.

(2) Notwithstanding anything contained in the Interpretation Act, regulations made under this Act may provide in respect of any breach of the provisions of those regulations that the offender shall be liable on summary conviction thereof before a Resident Magistrate

to such fine not exceeding fifty thousand dollars or to such term of imprisonment not exceeding twelve months as may be prescribed therein.

**38. Prosecution to be commenced within twelve months.**

38. All prosecutions for offences against this Act or any regulations hereunder shall be commenced within twelve months next after the commission of such offense or, if the Court is satisfied that an authorized officer with due diligence could not have been aware within that period that the offence had been committed, within such further period as the Court may allow.

**39. Repeal.**

39. The Forest Act and the Bark of Trees (Sale Prevention) Act are hereby repealed.

**40. Transitional.**

40. Notwithstanding the repeal of the Forest Act, any permits, licences, agreements or other authorization issued pursuant to that Act and in force immediately before the commencement of this Act, shall continue in force until other provision is made pursuant to this Act.

**SCHEDULE (Sections 34, 35 and 36)**

The Tribunal

1. The Tribunal shall, subject to paragraph 2, consist of three members appointed by the Minister one of whom shall be appointed chairman.
2. For the hearing of any appeal under this Act the Tribunal may consist of one member sitting alone if the parties of the appeal agree.
3. The members of the Tribunal shall, subject to the provisions of this Schedule, hold office for such period not exceeding two years as the Minister may determine and shall be eligible for reappointment.
4. The Minister may appoint any person to act in the place of the chairman or any other member of the Tribunal in the case of the absence or in ability to act of the chairman or other member.
5. (1) Any member of the Tribunal other than the chairman may at any time resign his office by instrument in writing addressed to the Minister and transmitted through the chairman, and from the date of the receipt by Minister of such instrument that member shall cease to be a member of the Tribunal.  
  
(2) The chairman may at any time resign his office by instrument in writing addressed to the Minister and such resignation shall take effect from the date of receipt by the Minister of that instrument.

6. The Minister may at any time revoke the appointment of any member of the Tribunal if he thinks it expedient so to do.
7. If any vacancy occurs in the membership of the Tribunal such vacancies shall be filled by the appointment of another member.
8. The names of all members of the Tribunal as first constituted and every change in the membership thereof shall be published in the Gazette.
9. There shall be paid to the chairman and other members of the Tribunal, in respect of each appeal, such remuneration, whether by way of honorarium, salary or fees, and such allowances as the Minister may determine.
10. Subject to paragraph 2, the decision of the Tribunal shall be by a majority of votes of the members, and in addition to an original vote, the chairman shall have a casting vote in any case in which the voting is equal.
11. Subject to the provisions of this Act, the Tribunal shall regulate its own proceedings.
12. The office of the chairman or member of the Tribunal shall not be a public office for the purposes of Chapter V of the Constitution of Jamaica.

# NATIONAL FOREST MANAGEMENT AND CONSERVATION PLAN

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## ACRONYMS

BUBADAC	Buff Bay Development Action Committee
CANARI	Caribbean Natural Resources Institute
CBO	Community Based Organisation(s)
CIDA	Canadian International Development Agency
CIF	Cost, Insurance and Freight Included
CL	Crown Land
cm	Centimetre
CO <sub>2</sub>	Carbon dioxide
CPI	Consumer Price Index
DBH	Diameter (at) Breast Height
EFJ	Environmental Foundation of Jamaica
ETF	Environmental Trust Fund
ENACT	Environmental Action Programme
EU	European Union
FAO	Food and Agricultural Organisation of the United Nations
FCP	Forestry Capacity (Bridging) Project
FCCC	(UN) Framework Convention on Climate Change
FD	Forestry Department
FIDCO	Forest Industries Development Company
FPDC	Forestry Planning and Development Committee
FR	Forest Reserve
GCT	General Consumption Tax
GHG	Greenhouse gases
GIS	Geographic Information System(s)
GOJ	Government of Jamaica
GPS	Global Positioning System
ha	hectare
HRD	Human Resources Development
IRR	Internal Rate of Return
IUCN	The World Conservation Union
J\$	Jamaican Dollar
JAS	Jamaica Agricultural Society
JCDC	Jamaica Cultural Development Commission
JCDT	Jamaica Conservation and Development Trust
JET	Jamaica Environmental Trust
JHTA	Jamaica Hotel and Tourist Association
LFMC	Local Forest Management Committee(s)
LFMP	Local Forest Management Plan
LICJ	Land Information Council of Jamaica
LUDC	Land Utilities Development Commission
MCM	Million cubic metres
MLE	Ministry of Lands and Environment
M&E	Monitoring and Evaluation
MOF	Ministry of Finance
MOU	Memorandum of Understanding

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NECC	National Environmental Communications Campaign
NEEC	National Environmental Education Committee
NEPT	Negril Environmental Protection Trust
NEST	National Environmental Societies Trust
NFAP	National Forestry Action Plan
NFMCP	National Forest Management and Conservation Plan
NGO	Non-Governmental Organisation(s)
NIC	National Irrigation Commission
NIWMP	National Integrated Watershed Management Programme
NPAC	National Public Awareness Campaign
NRCA/NEPA	Natural Resources Conservation Authority/National Environmental Planning Agency
NWC	National Water Commission
NWMC	National Water Management Council
ODA/UK	Overseas Development Agency/United Kingdom
PA	Protected Area
PCJ	Petroleum Corporation of Jamaica
PEPA	Portland Environmental Protection Association
PSOJ	Private Sector Organisation of Jamaica
RADA	Rural Agricultural Development Authority
RPPU	Rural Physical Planning Unit
SMRDP	St. Mary Rural Development Project
SPP	Strategic Planning Process
STEA	South Trelawny Environment Association
STEPA	St. Thomas Environmental Protection Association
TFT	Trees for Tomorrow
TNA	Training Needs Analysis
UK	United Kingdom
UN	United Nations
UNB	University of New Brunswick
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
US\$	United States (of America) Dollar
US	United States (of America)
USAID	United States Agency for International Development
UWI	University of West Indies
WMU	Watershed Management Unit(s)
WRA	Water Resources Authority
WRI	World Resources Institute



## EXECUTIVE SUMMARY

The National Forest Management and Conservation Plan (“Forest Plan”) is presented in three parts. Part I provides background information on forest policy and law, a description of forest lands and an overview of the forestry sector. The environmental and economic values of forests to society are presented in Part II together with the goals of the forestry sector, consistent with these values. Part III provides recommendations for implementation, including strategies, activities, projects and budgets.

## PART I: BACKGROUND

### E1.0 Introduction

The purpose of the Forest Plan is to promote and improve the conservation and sustainable use of the forest resources of the country to meet local and national needs through protecting, managing and restoring the resource for the benefit of present and future generations.

The Forest Plan has been prepared in accordance with the provisions of section 16 of the Forest Act of 1996. A draft plan was completed in January 2000. The draft plan was widely distributed and presented to the public in a series of well-attended meetings and workshops. The consultative process generated valuable contributions to the Forest Plan.

### E2.0 Policy and Legal Framework

The development of the Forest Plan was influenced by a number of related national plans and policies, including the *Forest Land Use Policy* approved by Parliament in 1996.

Stakeholders and the public identified policy issues requiring resolution prior to implementation of the Forest Plan. The 1996 Forest Land Use Policy has been updated to reflect these inputs, and legislative, institutional and other developments that have occurred since 1996.

### E3.0 Inventory and Description of Forest Lands

The most recent assessment of forest cover and land use in Jamaica was completed in 1998. About 30 percent of Jamaica, approximately 336,000 hectares is classified as forest. The majority of forest land has been disturbed and degraded, and only about 8 percent of the island remains as natural forest showing little evidence of human disturbance. Forests are threatened by industrial, agricultural and urban development. Approximately 110,000 hectares of land are designated as forest reserves, but over one-third of forests in reserves or other protected areas have been significantly disturbed by human encroachment.



#### **E4.0 Overview of Forestry Productive Sector**

The decentralised, transient and unregulated nature of wood production industries in Jamaica makes it difficult to collect information on production.

Reliable data are not available on lumber and other wood production from Jamaica's forests. Very approximate estimates of annual production are:

- hardwood lumber: 59,000 cubic metres;
- softwood lumber: 3,000 cubic metres;
- charcoal: 37,000 to 60,000 tonnes;
- fuelwood: 300,000 cubic metres; and
- yam sticks: 150 million.

A priority activity in the implementation of the Forest Plan is an assessment of the production, consumption, values and markets for forest products.

#### **E5.0 Constraints**

Constraints exist which, unless removed or minimised, will obstruct or impair achievement of the goals of the forestry sector. The Forest Plan has identified strategies to address these constraints:

- Indifference to forest degradation, destruction and theft of forest resources, illegal occupation of forest land, non-sustainable land use practices and uncontrolled grazing of livestock are public attitudes and behaviours which must be changed.
- Commitment to acceptance and advancement of environmental laws, policies and plans will have to be demonstrated by all but especially by senior levels of Government.
- The Forestry Department in particular, and the forestry sector in general, lack sufficient numbers of trained, motivated and properly supported personnel to implement the Forest Plan.
- The high cost of investing in forestry and the required long-term commitment are disincentives to private investment. In addition, budget allocations of public funds are inadequate to support forestry investment programmes.
- At least 14 Government offices have statutory interest and often conflicting interest in forest land.
- Large information gaps in the forestry sector presently constrain effective decision making.

### **PART II: FOREST VALUES AND GOALS**

#### **E6.0 Forest Values to Society**

Jamaica's forests provide essential **environmental** services:

- Quality water production: Forested areas allow percolation and reduce runoff, providing a regular flow of water to reservoirs. Tree cover near rivers reduces

siltation. Highly silted water entering a reservoir decreases its storage capacity and increases treatment costs.

- Soil conservation: Maintaining a tree cover decreases the force of rain hitting the ground and helps to slow the flow of water, particularly on steep slopes, thereby reducing soil loss. Soil loss is not only a threat to upland agriculture, but the increased siltation is also a serious threat to coral reefs and beaches.
- Forests support biological diversity: Jamaica has many endemic species and a growing number are identified as vulnerable to extinction, critically imperilled or rare. Many are dependent on forest or woodland habitats.
- Mitigating adverse climate changes: Forests remove carbon dioxide from the atmosphere and contribute to climate protection. The emergence of emission reduction targets and protocols among industrialised countries may provide Jamaica with an opportunity to obtain compensation for forest restoration from countries or businesses trading in “carbon credits”.

Forests provide **economic** benefits to society. These include timber and non-timber products, employment, energy and recreation and tourism:

- The production of forest products provides many opportunities for income generation and employment in rural areas. Activities include timber production, sawmilling operations, collection of forest materials for making handicrafts and furniture, and charcoal and yam stick production.
- The Forestry Department provides employment through its seedling production, reforestation and forest management activities. In 1999 the Forestry Department provided direct employment to 1,863 people in rural areas as well as employing casual labour on an “as needed” basis.
- Forests are an important source of energy. A study on charcoal production carried out in 1988<sup>1</sup> estimated demand at 60,000 tonnes per year, the equivalent of nearly 445,000 cubic metres of wood. The same study calculated fuelwood consumption at 300,000 cubic metres per year.
- The country’s scenic beauty is a major component of Jamaica’s attraction as a holiday destination. Nature tourism based on the area’s forests also presents direct employment opportunities.

#### **E7.0 Goals of the Forestry Sector**

The goals of the forestry sector identified in this Forest Plan address four broad values to society: environment; national wealth and rural development; energy; and recreation and tourism.

The primary goals of the Jamaican forestry sector are to:

- Protect the forest resource;
- Restore tree cover;
- Conserve biodiversity;

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<sup>1</sup> Joint UNDP/World Bank Energy Sector Management Assistance Program. September 1988. *Jamaica Charcoal Production Project*.

- Improve the economic contribution of forests to the well-being of the Jamaican people;
- Produce fuelwood on a sustainable basis;
- Maintain the visual quality of forests; and
- Enhance the use of forests for recreation and tourism.

### **PART III: IMPLEMENTATION STRATEGIES**

#### **E8.0 Community Participation**

The participation and co-operation of local communities, particularly those living on the fringes of the forest are recognised as necessary factors in the sustainable use, management and protection of forest resources. Community participation will be mobilised through the creation of Local Forest Management Committees (LFMCs) involving various stakeholders. Forestry Department staff will work with communities to co-operatively manage the forest resource. Income-earning activities based on sustainable use of forest resources will be introduced to attract community interest.

#### **E9.0 Public Education**

Public education on the importance of the forest environment is essential to build popular and political support for the forestry sector and implementation of the Forest Plan. The public awareness strategy will be grounded in credible, up-to-date and relevant information. Key messages, promotional vehicles and potential sponsors will be identified. Forestry-related information will be promoted through the formal and non-formal education sectors. The Forestry Department will work closely with the Ministry of Education and the National Environmental Education Committee to build a strong environmental awareness component, including specific attention to the importance of forests, into the national school curriculum.

#### **E10.0 Forestry Research**

A forestry research programme will be prepared. The programme's focus will be to provide data, information and guidelines for efficient forest management practices and conservation strategies, reforestation planning and development, agroforestry practices and social/participatory forestry initiatives.

#### **E11.0 Local Forest Management Plans**

Local Forest Management Plans (LFMPs) will be prepared for forest reserves, forested Crown lands and other protected areas. An LFMP is under development for the Buff Bay/Pencar pilot area; eight additional local plans will be completed during the five-year planning period. The plans, which will include biophysical and socio-economic information, will be the basis for management and sustainable use of forest resources. The Forestry Department and the LFMCs will be responsible for the preparation and implementation of the local plans.

#### **E12.0 Co-operative Management Agreements**

Protection and conservation of Jamaica's forests will be most effectively achieved through co-management agreements between the Forestry Department and other Government and non-governmental agencies. The Forestry Department has already signed a co-management agreement with the Natural Resources Conservation Authority/National Environmental Planning Agency and the Jamaica Conservation Development Trust for the Blue and John Crow Mountains National Park. It is in the process of entering into agreements with the Environmental Foundation of Jamaica and the National Water Commission.

### **E13.0 Forest Protection**

Forest protection and conservation strategies will focus on critical emphasis areas: geographic locations where interventions are both urgently needed and likely to be the most effective. Urgency for forest protection has been prioritised on the basis of the presence and severity of a number of threats. These include, among others, degradation of water quality or supply; degradation or loss of soil; unsustainable and illegal removal of timber; cultivation on unsuitable sites; and despoiling of recreational and scenic values. Institutional and socio-economic factors have also been considered in identifying critical emphasis areas.

Guidelines for forest land use have been prepared with permitted uses identified according to slope and soil depth, type of forest cover and present land use. Required interventions will be scheduled by the local forest management planning process based on the advice of the LFMCs.

The highest priority will be protecting what is left of Jamaica's rich and unique forest biodiversity from further encroachment. The Forestry Department will continue to review areas for gazetting to forest reserve status. Where private lands are identified as urgently requiring protection, a recommendation will be made to the Minister to acquire such land or enter into a forest management agreement with the owner.

The following activities will be regulated on forest reserves or any other land managed by the Forestry Department pursuant to the Forest Act:

- road construction and use;
- fires and charcoal kilns;
- agricultural use, including cattle and other livestock;
- removal, transport and sale of forest produce;
- use of power saws;
- sawmilling;
- hunting;
- recreational use; and
- leasing of land.

Sawmilling activities, and the trade, storage and purchase of locally produced lumber, will not be permitted anywhere in Jamaica without a valid licence or permit.

The operation of equipment and the cutting or removal of forest produce will normally be prohibited in buffer zones adjacent to waterways, streams, rivers or wetlands.

The destruction of forests by the mining industry is a special case of great importance to the people of Jamaica. Much of the damage to forests occurs in the limestone areas adjacent to bauxite deposits and disturbed by pit access development. A no-net-loss policy will be vigorously applied. Where destruction of forest is unavoidable, the industry should compensate the loss by reforesting an equivalent area elsewhere.

#### **E14.0 Forest Production Programme**

An expanded forest production programme will be undertaken to reduce the pressure on natural forests. The programme will endeavour to meet national demands for wood products from trees planted on the most economically productive lands, largely by private growers. Some 69,000 hectares of land have been identified as having good potential for reforestation, however only 2,200 hectares are within forest reserves.

Different strategies have been developed for potentially commercial disturbed broadleaf forests, remaining Pine plantations, deforested Crown lands and forest reserve lands under permanent cultivation.

The proposed total area to be reforested during the period 2001 to 2005 is 4,750 hectares, of which Pine timber comprises 15 percent and hardwood timber makes up the balance. These species proportions are based on their relative demands. Increased seedling production will be needed to meet the target area.

In view of the varying estimates of fuelwood use and charcoal production, no reforestation plan for wood energy is included. Special studies are first needed to determine present production and how the wood cutters, charcoal producers, landowners and potential investors can reach satisfactory arrangements.

#### **E15.0 Investment and Incentives**

Incentives will be provided to encourage investment in forestry development and conservation. These include:

- remission of property tax on private lands designated as protected areas or forest management areas declared as forest reserve;
- income tax exemption, duty concession on motor vehicle purchase, and waiver of GCT on capital goods, activities and supplies for qualifying commercial forestry operations; and
- long-term conditional leasing at competitive rates of public land for reforestation and agroforestry uses.

In addition, the following incentives will be provided, subject to the availability of capital in a Forest Fund (see below):

- subsidised production of tree seedlings;

- grants for plantation establishment on suitable lands;
- direct acquisition or leasing of lands for maintenance as protection forest;
- annual grants to landowners for maintaining protection forests;
- grants for community forestry and forest-based recreational or eco-tourism ventures;
- maintenance of boundaries, trails and fire breaks; and
- surveying of suitable Crown lands for leasing to forestry or agroforestry uses.

New funding mechanisms are needed to supplement the resources provided by Government. The Jamaica Forest Management and Conservation Fund (“Fund” or “Forest Fund”) will provide long-term funding for reforestation and forest conservation. The Fund will be used exclusively for implementation of activities and projects specified in a National Forest Management and Conservation Plan approved by the Government of Jamaica under the Forest Act. Contributions to the Fund will be sought from:

- bilateral and multilateral donors;
- debt reduction agreements;
- private sector sponsorship;
- Government grants; and
- income from forest products, fees and services.

#### **E16.0                    Role of the Forestry Department**

The role of the Forestry Department is defined in the Forest Act, 1996. Fulfilling these roles and implementing the Forest Plan requires that the FD strengthen its capabilities in community liaison, extension and enforcement.

The objective of human resources development in the Forestry Department is to provide effective leadership and service at all levels in order to attain the goals of the forestry sector. The human resources development programme will address such priority areas as:

- gender equity (expanding the role of women);
- staff motivation and morale;
- Forestry Department staff training needs;
- performance management system; and
- monitoring Forestry Department performance.

**E17.0 Role of the Private Sector**

Given the right incentives, the private sector has greater capacity to meet national reforestation requirements than any Government agency. The availability and general productivity of private land offers good potential.

Over the period of the Forest Plan, the area planted by the Forestry Department will decline reflecting the much greater potential for reforestation on private land. Only approximately 20 percent of scheduled reforestation will be by the Forestry Department, the rest will be accomplished by the private sector.

Such a radical shift in investment and land use is unlikely to happen quickly without encouragement, hence the introduction of incentives described above (E15.0).

**E18.0 Co-ordination and Monitoring**

The co-ordination and monitoring of the implementation of the Forest Plan will be conducted by an independent Forestry Planning and Development Committee. The Committee, with technical support from the Forestry Department, will monitor performance against the specific objectives of the Forest Plan, using measurable and verifiable indicators. The Committee will also have an advisory role in: recommending courses of action to remedy problems; providing guidelines for prioritising Forest Plan objectives; and providing guidance to the Conservator.

**E19.0 Implementation of the Forest Plan**

Activities by goal, consistent with strategies stated in the Forest Plan and feedback received from the general public and reviewers of the Forest Plan have been proposed. Objectives with verifiable indicators have been developed based on the Forestry Department's interpretation of required or achievable targets. The targets relate to a 5-year implementation period which commences from the approval date of the Forest Plan by the Minister of Agriculture.

The activities of the Forest Plan are organised into recurrent and development components and associated costs have been estimated. Government of Jamaica costs are separated from externally funded activities and projects although this separation is open to revision. Implementation of the Forest Plan requires a minimum annual operating budget of approximately J\$120 million, plus a minimum 5-year development budget of approximately J\$375 million. This is in addition to current forestry project funding and assumed maintenance of the Forestry Department budget at current levels (J\$66 million per year, recurrent and capital A).

# **National Forest Management and Conservation Plan**

## **PART I: BACKGROUND**

Part I of the Forest Plan begins with a brief statement of the contribution that forests make to society at large. This is followed by an explanation of the legislative requirement for the Forest Plan and the policy and legal framework in which the Forest Plan is being developed (Section 2). A description of Jamaica's forest lands is provided in Section 3. This is followed by an overview of the forestry productive sector in Section 4.





## 1.0 INTRODUCTION

### 1.1 Background

Jamaica is blessed with abundant sloping land and steep mountainous countryside, originally covered with dense forest and woodland. Over the years, these forest and woodland areas have been subjected to various impacts and pressures which have threatened their existence and their ability to contribute to the country's socio-economic development and the maintenance of the environment.

Some factors contributing to the decline of the forest resource include population growth, agricultural expansion, shifting cultivation and mining, land clearing for housing and the consumption of wood for energy. The decline has been evidenced by obvious deforestation particularly in upper watershed areas, increased threat to water quality and yield, soil erosion and a general deterioration of the environment.

To fully appreciate the consequences of this trend, the following serves as a reminder of the contribution that the forest makes to sustainable human development in this country:

#### **At the local level, our forests:**

- regulate water supplies;
- prevent or reduce natural disasters caused by flooding and land slides;
- support food production through the use of yam sticks, fence posts and fish pots;
- indirectly maintain soil fertility for agriculture and the regulation of micro-climate;
- provide shelter and materials for construction and household use, especially in rural areas;
- provide the wood fuel requirements for large numbers of people in both rural and urban areas;
- provide income-generating activities in wood harvesting and transport; small-scale wood processing activities; non-wood product harvesting and processing; and nature-related tourism; and
- provide for cultural and aesthetic values important to society.

#### **At the national level, our forests:**

- increase the development potential of rural areas and decrease the need for rural-urban migration;
- provide opportunities for the development of a wide range of both wood and non-wood-based industries;
- provide for the creation of employment opportunities in the various phases of the production and marketing chain and for earning export revenues to improve the balance of payments;
- provide a source of renewable energy;
- enhance environmental stability and security; and

- provide possibilities for recreation and related services for local use and for the expansion of the tourist industry.

**At the global level, our forests:**

- act as sinks and reservoirs for carbon released from the burning of fossil and organic fuels which would otherwise enter the atmosphere as a greenhouse gas;
- play an important role in the regulation of global climatic conditions; and
- have a key role in maintaining the biological diversity of plants and animals.

Successive governments have been aware of the adverse impacts and problems encountered by the forestry sector. Some of these problems are documented in two early reports, one in 1886 by Hooper<sup>2</sup> and the other by Wimbush<sup>3</sup> in 1935. Both reports served to highlight the problems that existed in those times. It was against this background that in 1942 the Forestry Department was created.

Tree planting has been done in order to resolve some of the problems associated with deforestation. Projects of this nature have been undertaken by the FD since its inception. Reforestation activities peaked during the period 1974 to 1977 when 3,000 hectares of plantations were established under a project supported by the United States Agency for International Development (USAID).

Largely based on the success of this project, plans were made to expand the programme on commercial lines commencing in 1979 with the establishment of the Forest Industries Development Company (FIDCO). However the reforestation activities were abandoned following Hurricane Gilbert in 1988 which destroyed most of the poorly managed immature stands.

Undaunted by this catastrophe, the Government requested the United Nations Development Programme (UNDP) to provide assistance in its plans to rehabilitate and develop the dwindling forest resources of the country on a sustainable basis. The main output of this work was the preparation of a National Forestry Action Plan (NFAP) in 1990. The Food and Agricultural Organisation (FAO) took the lead role in its preparation, supported by the Canadian International Development Agency (CIDA), United Nations Environmental Programme (UNEP) and Overseas Development Agency/United Kingdom (ODA/UK).

Since then, the Government has been implementing some of the priority activities in the NFAP. Two important constraints to sustainable forestry development are now being addressed. The first is the lack of detailed information on the extent, composition and condition of the forest resource without which, it has not been possible to make realistic short- and long-term plans. The second constraint is the institutional limitations of the sector particularly with respect to legislation, policy framework and a decline in the strength and capacity of the Forestry Department.

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<sup>2</sup> Hooper, E.D.M. 1886. *Report Upon the Forests of Jamaica*. Waterlow and Sons Limited, Printers. London.

<sup>3</sup> Wimbush, A. 1935. *Report on the Forestry Problems of Jamaica*.

These constraints are being alleviated in part with support from CIDA's *Trees For Tomorrow Project* which started in 1992, and from a two-year UNDP-funded initiative, *Forestry Capacity (Bridging) Project*, which started in July 1998.

## **1.2 Statutory Requirements for the Forest Plan**

The Forest Act, 1996, which repealed the Forest Act 1937, requires the Conservator of Forests<sup>4</sup> to prepare a draft national Forest Management and Conservation plan containing:

- a statement of the forest resource management and conservation policy;
- an inventory and description of forest lands;
- provision for the protection, conservation and production of forest resources;
- proposals for the protection of watersheds, soil, water, wildlife and other forest resources;
- an outline of the economic objectives for the sustainable development of wood-based industries in Jamaica;
- programmes for social forestry, community development and forest-related education; and
- proposals for implementation.

The Act also requires that the Conservator shall:

- in preparing the draft plan, consult with the relevant statutory authorities, Government departments or agencies, and private conservation organisations; and
- make the draft plan available for public comment.

The Conservator may revise the draft plan as may be appropriate, taking into consideration any comments received from the general public.

As provided for in the Forest Act, 1996, the Forestry Department is the implementing agency for the approved National Forest Management and Conservation Plan (hereinafter referred to as the "Forest Plan"). Section 18 of the Forest Act stipulates the Conservator shall review, and revise as necessary, the Forest Plan every five (5) years.

The full text of the Forest Act, 1996 is reproduced in Appendix I.

## **1.3 Preparation and Approval**

### **1.3.1 Basic Principles**

The following basic guiding principles have been used in the preparation of the Forest Plan. These principles have been recognised by the United Nations Commission on Sustainable Development and the FAO as enhancing the efficiency and effectiveness of national planning and implementation of forestry activities. They contribute significantly to the achievement of sustainable forestry development.

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<sup>4</sup> Forest Act, 1996, section 16.

**Sustainability of forest development:** The essence of the Forest Plan and its main purpose are to ensure the conservation and the sustainable development of the forest resources of the Nation.

**Holistic and inter-sectoral approach towards forest values and resources:** The Forest Plan recognises the forests as diverse ecosystems comprising many interdependent elements in dynamic equilibrium. Forestry, which includes trees in urban and rural areas, closed or disturbed broadleaf forests, tall and short, dry and wet land forests, and mangroves, is practised within the context of sustainable land management and environmental stability. The Forest Plan recognises that forestry cannot be conducted independently from other sectors of the economy and it has a vital role to play in providing a variety of goods and services.

**Consistency with national development policies and the socio-economic environment:** The Forest Plan is linked with national development plans and broader scope programmes such as the National Environmental Policy, the National Land Policy, the National Industrial Policy and the draft Watershed Policy.

**Partnership, participation and transparency:** The Forest Plan strives to bring together all stakeholders in a process which will enable them to express concern and become committed. Policies and strategies are reached and agreed upon through participatory decision making and consensus building among all the interested partners.

**National policy commitment:** The Forest Plan must be backed by the long-term commitment of all national actors, particularly at the policy and decision-making levels.

**International commitment:** The long-term commitment of the international community is essential and will be sought. In developing the Forest Plan, consideration was given to Jamaica's commitments as a signatory to various international conventions related to the environment.

**Raising awareness:** The Forest Plan must raise the visibility of the forestry sector and its priority in the national agenda. The full value of trees and forests and their contribution to social, economic and environmental issues must be recognised.

**A long-term iterative process:** The Forest Plan is a cyclic process comprising planning as well as implementation, monitoring and evaluation activities. It is also an iterative process which continuously reflects changes in the environment and the acquisition of new knowledge even during implementation.

### *1.3.2 Consolidation of the Forest Plan*

The draft plan, completed in January 2000, was the result of a series of analyses and consultations and was intended to provide a basis for public review and input, leading to further analysis and consolidation.

The preparation of the Forest Plan began in 1998 with a review of issues and constraints, an initial inventory of forest lands, consultation with relevant statutory authorities and identification of partners. Preliminary planning got underway in October at a round-table discussion with representation from a cross section of Government agencies with a statutory interest in forest lands.

A working document, *National Forest Management and Conservation Plan: Preparation and Outline for the Planning Process*, was produced in early 1999 and served to guide the series of technical consultations which followed. The consultations involved both Forestry Department personnel and identified partners and provided guidance for prioritising and analysing issues, as well as strategy development.

Technical assistance in developing the Forest Plan was provided to the Forestry Department by the CIDA-funded *Trees for Tomorrow Project* and the *Forestry Capacity (Bridging) Project* funded by the UNDP.

### **1.3.3 Public Consultation Process**

The draft National Forest Management and Conservation Plan was widely distributed to all Government ministries, environmental NGOs, relevant Government agencies, the international development agencies, and other stakeholders with an interest in forest management. Copies were also placed in a variety of locations island wide. Members of the public were able to view the draft plan at parish and branch libraries, the Social Development Commission office in each parish capital, the offices of the Rural Agricultural Development Authority (RADA), and selected Jamaica Agricultural Society offices.

A series of workshops and meetings were held during the first half of 2000 to provide information about the plan and to obtain public input. These were convened as follows:

- March 22: Workshop in Kingston (also the official launch of the plan)
- March 29: Public meeting held at the College of Agricultural Sciences and Education, Passley Gardens, Portland
- April 5: Public meeting held at the Edwin Allen Comprehensive School, Frankfield, Clarendon
- April 8: Public meeting held at the Albert Town High School, Albert Town, Trelawny
- April 17: Workshop in Montego Bay
- June 1: Public meeting held at Savanna-la-Mar, Westmoreland (facilitated by the Westmoreland Environs Development Company Ltd.)

### **1.3.4 Analysis of Comments and Public Input**

Both workshops and public meetings were well attended and generated meaningful discussions concerning forests, forest management and conservation. A very large number of comments were received from these fora, as well as written comments from a number of Government offices and private citizens.

The comments were initially screened to identify those that had major implications for Government policy and implementation of the Forest Plan. The concerns or suggestions which had to be addressed met one or more of the following criteria:

- could be implemented but requires strong political support and commitment;
- implied changes to existing policy or legislation;
- extended beyond current Forestry Department mandate and/or capability; and
- were likely to require substantial increases in Government or external funding.

The suggestions were sorted and grouped based on similarity and affinity. This resulted in the identification of 20 policy issues which required resolving prior to consolidation and implementation of the Forest Plan. Table 1 summarises the concerns and suggestions, grouped by issue.

**Table 1: Public Concerns and Suggestions**

<b>ISSUE</b>	<b>CONCERN/SUGGESTION</b>
Commitment	Clear policy framework prerequisite to credibility, Plan implementation
	Need an updated forest policy
	GOJ should move rhetoric to reality
	Clearer project definition needed for Plan implementation
	Adherence and commitment to policy
	Need champions of cause
	Establish performance indicators for Plan implementation
	Political will to ensure implementation of the Forest Plan
	Political will to provide forestry incentives
	Political will to monitor Plan implementation
	Continuation of participatory process after external projects finish
	Need for ongoing public fora
	Mangrove destruction being endorsed by Government
	Commitment of Forestry Planning & Development Committee members
Overlapping jurisdiction	Overlapping jurisdiction of NRCA/NEPA and FD
	Need to form proper interagency linkages
	Interagency collaboration - networking
	Where do NRCA/NEPA and FD start and end?
	FD efforts to manage watersheds negated by activities such as effluent dumping
Forestry Planning and Development Committee (FPDC)	Will lack power
	Unwieldy, but needs more focus-group representation
	Accountability
	Lacks private sector representation
Policy integration	Involvement of National Integrated Watershed Management Programme
	Mechanism for collaboration on policy
	Must recognise importance of community capacity development
	Dovetailing with other land use and watershed policies
Legislative harmonisation	Multiple laws pertaining to forest land use confuse the public
	Need clear rules and regulations
	New fire legislation required
	Alignment of Country Fires Act and Forest Act

ISSUE	CONCERN/SUGGESTION
Co-management	Need to clearly define co-management
	Communities need to assume greater responsibilities for forest management – through co-management agreements
	Commitment and accountability to co-management obligations
Private sector role	Private sector strategy should be given higher priority – two-thirds of forest land is privately owned
	Need to involve private sector, especially tourism
	Missing true strategic alliance between public and private sector
	Outsource work to private sector: seedlings, stand management
	Commitment of private sector
Conservation of forests on private lands	Declaration of private land as forest reserves
	Protection of private land under the Forest Act
Reclamation	Reforestation plans for mined lands
	Bauxite companies are destroying forests
Forest land use allocation	Specify objectives for use of forest land
	Proper zoning of land
	Identification and declaration of protection forest
	Plant to reap or plant to stay?
	FIDCO freehold land
Enforcement	Non-enforcement of legislation regarding livestock on forest reserves
	Unlikely anyone would pay for fuelwood when it can be gathered free
	Police role in enforcement is insufficient
	Need strong enforcement in combination with strong public education
	Rationalise enforcement entities
	Enforcement of land use zoning
	Better policing required
	Enforcement of seizure provisions in Forest Act
	Licensing of power saws
	Burning of hillsides
Mangrove management	Mangroves insufficiently addressed in Forest Act and Forest Plan
	Mangrove denudation highest priority concern
Encouraging compliance	Unemployment adversely affects feasibility of enforcement
	Participation and support for enforcement conditional on continued benefit
	Involve youth
	Absence of community policing and monitoring
	Poor farming practises on forest lands leased to Coffee Industries Board
	Ability to enforce legislation without alienating the community
	Foresters need to play leading role in communities
	FD needs trust of community
	FD needs to be seen as friend, partner, ally
Public education	Introduce forestry into school curriculum
	Need for forestry education in Jamaica at various levels
	Target young people
	Lack of public awareness
	Plan needs to be seen and heard by many more people
	Ability to educate and change public attitudes regarding protection



<b>ISSUE</b>	<b>CONCERN/SUGGESTION</b>
Forestry Department capacity	Attract and retain qualified staff – improve staff morale
	Number of wardens available for forest protection
	FD needs to employ more wardens
	Inadequate institutional support for enforcement of forest law
	No forest research being done
	Will educational staff be readily available to communities?
	Non-availability of seedlings
Incentives – general and fiscal	Incentives required for tree planting, agroforestry and soil conservation
	Incentives not articulated
	Incentives – tax relief
	Incentives to private farmers for permanent crops through Government funding (tax relief or cash)
	Loans, subsidies and incentives should be made available to farmers
	Incentives for preserving/maintaining forest; change idle land designation
	Compensation for protection forest
	Rationalisation of incentives to conflicting land uses
	Amelioration or insurance of investment risks
	Articulate measurable investment benefits
	Loggers should replant after they cut
	Increasing praedial larceny will discourage investment
Incentives - land	Permit leasing of Crown land for forestry (eg. Coffee Industries Board lands)
	Make waste land available for planting by farmers
	Lease land to young people
	How to make forest land available to private sector
Incentives - seedlings	Free seedlings for schools/farmers/large organisations/other
Forest fund	Legal and regulatory framework must be very clear
	How will the fund work?
	Can fund be used for compensating owners for preserving forests?
	What mechanisms to finance the Forest Plan?
Funding sources	Proceeds from forest harvesting should be used for forestry, and not returned to consolidated fund
	Place tax on lumber imports
	NWC should contribute to fund
	NWC user fees?
	Water use charges not endorsed because they would be passed on to consumer
	WRA no legal authority to charge water user fees
Miscellaneous	Gender equity is not a role of the FD, but sensitisation is required
	Disaster management mitigation needs more emphasis in Plan
	Resolution of Maroon land boundaries
	Bamboo utilisation
	Policy for fuel forests and wood substitution should be clarified

### *1.3.5 Approval and Implementation of the Forest Plan*

As provided for in the Forest Act, 1996 the draft plan, including all revisions was submitted to the Minister in December 2000 for his approval. Being satisfied that implementation of the draft plan will be in the public interest, the Minister approved the plan in March 2001 and will table the approved Forest Plan before both Houses of Parliament for adoption.

The duration of the Forest Plan is five (5) years from this approval date, however, the Conservator may review the Forest Plan at any time before the five years and make the appropriate and necessary amendments.

## 2.0 POLICY AND LEGAL FRAMEWORK

### 2.1 Forest Policy

The earliest statement on record that could be regarded as a national forest policy recommendation is contained in Hooper's report (1886) on the forests of Jamaica. In 1935, Wimbush also reported on the forestry problems of the country with emphasis on deforestation, the protection of existing forest lands, reforestation and shelterbelts.

Although there was a gap of almost 50 years between the two reports, their policy recommendations were essentially the same ... "to reserve, demarcate, survey, and protect against fire, theft, and trespass." During this period, forest degradation escalated to the extent that the Jamaica Agricultural Society (JAS) passed a resolution expressing concern about what was described as frequent droughts and floods caused by deforestation.

### 2.2 Swabey Policy Statement (1945)

In 1945, the then Conservator of Forests, Christopher Swabey<sup>5</sup> wrote what is considered to be Jamaica's first formal Forest Policy Statement. The document contains eight Basic Considerations which could be regarded as a list of guiding principles on which the Statement is based.

The section which deals with General Policy lists four recommendations and these are reproduced below (in bold italics) with comments on how they have since fared.

- ***Establishment of adequate areas of forest reserves under public ownership.*** The present publicly owned forest reserve system owes its existence to the wisdom and foresight of the early foresters who successfully implemented this policy objective.
- ***Development of the use of native timbers and other forest products to provide the highest possible proportion of the island's requirements.*** The achievement of this policy without adequate sustainable management plans can be measured by the extent to which the closed broadleaf forests have been cleared. The demand for immature smaller trees in the form of fuelwood, posts and yam sticks is now such that the natural recovery of the forest in many of the reserves can no longer be taken for granted.
- ***Encouragement of sound forest management on private lands.*** This was never achieved but in recognition of this need, the Forestry Department has, over the years, been providing advice and free seedlings to interested farmers.
- ***Managing the reserves on the basis of conservation and development for multiple use.*** Although the technical measures for managing forests on a sustainable basis are fairly well known, the forests of Jamaica are still not under sustainable management. This has been largely due to the fact that until recently, only very general estimates were available on the country's forest resource area,

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<sup>5</sup> Swabey, Christopher. 1945. *Forestry in Jamaica*. Forestry Bulletin No. 1. Forest Department, Jamaica.

its location, species composition, volume, growth rates and site conditions as well as the lack of local management plans.

Although the record of the formal approval of this policy by Government was not found, there appears to be little doubt that successive governments and the forestry organisation accepted the above four recommendations as the national forest policy of Jamaica.

### **2.3 Policy Statements (1984)**

The decade of the 1980s was marked by a resurgence of interest to protect and conserve the Nation's deteriorating environment and awareness of forestry's potential role in ameliorating some of the adverse effects. Recognising the need to revise and bring the forest policy in line with the renewed environmental dimension, two policy statements were prepared with assistance from the UNDP/FAO-funded JAM/82/006 project. One policy statement was on forestry and the other was on soil conservation as part of UNDP's support in strengthening the Department of Forestry and Soil Conservation as it was then known. Two policy statements were considered necessary in view of the uncertainty at that time of the survival of both subjects under the umbrella of a single agency.

The statements asserted that forestry and soil conservation were essential disciplines in Jamaica if the remaining natural resources were to be managed and conserved for the national benefit. They represented broad long-term statements of Government aims and were considered to be sufficiently wide to allow flexibility in coping with diversity and minor programme adjustments that might become necessary at a later date. Both policies were approved in 1983 at the level of a Forestry Development Committee under the chairmanship of the Director of Technical Services of the Ministry of Agriculture but were never put into practice.

### **2.4 NFAP Policy Statements (1990)**

During the planning process for the production of the National Forestry Action Plan (NFAP), the development policies of the Government relevant to the forestry sector were analysed to help identify development objectives for the sector. Based on these objectives, it was expected that a revised policy statement complete with priorities and strategies would have been formulated. Except for some minor editing, however, the NFAP did not make any changes to the 1984 version. Instead it addressed forest policy as it related to two of the NFAP focus areas, namely "Forestry in Land Use" and "Fuelwood and Energy".

### **2.5 National Report on the Environment (1992)**

The above-mentioned NFAP policy statements were not formally endorsed by Government. However, in the report submitted to the United Nations Conference on Environment and Development (UNCED) held in Brazil in 1992, the Government confirmed, on the international stage, its commitment to sustainable forestry development and summarised the economic and social benefits gained from the sector.

## 2.6 Forest Land Use Policy (1996)

In 1996 Parliament gave assent to a document entitled *Forest Land Use Policy* which contains a statement relating to forest policy. Following a brief introduction, the statement presents a list of 33 goals under the following subject areas:

- Conservation and Protection of Forests
- Management of Forested Watersheds
- Management of Forest Lands
- Promotion and Regulation of Forest Industries
- Forest Research
- Public Awareness and Environmental Education
- Forest Education and Training

Section 2 of the 1996 forest policy statement “indicates how the Government intends to implement the Forest Land Use Policy by defining the roles and responsibilities of each of the agencies involved in forest land use”.

## 2.7 Watershed Policy

A Green Paper (No. 2/99) entitled *Towards a Watershed Policy for Jamaica* has been prepared and is now in general circulation for public discussion and review. The document identifies the Natural Resources Conservation Authority/National Environmental Planning Agency (NRCA/NEPA) as the lead policy and monitoring agency for watershed management.

The Forestry Department is named as the implementing agency with overall responsibility for watershed protection and conservation. Additional duties as they relate to watershed management will become part of the FD’s mandate. When a national watershed policy is adopted, the FD will review the activities of his Forest Plan as they relate to its new watershed management duties.

## 2.8 Other Related Policies

In developing the Forest Plan, a number of higher order national policies were taken into consideration and reference is made to the following:

- National Industrial Policy (1996)
- National Land Policy (1996)

Developments or changes to these higher order plans will be reflected as necessary in amendments and implementation of the Forest Plan.

Other national policies and plans having a bearing on the Forest Plan were consulted to ensure the highest possible degree of harmonisation:

- Policy for Jamaica’s System of Protected Areas (1997)

- Watershed Policy (draft) (1999)
- Jamaica National Environmental Action Plan (first prepared in 1995)
- National Environmental Education Action Plan for Sustainable Development (1998)

Two other programmes that will have a bearing on Forestry Department activities are presently under development: the National Biodiversity Strategy and Action Plan Project and the National Integrated Watershed Management Programme (NIWMP). The NIWMP is at a very early development stage. As the FD's role in these programmes become known, appropriate revisions to this Forest Plan will be made.

## 2.9 Forest Policy Issues

As previously discussed in Section 1.3.4 the stakeholder and public input received on the draft plan identified 20 policy issues which needed to be resolved prior to implementation of the Forest Plan.

The identified policy issues were grouped into three categories, depending on whether they related to:

1. Governance (commitment, overlapping jurisdiction, enforcement roles, mangrove management, FD capacity, Forestry Planning and Development Committee, policy integration, legislative harmonisation);
2. Investors (forest fund, funding sources); and
3. Stakeholder participation (co-management, private sector role, conservation of private land, reclamation of mined lands, forest land use allocation, incentives, compliance and public education)

The draft plan lacked specificity on how the above issues were to be resolved. To address the issues obtained from the public consultations, strategic options for each were developed. Preferred options were identified at a Forest Policy Workshop<sup>6</sup> held in June 2000 and in subsequent discussions held within the Forestry Department.

The preferred options for addressing issues arising from stakeholder and public input are shown in Table 2. These options will serve to guide the development of Forestry Department's programmes and activities

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<sup>6</sup> Participants included representatives of Ministry of Lands and Environment, Ministry of Tourism and Sport, Ministry of Agriculture, Water Resources Authority, Lands Department, Caribbean Coastal Area Management Foundation, Caribbean Natural Resources Institute, Jamaica Conservation Development Trust, Natural Resources Conservation Authority/National Environmental Planning Agency, and the consulting profession in addition to the Forestry Department.

**Table 2: Strategic Options for Addressing Public Input**

<b>ISSUE</b>	<b>STRATEGIC OPTION</b>
1. Commitment to implementation of Plan	Plan carried forward for approval by Minister and Parliament
	Update 1996 Forest Land Use Policy
	Formal commitment to Plan strategies by GOJ (to donor community)
	Formal commitment by GOJ to multi-year Plan budget contribution
	Obtain multi-stakeholder endorsement from political and civil sectors
	Revise Forest Act to bind Crown
2. Overlapping jurisdiction/role of Forestry Department	FD responsible for enforcing Act in forest reserves (whether or not in parks/protected areas)
	FD implementing agency for NIWMP in forest reserves once NIWMP is launched
3. Enforcement roles	By strengthened FD in all forest reserves
	Shared enforcement formalised in co-management agreements or MOU
	FD enforcement expanded to inspection of all types of primary conversion facilities for verification of legal wood supply
4. Mangrove management	Provide for co-management: FD/NRCA/NEPA/Fisheries Dept./Coast Guard/NGO
	Declare as forest reserves or forest management areas all mangrove areas not already protected
5. Forestry Department capacity requirements	As required to carry out core functions as defined in section 4 of the Forest Act
	Strong community liaison to provide extension service in forestry, agroforestry and watershed protection on lands outside reserves
6. Forestry Planning and Development Committee	As proposed in Plan, appointed by Minister of Agriculture on recommendation of Conservator, produces published report
	Sub-committee of NWMC when council becomes active
7. Policy integration	Plan harmonised with other policies, programmes and plans
	Plan recognises “high order” plans, policies and programmes that must be followed
8. Legislative harmonisation	Harmonise Forest, NRCA/NEPA, and Watershed Protection Acts and Regulations with respect to parks, protected areas, management areas, enforcement provisions, etc.
	Review and amend Country Fires Acts, prepare drafting instructions for Regulations
	Land with natural vegetation cover should not be considered “idle” if serving a conservation function
9 (a). Jamaica Forest Management and Conservation Fund - organisation	Board: contributors, GOJ, public Financial Administrator: international/local financial management firm Technical Coordinator: Forestry Department
9 (b). Jamaica Forest Management and Conservation Fund - beneficiaries	Non-profit non-government and community-based organisations, educational institutions
	Lessees and owners of private lands
	Contractors
10. Funding sources	ETF/debt reduction agreements
	International donors (bilateral and multilateral)
	NWC & NIC contribution to watershed management
	User fees – tourism, recreation
	Carbon credits
	Government forest production revenues (noted as essential)
Personal and corporate endowments	

ISSUES	STRATEGIC OPTION
11. Co-management	FD will enter into management agreements with Government executing agencies
	FD will enter into arrangements for conservation easements directly with private sector on private land
12. Private sector role	Seedling production
	Protection and reclamation of natural forests on private land
	Forest reclamation on leased Crown lands
	Commercial forest management of Crown and private land
	Other forestry activities on Crown land
	Support forestry public awareness programme
13. Conservation on private lands	Voluntary declaration by owner
	Compulsory acquisition
	Forest management agreement
14. Reclamation of mined forest lands	End-use must be forest if land was forest before disturbance
	End-use defined by the Mining Act and Regulations, 1979
	All costs borne by operator, except FD promotional and regulatory functions specified in the Forest Act
15. Forest land use allocation	Retain strategy in Plan as general guidelines
	Establish and promote strategy as policy
16. Financial incentives for private forestry	Re-institute grant for plantation establishment
	Grant for dedication and maintenance of protection forest
	Long-term, nominal interest loans
	Property tax deduction or remission – de-rating system as for developed agriculture
	Duty concession on motor vehicle purchase
	Waiver of GCT on capital goods
	Income tax exemption for prescribed activities
	Other tax deductions or remission for purchase of supplies
17. Land incentives	49-year conditional lease of public land for sustainable forest management
	Conditional lease of public land for other purposes (eg, bee-keeping)
	Lessees vested full ownership of planted trees
18. Seedling supply incentive	Timber seedlings free to all from nursery site
	Subsidised cost depending on species
	Subsidised cost depending on quantity
19. Encouraging compliance	FD foresters and wardens trained in community liaison
	Work through Local Forest Management Committees
20. Public education and awareness	Forest education programmes delivered by FD to target groups identified in Forest Plan
	Collaboration between FD – NEEC – Ministry of Education to incorporate forest conservation into core school curriculum
	Teacher/educator pre-service training
	Teacher/educator in-service training

## 2.10 Forest Policy Development

During the development of the draft plan it became increasingly clear that the existing 1996 *Forest Land Use Policy* needed to be updated in light of the values, goals and strategies outlined in the Forest Plan.



The process used in formulation of the draft plan involved analysis of problems, setting of goals and objectives, definition of courses of action, identification and use of policy tools, implementation, and monitoring – all of which are also part of the policy process. Hence the Forest Plan contains many elements that amount to policy statements.

To update the 1996 policy statement, a workshop for Forestry Department staff was held in early February 2001 to prioritise policy issues and identify strategic policy tools. Additional input was received during individual meetings with the NRCA/NEPA, Jamaica Bauxite Institute, Petroleum Corporation of Jamaica and the Environmental Foundation of Jamaica.

The updated Forest Policy 2001 is organised into three sections. Section 1 states the priorities and goals of the forestry sector. Section 2 lists the strategies and tools to achieve priorities and goals and Section 3 lists the roles and responsibilities of each of the agencies involved in forest land use. Updates relative to the 1996 policy statement reflect legislative, institutional and other developments that have occurred since 1996, and public input received during the development of the National Forest Management and Conservation Plan.

The full text of the Forest Policy 2001 is provided in Appendix II.

#### **2.11 Forest Regulations**

A set of Forest Rules (1945) is presently under revision. The final draft will be presented to the Minister for approval. When adopted, the new Forest Regulations will enable the Forestry Department to carry out its mandated functions as elaborated in the Forest Act, 1996. Among other things, the Regulations will provide for and address:

- Approval and distribution of Forest Management Plans as well as specifying content;
- Permitted uses of roads within forest reserves and penalties for non-compliance;
- Burning permits and fire restrictions within forest reserves;
- Trespass by cattle and people;
- Conditions surrounding timber extraction from forest reserves, including the requirement for permits to transport power saws, sawmill licenses and permits, records to be kept by licensees, right of seizure and search, and authority of FD officers to request information;
- Illegal removal of produce from forest reserves or protected areas;
- Protection of wildlife;
- Establishment of community catchment areas;
- Conditions for leasing of forest reserve lands; and
- Development and management of forest reserves for recreation sites.

Under the Regulations the Minister may provide incentives to encourage private forestry, including provision of technical advice, provision of tree seedlings at special rates, duty-free concessions for inputs and remission of property taxes.

### 3.0 INVENTORY AND DESCRIPTION OF FOREST LANDS

#### 3.1 Forest Cover and Land Use Classification System

The most recent assessment of forest cover and land use in Jamaica is based on LANDSAT<sup>TM</sup> satellite imagery acquired in 1996 and 1998, combined with aerial and ground reconnaissance. The work was conducted by the Forestry Department, with support from the CIDA-funded *Trees for Tomorrow Project*. The resulting classification of forest cover was combined with information on protection status, watershed boundaries and priority, accessibility, topography and soils provided by the Natural Resources Conservation Authority/National Environmental Planning Agency (NRCA/NEPA), the Survey Department, the Rural Physical Planning Unit of the Ministry of Agriculture, and Spatial Innovision Ltd. The assessment generated databases and maps (at scales of 1:100 000 and 1:250 000) showing land use, forest cover, watersheds, protected areas, reforestation potential and critical areas for protection and conservation.

Details of the system for classifying land use and forest cover used in this Forest Plan are documented in Table 3 below. Land use/forest cover is divided into three broad classes: Forest, Mixed and Non-forest. Each of the three classes is further divided into several sub-classes which provide the detailed land use/forest cover description. The Forest classification includes closed and disturbed broadleaf forests, open dry forests, swamp and mangrove as well as bamboo areas. The Mixed classification is composed of Forest sub-classes where anthropogenic activities take place. Wholly cultivated lands, water bodies, urban and industrial areas, etc. make up the Non-Forest classification.

**Table 3: Definitions of Land Use and Forest Cover Types Used in Broad Inventory**

LAND USE / COVER		DEFINITION
Class	Sub-class	
Forest	Closed Broadleaf	Closed primary forest with broadleaf trees at least 5 m tall and crowns interlocking, with minimal human disturbance.
	Disturbed Broadleaf	Disturbed Broadleaf forest with broadleaf trees at least 5 m tall and species-indicators of disturbance such as <i>Cecropia peltata</i> (trumpet tree).
	Bamboo	<i>Bambusa vulgaris</i> (Bamboo brakes) on the lower shale hills (disturbed forest).
	Tall Open Dry	Open natural woodland or forest with trees at least 5 m tall and crowns not in contact; in drier part of Jamaica with species-indicators such as <i>Bursera simaruba</i> (red birch).
	Short Open Dry	Open scrub, shrub, bush or brushland with trees or shrubs 1-5 m tall and crowns not in contact, in drier part of Jamaica with species-indicators such as <i>Prosopis juliflora</i> (cashaw) or <i>Stenocereus hystrix</i> (columnar cactus).
	Swamp	Edaphic forest (soil waterlogging) with a single tree storey with species-indicators such as <i>Symphonia globulifera</i> (hog gum) and <i>Roystonea princeps</i> (royal palm).
	Mangrove	Edaphic forest (areas with brackish water) composed of trees with stilt roots or pneumatophores, species-indicators such as <i>Rhizophora mangle</i> (red mangrove).

LAND USE / COVER		DEFINITION
Class	Sub-class	
<b>Mixed</b>	Fields or Disturbed Broadleaf Forest and Pine Plantation	>50% fields or Disturbed Broadleaf forest; >25% Pine plantation
	Disturbed Broadleaf Forest and Fields	>50% Disturbed Broadleaf forest; >25% fields
	Bamboo and Disturbed Broadleaf Forest	>50% bamboo; >25% Disturbed Broadleaf forest
	Bamboo and Fields	>50% bamboo; >25% fields
	Fields and Disturbed Broadleaf Forest	>50% fields; >25% Disturbed Broadleaf forest
	Bauxite Extraction and Disturbed Broadleaf Forest	>50% bauxite extraction; >25% Disturbed Broadleaf forest
<b>Non-Forest</b>	Plantations	Tree crops, shrub crops like sugar cane, bananas, citrus and coconuts
	Fields	Herbaceous crops, fallow, cultivated grass/legumes
	Herbaceous Wetland	Edaphic vegetation (soil waterlogging) with herbaceous plants
	Water Bodies	Lakes, rivers
	Small Islands	Mostly sand/limestone, unvegetated small islands (cays)
	Bare Rock	Bare sand/rock
	Bauxite Extraction	Surface mining/bauxite
	Buildings and Other Infrastructure	Buildings and other constructed features such as airstrips, quarries, etc.

Source: Forestry Department, December 1999

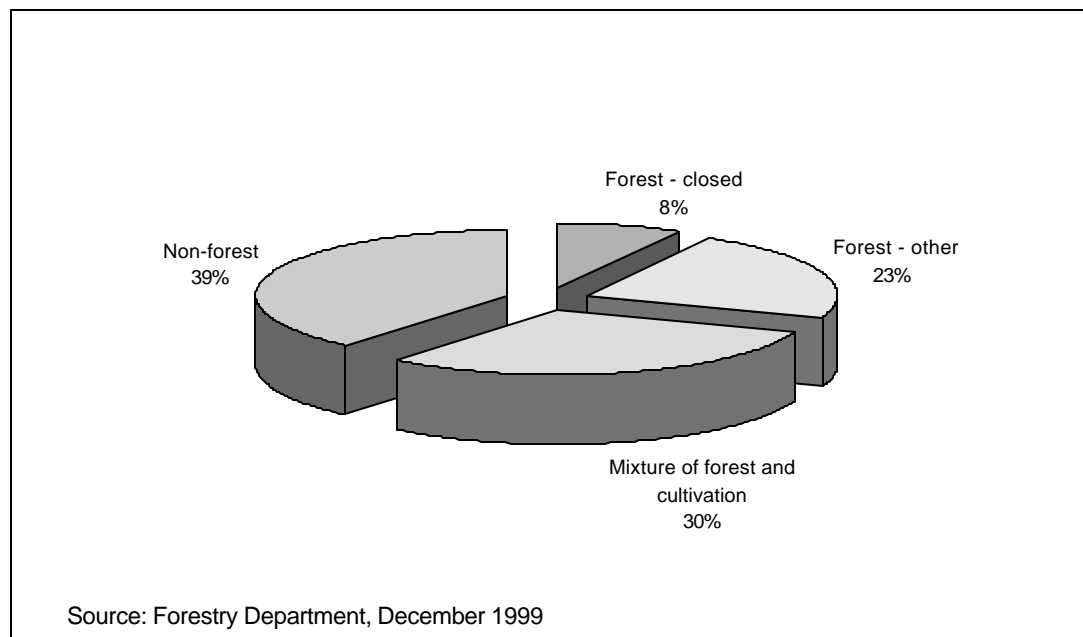
### 3.2 Present Land Use

Map 1 in Appendix III shows land use and forest cover at a scale of 1:250 000. The associated areas are broken down by land use/forest cover class, sub-class, and protection status. Table III-1 in Appendix III shows a breakdown, by hectare, of the area of Jamaica using the land use/forest cover classification discussed in the above section, and its protection status.

Over 30 percent of Jamaica, approximately 335,900 hectares, is classified as Forest (see Figure 1). Approximately 88,000 hectares of this is classified as closed broadleaf forest with a closed canopy and minimal human disturbance. Most of the remaining forest is “disturbed broadleaf” (showing varying degrees of human disturbance) or natural dry open forest. Although the latter is often referred to as woodland or scrub, dry limestone forests are a key component of Jamaica’s forest ecology and economy.

Just over 30 percent of the country is classified as Mixed use. These are areas of disturbed broadleaf forest mixed with another land use/forest cover, ie, Pine plantation, agricultural field, bauxite extraction site or bamboo.

The remaining 39 percent of the area of Jamaica is classified as Non-forest and consists of wholly cultivated areas, water bodies, bare rock, bauxite mines, and buildings/other infrastructure.

**Figure 1: Proportion of Jamaica Covered by Forests**

### 3.3 Protection Status and Ownership

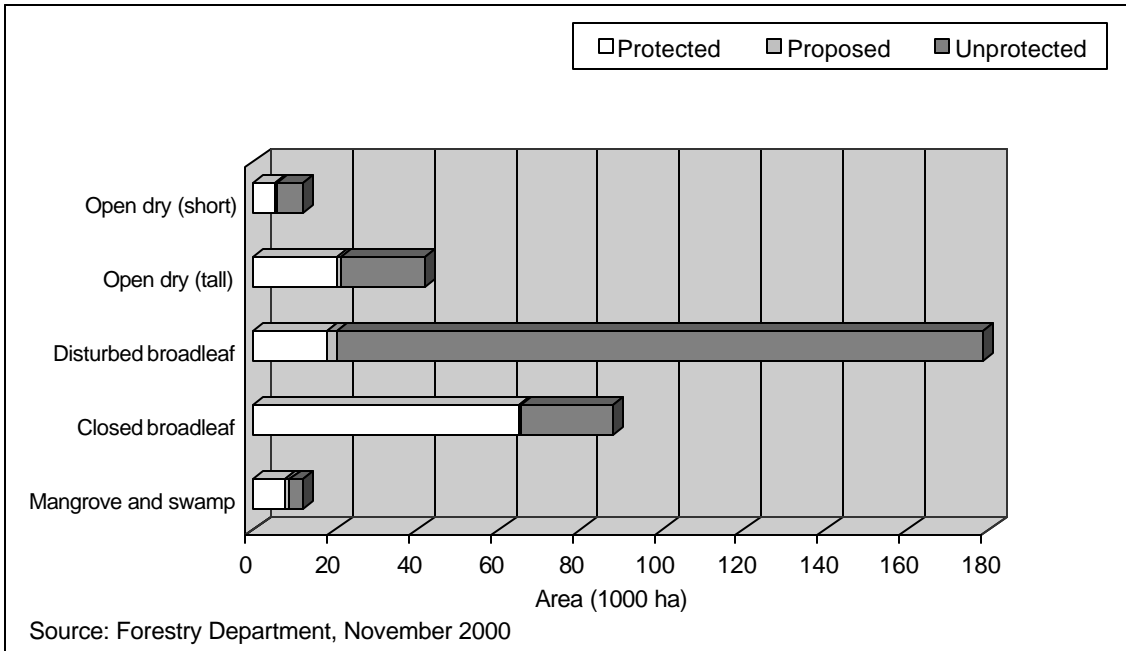
For the purpose of identifying protection status, areas are considered “protected” if they fall into one or more of the following categories:

- *forest reserve* declared by or under the Forest Act;
- *national park* declared under the Natural Resources Conservation Authority Act;
- *game reserve* or *bird sanctuary* protected under the Wildlife Protection Act; and
- other *protected areas* designated under the Natural Resources Conservation Authority Act or the Forest Act.

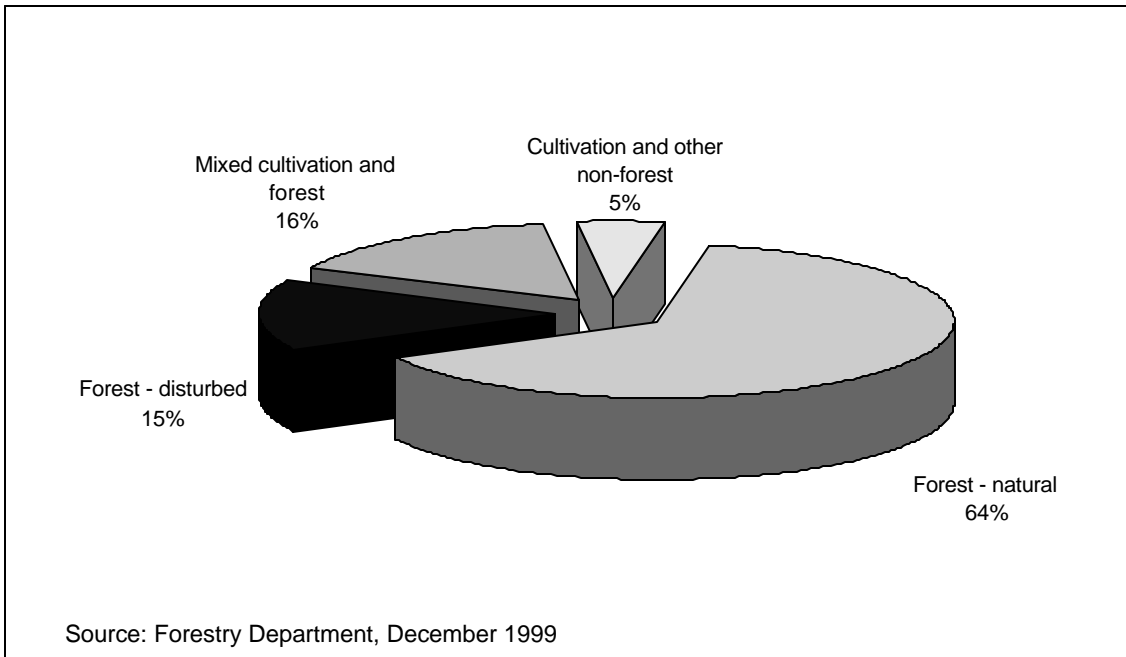
Figure 2 shows the forested area distribution by forest type and protection status. The Forest classification encompasses approximately 335,900 hectares. Of this, almost 64 percent is unprotected and comprises privately owned and Crown lands. A laudable proportion of classified forest land is designated as protected: nearly 35 percent of all forests, and over 73 percent of closed broadleaf forest. The largest category of forest area in Figure 2 is unprotected disturbed broadleaf forest (approximately 158,000 hectares). Details of protected areas are shown in Table III-1 in Appendix III.

Although much of Jamaica’s forest is ostensibly protected, Figure 3 indicates serious encroachment of forest reserves (including the Blue and John Crow Mountains National Park) has occurred. More than 20 percent of land within forest reserves has been impacted by human activity and is classed as disturbed broadleaf forest with another land use. Over one-third of all forest reserves and other protected areas has been significantly disturbed.

**Figure 2: Forest Area by Type and Protection Status**



**Figure 3: Present Land Use within Forest Reserves**



### 3.4 Lands Managed by the FD

According to *The Jamaica Gazette*, the area of forest reserves and Crown lands<sup>7</sup> managed by the FD is 109,514 hectares, of which 98,962 hectares are forest reserves and 10,552 hectares are Crown lands.<sup>8</sup> The difference in forest reserve areas between the *Gazette* and those in Table III-1 (in Appendix III) can be explained by:

- the forest reserve areas in the *Gazette* are estimates, based on descriptive (not surveyed) boundaries; and
- the forest reserve areas shown in Table III-1 were digitised from FD 1:250 000 maps and not from actual surveyed forest reserve boundaries.

A programme of surveying forest reserve boundaries has begun and survey data are being digitised which will produce more accurate areas in future. Just over one-half of the Crown lands managed by FD are protected. These lands lie within the Portland Bight Protected Area.

A Cabinet Decision (No. 19/99) dated 31 May 1999 approved the recommendation that approximately 2000 ha of freehold lands owned by FIDCO are to be transferred to the the Commissioner of Lands for management by the Forestry Department.

### 3.5 Forest Cover Change over Time

Jamaica is relatively well documented with studies on forest depletion, but the results vary widely with estimates of the annual deforestation rate ranging from between 0.1 to 11.3 percent (Table 4, below).<sup>9</sup> The causes of these differences in the forest cover estimates and the related deforestation rate are as follows:

- the definition of Forest and the Forest Classes included (forest and/or wooded land);
- the reference area (entire country or region);
- the reference year (photographs/images year or study publication year);
- the type of the study (mapping or field sampling or both);
- the precision of the estimates (photographs or satellite imagery or field survey);
- the information sources used (traditional forest inventory or research plots); and
- the objectives of a particular study (agriculture, forestry or conservation).

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<sup>7</sup> Crown lands refer to lands owned by the Government. Forest reserves are a special designation of Crown lands set aside by the Government.

<sup>8</sup> These areas have been compiled from various issues of *The Jamaica Gazette*.

<sup>9</sup> This Section summarises the findings of a paper, *Forest Cover and Deforestation in Jamaica – An Analysis of Forest Cover Estimates over Time*, prepared by O.B. Evelyn and R. Camirand and presented at the Public Awareness Workshop, U.N. Convention on Desertification, Kingston, Jamaica, March 2000.

**Table 4: Studies of Forest Cover Change in Jamaica**

Period / Region	Annual Rate (%)	Reference
?? / Jamaica	3.0	FAO/UNDP (1981) in Eyre (1986)
?? / Jamaica	3.0	US Congress (1984) in Eyre (1986)
?? / Jamaica	2.1	Allen & Barnes (1985) in Eyre (1986)
1980-1986 / Jamaica	3.3	Eyre (1986)
1980-1986 / Jamaica (Rural Districts)	4.3	Eyre (1986)
1980-1986 / Jamaica (Land altitude > 1000 m)	1.0	Eyre (1986)
CRIES Studies 1981-1987 / Cockpit Country	2.8	Eyre (1989) in Miller (1998)
?? / Jamaica	5.3	FAO/WRI (1994) in Eyre (1994, 1996)
1980-1990 / Jamaica	11.3	FAO (1995)
1982-1993 / Hope & Upper Yallahs Watersheds	2.0	Graaff de (1997)
1990-1995 / Jamaica	7.2	FAO (1998)
1961-1991 / Cockpit Country	0.1	Miller (1998)
1989-1998 / Jamaica	0.1	Forestry Dept./TFT Project (1999)

EVELYN, O.B., 1997. "Deforestation in Jamaica: An analysis of the data". Forestry Department, Kingston, 9 p.

EYRE, L.A., 1986. "Deforestation in Jamaica: Its rate and implications". Department of Geography, University of the West Indies, Kingston, 29 p.

EYRE, L.A., 1987a. "Jamaica: a test case for tropical deforestation". *Ambio* 16(6): 336-343.

EYRE, L.A., 1987b. "Deforestation in Jamaica". *Journal of the Scientific Research Council of Jamaica* 6: 17-24.

EYRE, L.A., 1994. "Jamaica's deforestation rate is world's highest". *Sunday Gleaner*, December 18.

EYRE, L. A., 1996. "The tropical rainforests of Jamaica". *Jamaica Journal* 26(1): 26-37.

FAO, 1995. "National Forestry Action Programmes – Update 32". NFAP Support Unit, FAO Forestry Department, Rome, 369 p.

FAO, 1998. "Latin America and the Caribbean National Forest Programmes – Update 33". FAO Regional Office, Santiago, Chile, 206 p.

GRAAFF, J. de, 1997. "Evaluating the sustainable development of the Kingston watersheds in Jamaica, 1980-1993". *Caribbean Geography* 8(1): 46-56.

MILLER, D.J., 1998. "Invasion of the Cockpits: Patterns of Encroachment into the Wet Limestone Rainforest of Cockpit Country, Jamaica". P.373-389 in McGREGOR, D.F.M., BARKER, D. and S. LLOYD EVANS (eds). *Resource Sustainability and Caribbean Development*. The Press, University of the West Indies, Kingston, 408 p.

FORESTRY DEPARTMENT/TREES FOR TOMORROW PROJECT, 1999. "Land use/cover types areas 1989 and 1998 per watershed management unit and protection status". Technical report, Kingston, 69 p. + 1:100 000 and 1:250 000 scale colour maps.

In March 2000 the Forestry Department and the *Trees for Tomorrow Project* carried out an analysis of forest cover change over the period 1989 to 1998 using the following LANDSAT™ images:

- Full scene 012/047 (10 Dec 1989) and Full scene 011/047 (03 Dec 1989) + Quarter scene 011/047 (12 Nov 1990); and
- Full scene 012/047 (07 April 1998) + Quarter scene 012/047 (02 Feb 1998) and Full scene 011/047 (04 Oct 1996).

The Project devised a classification system for the LANDSAT™ interpretation and limited this to a mapping scale of 1:100 000. The smallest area or polygon resolved was 25 hectares. A supervised classification system was used and over 100 locations island wide were visited (and photographed) and the co-ordinates taken by GPS for verification purposes. Aerial photographs (1991 and 1999) were also used to verify seven large blocks, which were very difficult to interpret because of clouds and

shadows. Table 5 below gives the 1989 and 1998 land use areas derived from the analysis.

**Table 5: Land Use/Cover Change in Jamaica, 1989 to 1998**

LANDUSE		1989 (hectares)	1998 (hectares)	Difference (hectares)	Loss/gain (%)
<b>Forest land use/cover (&gt; 75%)</b>					
BB	(Bamboo)	2,791.20	2,979.41	188.21	6.74
MG	(Mangrove)	9,751.46	9,731.37	-20.09	-0.21
PF	(Closed Broadleaf)	88,716.63	88,230.54	-486.09	-0.55
SF	(Disturbed Broadleaf)	181,154.01	178,624.64	-2,529.37	-1.40
SL	(Short Open Dry)	12,083.37	12,104.02	20.65	0.17
SW	(Swamp)	2,357.51	2,247.03	-110.48	-4.69
WL	(Tall Open Dry)	42,124.98	41,998.54	-126.44	-0.30
<b>Sub-total</b>		<b>338,979.17</b>	<b>335,915.55</b>	<b>-3,063.62</b>	<b>-0.90</b>
<b>Mixed land use/cover (first class &gt; 50%, second class &gt; 25%)</b>					
BC	(Bamboo and Fields)	29,818.44	29,155.59	-662.84	-2.22
BF	(Bamboo and Disturbed broadleaf)	12,311.14	12,687.17	376.03	3.05
BS	(Bauxite and Disturbed broadleaf)	1,590.46	2,851.38	1,260.92	79.28
CS	(Fields and Disturbed broadleaf)	118,897.77	117,966.13	-931.64	-0.78
PP	(Pine Plantations/Other)	4,956.22	4,286.94	-669.28	-13.50
SC	(Disturbed broadleaf and Fields)	166,837.72	165,953.86	-883.87	-0.53
<b>Sub-total</b>		<b>334,411.75</b>	<b>332,901.08</b>	<b>-1,510.68</b>	<b>-0.45</b>
<b>Non-forest land use/cover</b>					
BA	(Buildings/Other infrastructure)	51,909.59	52,259.78	350.20	0.67
BE	(Bauxite)	1,193.29	4,921.94	3,728.66	312.47
BR	(Bare rock)	866.98	933.88	66.90	7.72
FC	(Fields)	273,176.05	274,478.64	1,302.59	0.48
HW	(Herbaceous wetland)	10,914.08	10,914.08	0.00	0.00
PC	(Plantations)	83,145.25	82,341.34	-803.91	-0.97
WA	(Water)	1,656.17	1,586.03	-70.14	-4.23
	(Small islands)	164.00	164.00	0.00	0.00
<b>Sub-total</b>		<b>423,025.41</b>	<b>427,599.70</b>	<b>4,574.29</b>	<b>1.08</b>
<b>TOTAL</b>		<b>1,096,416.33</b>	<b>1,096,416.33</b>		

Source: Forestry Department, March 2000

Over the 10-year period, there has been a loss of Forest land amounting to 3,063.6 hectares (0.91 percent of the forest land in 1989). On an annual basis this amounts to a decrease in Forest land use classes of approximately 0.1 percent. The land use with the largest increase over the same 10-year period is in the bauxite areas, which have increased by 4,989.6 hectares.

In the future, to resolve the problem of different definitions of land use/cover types and methodologies being used, the Forestry Department is establishing a Change Detection and Monitoring Unit within the Department. The steps in the establishment of this Unit are as follows:

- The Forestry Department will be the single agency responsible for the sustainable collection, analysis and distribution of the forest cover data for Jamaica;



- Interpretation will be done using satellite images every 5 or 10 years with the same definition of land use/cover types and the same methodologies for interpretation;
- Periodic detailed analysis will be carried out using aerial photography for management planning purposes; and
- Destructive changes that are taking place in the forests will be monitored and mitigation measures will be developed to deal with them.

### 3.6 Existing Plantations

Prior to Hurricane Gilbert in 1988, plantations of Caribbean Pine (*Pinus caribaea*) in Jamaica covered approximately 11,250 hectares. The Hurricane reduced the extent of these plantations to less than half. An inventory carried out in 1990, two years after the Hurricane, reported a total of 5,172 hectares of Caribbean Pine: 4,416 hectares formed the Forest Industries Development Company (FIDCO) estates and the balance (756 hectares) was non-FIDCO plantations. The present extent of Pine plantations is estimated at around 4,300 hectares<sup>10</sup> and they are located mainly in the Eastern Region with a few smaller areas in the Central Region. Caribbean Pine is the dominant species with other Pine species making up approximately 5 percent.

By 1983 FIDCO had established 572 hectares of hardwood plantations, mainly Mahoe, Teak, Eucalyptus and Honduras Mahogany, in the Eastern and Central Regions (mostly Eastern). Up to the same year, the Forestry Department had established 3,309 hectares of hardwood plantations throughout Jamaica. Mahoe and Honduras Mahogany accounted for 40 percent and 45 percent respectively of trees planted. Other species included Cedar, Santa Maria, Teak, Jamaican Mahogany and Broadleaf.

The extent of plantations established by bauxite companies (as part of land rehabilitation) and other Government agencies is not known, nor is the extent of privately owned plantations.

### 3.7 Forest Inventory

The Forestry Department, assisted by the *Trees for Tomorrow Project*, is presently in the process of carrying out a broad national inventory based on LANDSAT™ imagery. Images for 1996 and 1998 have been interpreted, field-checked and areas have been calculated. A biophysical inventory has been completed in Buff Bay/Pencar pilot area and volume calculations using the local data are now possible.

The total timber and biomass volumes of Jamaican forests have not been estimated previously. The values in Table 6 below represent the first ever attempt at estimating the total volume of standing timber and above ground forest biomass in the country. The forest lands have been categorised according to the forest cover classification discussed in Section 3.1 (for areas see Table III-1 in Appendix III). The volume calculations are based on the per hectare volumes of different forest types, as calculated from data collected during the biophysical inventory of Buff Bay/Pencar pilot area and the area of

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<sup>10</sup> Plantation is defined as an area with more than 50 Pine trees per hectare.

the forest type. Per hectare volumes as reported in another publication<sup>11</sup> were used for closed broadleaf forests and open dry forests.

The forest biomass estimate represents the above ground biomass in the trees and does not account for the biomass in the understorey, roots, forest floor litter or dead wood.

**Table 6: Estimate of Total Volume of Jamaica's Forests**

Forest Lands (1)	Area (2) (ha)	Volume (3) (m <sup>3</sup> /ha*)	Volume (m <sup>3</sup> )	Biomass (4) (t/ha*)	Biomass (tonnes)
<b>Natural Forests</b>					
Closed Broadleaf	88,231	195	17,205,045	250	22,057,750
Disturbed Broadleaf	178,625	155	27,686,875	233	41,664,003
Open Dry [Tall & Short]	54,102	60	3,246,120	96	5,193,792
Swamps and Mangroves	11,978	135	1,617,030	218	2,609,541
Disturbed Broadleaf and Fields	165,954	95	15,765,630	183	30,393,315
<b>Sub-total Natural Forests</b>	<b>498,889</b>		<b>65,520,700</b>		<b>101,918,400</b>
<b>Forest Plantations</b>					
Pines	4,287	165	707,355	109	468,976
Hardwoods	3,900	185	721,500	255	992,756
<b>Sub-total Forest Plantations</b>	<b>8,187</b>		<b>1,428,855</b>		<b>1,461,732</b>
<b>TOTAL</b>	<b>507,076</b>		<b>66,949,555</b>		<b>103,380,132</b>
*m <sup>3</sup> /ha = cubic metres per hectare; t/ha = tonnes per hectare					
(1) Estimate for main forest types (not included: Bamboo, Mixed types dominated by other land use/cover types).					
(2) Forest areas from LANDSAT <sup>TM</sup> 1996-98 interpretation (Forestry Department, 1998-99), except for hardwood plantation areas (Forestry Department, 1982).					
(3) Total volume outside bark (all species, DBH = >10 cm) based on biophysical inventory of Buff Bay/Pencar pilot area (Forestry Department, 2000), except for closed broadleaf forest and open dry forest (Thompson <i>et al</i> , 1986). Rotation for forest plantations: 20 years (Pines); 30 years (hardwoods)					
(4) Estimates of above-ground biomass in trees without understorey, roots, forest floor fine litter and dead wood; calculations according to FAO method (Forestry Paper No. 134, 1997), except for closed broadleaf forest and open dry forest (Thompson <i>et al</i> , 1986).					

Source: Forestry Department, November, 2000

<sup>11</sup> Thompson, D.A., Bretting, P.K. and M. Humphreys (eds). 1986. *Forests of Jamaica*. The Jamaican Society of Scientists and Technologists: Kingston. 162p.

## 4.0 OVERVIEW OF FORESTRY PRODUCTIVE SECTOR

### 4.1 Lumber Supply and Demand

The decentralised nature of the sawmilling industry in Jamaica makes it difficult to collect lumber production figures. One report approximated total production by estimating the capacity of approximately 120 permanent sawmills and adding the estimated output from numerous portable sawmills (chainsaws).<sup>12</sup> Thus, in 1993, annual production was estimated at 59,000 cubic metres of hardwoods and 3,000 cubic metres of softwoods.

In the past few years there has been an increase in the number of chainsaw mills. These highly portable operations can be taken deep into the forest to extract and convert timber trees previously considered inaccessible. The number of these portable operations and their production levels cannot be estimated with accuracy.

A new set of Forest Regulations is presently being prepared. Among other things, the Regulations specify procedures for all aspects of timber harvesting operations, including the requirement for the licensing of sawmills, permits for the transport of timber and portable power saws and for records to be kept by licensees. These licenses and records will facilitate the systematic collection of production data.

The quantity of lumber produced legally from state-owned lands can be estimated from total wood volumes on cutting licenses issued by the Forestry Department and the application of an appropriate recovery rate. The recorded amount of timber taken from state-owned lands in recent years is, however, less than 500 cubic metres per year: no estimates are available for the volume of timber illegally removed.

In 1999 lumber imports amounted to approximately 137,590 cubic metres with a CIF value of J\$1.538 billion. A comparison of lumber imports for 1997, 1998 and 1999 is shown in Table IV-1 in Appendix IV.

Table 7 estimates 1999 national lumber consumption by combining the 1993 estimates of domestic production, adjusted by the annual population growth rate<sup>13</sup>, with 1999 import data. There is a greater dependence on imported softwood lumber, while self-sufficiency for hardwoods is higher. Overall, local production satisfies about 32 percent of total lumber demand. Softwood lumber imports since the early 1980s have increased, however a distinct upward trend for hardwood lumber imports cannot be discerned. Figures IV-1 and IV-2 in Appendix IV show the softwood and hardwood lumber imports for the period 1980 to 1999.

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<sup>12</sup> Campbell, Keith. March 1993. *Jamaica: The Rationalisation of Sawmills*. Report prepared for the Forestry and Soil Conservation Department, Ministry of Agriculture, Government of Jamaica.

<sup>13</sup> Statistical Institute of Jamaica. *Statistical Yearbook of Jamaica*. (var. editions) (approx. 1.1% per year between 1994 to 1999)

**Table 7: Estimated Annual Demand for Lumber in 1999**

Species	1999 Actual Imports (m <sup>3</sup> )	Estimated Local Production (m <sup>3</sup> ) (adjusted by population growth)	Estimated Total (m <sup>3</sup> )
Softwoods	119,034	3,210	122,244
Hardwoods	18,555	63,065	81,620
Totals	137,589	66,275	203,864

Source: Developed from data in *External Trade* (var. issues), Statistical Institute of Jamaica and Campbell (1993)

Softwood lumber is used primarily in construction while hardwood lumber is used for furniture making and for private house and shed building. The majority of furniture for the domestic market is made from locally produced hardwoods. The local hardwood is also used to make fences, pallets, boxes and crates, and coffins. Few furniture manufacturers in Jamaica are geared to produce the high quality required for export nor is Jamaica able to compete with the highly efficient plants of North America in the bulk manufacture of low-cost utility furniture. At present, Jamaica's limited export market is of quality reproduction period pieces which are made exclusively from hardwoods.

#### 4.2 Lumber Quality and Price

Few sawmills in Jamaica are geared to produce high grade lumber.<sup>14</sup> Lumber from many mills is often poorly sawn and not properly dimensioned with defects left in the finished product such as wane, large knots and checked ends. Local lumber is often not properly dried, a factor of critical importance to furniture makers. Manufacturers of better quality furniture prefer to use imported lumber which has been properly graded and kiln dried. An additional factor is that imported lumber is produced from mature trees with superior composition to that of local material, which is often obtained from young trees felled prematurely.<sup>15</sup>

The higher quality imported lumber, particularly hardwoods, commands a higher price than the local product. The quality of local lumber often results in high wastage in subsequent processing and negates its price advantage. Many local furniture operations include a sawmill operation and it is important to note that these small producers utilise the local lumber to make basic household items which are sold in the domestic market at relatively low prices, compared to furniture made from imported hardwoods.

The selling price of locally produced lumber varies depending on quality and the specific demand for a particular species at a given time. Table 8 shows the range of prices received by woodcutters (portable sawmillers) and small holder farmers in the Buff Bay/Pencar watershed (the only area for which data has been collected) for the more popular species of lumber.

<sup>14</sup> This Section draws information from *Jamaica – The Rationalisation of Sawmills*, March 1993 prepared by Keith Campbell, ODA.

<sup>15</sup> The observation that local hardwood producers are taking immature timber still holds today and seems to back up assertions that availability of good quality, accessible hardwood trees is declining.

**Table 8: Lumber Prices for Selected Species in Buff Bay/Pencar Watershed**

Species	Price per bd ft (J\$)
Cedar	25 to 40
Mahoe	25 to 30
Mahogany	25 to 60
Pine	18
Spanish Elm	25 to 40
Sweetwood	25 to 40
Note: These are prices received by woodcutters (sawmillers) and small holder farmers. A lumber yard in Buff Bay retails hardwoods such as cedar, mahoe and spanish elm for approximately \$55 per bd ft.	

Source: Forestry Department, survey of small holder farmers and interviews with woodcutters, April to June 2000.

#### 4.3 Timber Market and Stumpage

Little information is available about private sector logging and sawmilling in Jamaica: for example, the number of permanent and portable sawmill operations, sources and costs of roundwood, logging and transport costs, lumber production levels and costs, and selling prices.

What is known is that in recent years the supply of timber (legally obtained) from state-owned lands has declined. The bulk of the log supply is from private land, originating from land clearing activities and direct timber sales.<sup>16</sup> Logs are mostly purchased directly by sawmill owners, but there are some independent log buyers. There is probably a significant volume of owner-felled and sawn timber for personal consumption and/or sale.

The Forestry Department has established stumpage rates for a wide range of tree species. Stumpage is generally calculated as the difference between the local selling price of the products and the stump-to-market processing costs, including an allowance for profit and risk. The FD stumpage rates listed in Table 9 were revised in 1996 using a mark-up factor over the previous rates and not calculated using the product price to processing cost relationship. Thus these rates may not accurately reflect the value of the wood resource.

**Table 9: Forestry Department Stumpage Price for Selected Species, 1996**

Species	Large end of log (> 20 cm)		Small end of log (< 20 cm)	
	Cubic feet (J\$)	Cubic metre (J\$)	Cubic feet (J\$)	Cubic metre (J\$)
Jamaica Mahogany	120	4236	100	3530
Cedar	110	3883	90	3177
Mahoe	80	2824	60	2118
Sweetwood	60	2118	50	1765
Spanish Elm	80	2824	60	2118
Caribbean Pine	70	2471	60	2118
Note: The above are the main species for which FD presently issues cutting licences.				

<sup>16</sup> Most of the timber from private land is legitimately purchased. The degree of illegal removal of trees from private and state-owned lands is not known.

#### 4.4 Fuelwood, Charcoal and Yam Stick Production

While it is likely that production of fuelwood and charcoal is currently the largest user of forest biomass in Jamaica, no recent survey data is available with respect to consumption and production. Charcoal use remains widespread at the urban and rural levels for both households and the commercial sector, especially by the “jerk” food vendors.

Fuelwood consumed through direct burning is still used as a cooking fuel in rural areas by low income households. The most recent comprehensive household energy survey<sup>17</sup> estimated national monthly wood consumption at 1,050 tonnes. The sugar factories utilise wood (in addition to bagasse, oil and grid electricity) for their energy needs and wood is also used in the construction industry as a fuel source for melting tar used for roofing, as well as bakeries, lime kilns, and brick and ceramic factories.

A study carried out in 1988<sup>18</sup> estimated charcoal demand at 60,000 tonnes per year, including commercial usage, and projected future demand to increase at the annual population growth rate of 1.6 percent. An assessment<sup>19</sup> of the bioenergy sector in Jamaica carried out in 1992 by the Petroleum Corporation of Jamaica, put charcoal production at 37,000 tonnes per year. This figure was based on a survey of 10 percent of all charcoal producers which the 1992 assessment reckoned to be about 2,500 island wide.

The difference between the 1988 estimate of charcoal demand and the 1992 estimate is significant and shows how little reliable data is available about fuelwood use in Jamaica.

The number of persons engaged in charcoal production varies and is not known but it is acknowledged that new entrance into the sector is related to availability of alternative employment opportunities. The lack of control of wood access and low or zero capital requirements makes charcoal production an easy and obvious income-earning activity for the rural unemployed.

The total value of the charcoal sector varies depending on the production figure used. Based on 60,000 tonnes of production, its value at wholesale level in 1988 was calculated at J\$50 million.<sup>20</sup>

Annual production of yam sticks, of 3 to 4 metres in length and 6 to 8 cm in diameter, has been estimated at around 15 million sticks.<sup>21</sup> This corresponds to an annual roundwood consumption of 150,000 cubic metres. As hardwood species (Sweetwood, Maiden Plum, Wild Coffee and Rodwood) are preferred for yam sticks, extensive

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<sup>17</sup> The Ministry of Mining and Energy. *1989 Household Energy Survey*.

<sup>18</sup> Joint UNDP/World Bank Energy Sector Management Assistance Program. September 1988. *Jamaica Charcoal Production Study*.

<sup>19</sup> Potopsingh, Ruth. 1992. *Bioenergy Resources Assessment Study*. Petroleum Corporation of Jamaica, Kingston.

<sup>20</sup> Applying annual CPIs published by STATIN, this J\$50 million is the equivalent of J\$633 in 1999 dollars.

<sup>21</sup> Integrated Watershed management Investment Programme. November 1996. *Investment Preparation Report: The Forestry Consultants Report*.

production of yam sticks will have a negative impact on natural regeneration of forests in the yam-growing areas of Jamaica.

#### **4.5 Minor Forest Products**

Plant material collected from the forest is used for a variety of purposes. The principal source of materials for making hats, bags, table-mats, etc., is Jippi jappa (*Carludovica palmata*). Bamboo and thatch are used most often for temporary construction. Strips from the Rose Apple (*Eugenia jambos*) are used to make baskets and hampers. Wicker is widely used in furniture making. The bark from the bastard cabbage tree is used to make rope to bundle agricultural produce and for lashing poles together in temporary construction. Fern root is collected for the horticultural sector for use as a growing medium, particularly in orchid production. Mahogany bark is still collected for use as a dye.

Many trees and other forest plants are used medicinally: for example, Chainy root is used in the making of restorative tonics, chewsticks are collected for cleaning teeth, nettle is steeped to make a drink rich in mineral salts and vitamins, and the extract of bitterwood bark is used as a liver tonic, for fevers and for eliminating round worm.

How much of these materials are removed from the forest is not known nor is there current information with respect to their relative social and economic importance. A survey (with quantity data) of the utilisation of minor forest products would provide valuable information for use in assessing forest management options.

#### **4.6 Sustainable Development of Wood-based Industries**

The Forest Act requires the Forest Plan to include economic objectives for the sustainable development of wood-based industries. An assessment of the available information on the wood industry sector has been provided in the preceding section. The Forest Plan and Appendices also include rationalisation of proposed reforestation targets. However the conclusion of those involved in preparing the Forest Plan is that the information base is not sufficient for establishing definitive economic objectives for the industry. To do so will require a considerable body of additional information, hence activities have been proposed in Section 19 (Plan Implementation) to assess forest values and to survey the charcoal and fuelwood sector as well as yam stick production. Once this information is analysed, economic objectives for the forestry sector and strategies to achieve them will be developed.

## **5.0 CONSTRAINTS TO FOREST MANAGEMENT**

Serious constraints exist which, unless addressed, will obstruct or impair achievement of the goals of forest management and conservation listed in Section 7. The following constraints were identified by representatives of statutory authorities and Government agencies who have an interest in the management of Jamaica's forests and environmental non-governmental organisations (NGOs) concerned with forest conservation. The strategies in Part III aim to reduce the impact of these constraints on the forestry sector's goals.

### **5.1 Public Awareness, Co-operation and Compliance**

Public attitudes and behaviours which must be changed if programme goals are to be met include: indifference to forest degradation (at all levels of society); destruction and theft of forest resources; illegal occupation of forest land; non-sustainable land use practices and uncontrolled grazing of livestock. Lack of awareness is exacerbated because in forest management realisation of benefits and manifestation of negative results are often not immediate or obvious. Praedial larceny is a major issue already negatively affecting the agricultural sector and likely to discourage forestry investment.

### **5.2 Commitment to Enforcement**

The most serious constraint observed by several environmental NGOs is a lack of demonstrated commitment and accountability by senior levels of Government to enforce environmental laws, policies and plans. Similarly, lack of resolve in addressing socio-politically difficult issues like praedial larceny is perceived by many as a major obstacle to forestry development.

### **5.3 Human Resources and Enforcement Capability**

There are currently insufficient trained, motivated and properly supported personnel to implement the Forest Plan. This applies particularly to the need for:

- enforcement of forest protection in reserves, parks and other protected areas;
- extension services to involve the private sector in reforestation; and;
- public awareness activities to inform people about the Plan.

### **5.4 Barriers to Investment**

Reforestation requires long-term commitment and heavy investment (eg, approximately US\$1,500 per hectare for establishing and maintaining a forest plantation over the first three years), and is probably economic only on the most productive and accessible sites. Both public and private investors are confronted by conflicting needs and alternatives. Budget allocations of public funds may be inadequate to support such programmes, and are often insufficient to maintain initiatives started by externally funded projects. Funding approvals may be delayed or re-routed to address more immediate crises. Beneficiaries of forest conservation are not always identified and forest protection or production costs are typically not reflected in the pricing of services/products such as water, tourism or charcoal. Private investment is severely constrained by insecure land



tenure. Other incentives will probably be necessary to encourage private sector participation.

### 5.5 Overlapping Responsibilities

At least fourteen<sup>22</sup> Government offices, ministries, departments, authorities, commissions or boards have statutory and sometimes conflicting interests in forest land management. Overlapping responsibilities have resulted in uncoordinated planning and decision making, which in turn have created problems in accountability, efficiency, prioritisation, programme implementation, evaluation and conflict resolution. Although a good deal of co-operation exists between agencies, a number of crucial institutional arrangements are lacking, notably:

- agreement on a common and comprehensive system of land use zoning;
- formal co-operative management arrangements between implementing agencies; and
- effective participation in forest planning at a senior level of Government having sufficient authority to resolve differences between the management agencies.

### 5.6 Information

Integrated and participatory decision making requires meaningful information on land use alternatives to be available and shared by participants. Three main constraints have been identified in this regard and an attempt is being made to address these in the current planning process:

- lack of basic and consistent *inventory* information (and associated information management systems) on forest resources facilitating identification of rates of deforestation and degradation, values at risk, development opportunities, and sites requiring or justifying interventions;
- information gaps in forecasting the costs and benefits of forest conservation measures, and financial returns and risks for forestry investments; and
- delivery of information and messages to targeted participants, who may not be readily accessible or functionally literate.

Although the planning process is focussed on alleviating the above constraints, it also recognises that constraints, particularly the availability of investment and human resources, will likely remain limiting factors to the protection and development of forests. Therefore, limited human and financial resources will be focussed on *critical emphasis areas*: geographic locations where interventions are both urgently needed and likely to be effective.

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<sup>22</sup> Office of the Prime Minister, Ministry of Agriculture, Ministry of Finance, Ministry of lands and Environment , Ministry of Mining and Energy, Water Resources Authority, National Water Commission, Rural Physical Planning Unit, Survey Department, Natural Resources Conservation Authority/National Environmental Planning Agency, Rural Agricultural Development Authority, Planning Institute of Jamaica, Coffee Industry Board, Forestry Department.

## **National Forest Management and Conservation Plan**

### **PART II: VALUES AND GOALS**

Forests provide many valuable services to society. They contribute to water production, soil conservation, conservation of biodiversity, and recreation and tourism. Other key forestry values to society include employment, energy, and timber and non-timber products. The goals of the forestry sector are formulated to ensure that forests are managed on a sustainable basis to maintain and increase the services and products they provide.



## 6.0 FOREST VALUES TO SOCIETY

### 6.1 Environmental

There is growing recognition that the value of forests to Jamaica is related to their crucial role in protecting and conserving the primary resources of water, soil, biological diversity and air quality. The potential direct market value of forests for the production of wood-based industries is significant but it is secondary to the fundamental need to protect forests and these primary resources. Unfortunately, the value of forests in environmental protection is difficult to measure and consequently its role is often overlooked. Yet it is essential that these values be known and understood before the Government, private investors and society in general can be expected to take forest conservation seriously.

#### 6.1.1 Water Production

The reliable safe yield<sup>23</sup> of water for Jamaica has been estimated at 4,084 million cubic metres (MCM) per annum, of which surface water accounts for 16 percent. Although much of the water used in the country is groundwater, surface water is particularly important for Kingston. The Blue Mountains, the main source of water for the capital city, produce a reliable safe yield of 604 MCM in the north and 149 MCM in the south, however, most of this water is from surface sources (55 percent in the north and 76 percent in the south). Water shortages have been experienced and Kingston was in deficit of 28 MCM in 1990.<sup>24</sup> Based on present consumption trends, Kingston will require 115 MCM in 2015.

Forested areas which protect upper watersheds perform a critical function by reducing run-off and allowing percolation thus ensuring a more regular flow of water to reservoirs. Plant cover acts as a filter and helps to maintain good water quality. Tree cover near rivers also helps to reduce soil siltation. In Kingston, storage losses due to reduced water storage capacity resulting from siltation in the two main reservoirs have been estimated at approximately 85 million gallons representing nearly 22 percent of the city's reservoir capacity.

The effect of changes in land use (deforestation) on water flows and sediment yield have been the subject of a number of studies over the years. While the findings are variable depending on the study methodology, they are in general agreement that the higher the deforestation rate, the greater the sediment yields (increasing siltation of surface water flows) and the greater the frequency of increased water flows.

The forest, therefore, plays an important role in the maintenance of a reliable supply of high quality water. The value of this service is not easy to measure and suffers from the fact that water is seen as a "free good". However, an indication of value can be approximated in a number of ways. For example, a proportion of its value could be

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<sup>23</sup> This is the amount of water that can be reliably extracted from ground and surface sources. It takes into account recharging of the aquifer and ensuring that saline intrusion of groundwater does not occur. It does not take into account the potential ecological damage caused by extraction from rivers.

<sup>24</sup> Water Resources Authority. 1990. *Water Resources Development Master Plan*.

linked to the cost of providing clean water (the extra processes, such as increased filtration efforts, chemical treatment, dredging of reservoirs, etc, required to make silted water potable). Another way to look at the value of forests is the mitigation of flood damage where the floods occur as a consequence of forest cover loss in upper watersheds.

Since the passage of the Water Resources Act in 1996, the Government has introduced the ability to charge for the use of water. The mechanism to collect a user charge has been proposed however it has not been implemented (see Section 15.2.2).

#### **6.1.2        *Soil Conservation***

The severity of soil erosion depends on a number of local factors, eg, force and frequency of rain, slope of land, soil type, vegetative cover, etc. A certain level of erosion can be tolerated without significant effects on soil fertility but more serious soil loss normally results from a change in vegetation cover, eg, from deforestation, conversion from perennial to annual crops and over grazing by livestock. Landslides are an extreme form of soil erosion and often cause damage to property, loss of life and livestock as well as incurring agricultural and sedimentation costs. Increased siltation from rivers is a serious threat to the coral reefs and beaches on which much of the country's fishing and tourist industry depends. The presence of tree cover decreases the force of rain hitting the ground and helps to slow the flow of water which reduces soil wash.

#### **6.1.3        *Biological Diversity***

Jamaica is home to about 3,200 known species of flowering plants, 600 species of ferns, and 256 known species of birds, together with other faunal groups like bats, lizards and butterflies. A high proportion of these species are found only in Jamaica and a growing number are listed as vulnerable to extinction, critically imperilled, or rare. Many are dependent on forest or woodland habitats thus conservation of these habitats is essential for their survival.

In 1995 Jamaica ratified the International Convention on Biological Diversity. Recognising the value of its biological diversity, Jamaica committed to ensure the most sustainable use and conservation of its biological resources, and is obligated under the Convention to prepare a *National Biodiversity Strategy and Action Plan* which is now under development.

#### **6.1.4        *Carbon Dioxide Sequestration***

Jamaica's forests can be sources, sinks or reservoirs of carbon dioxide (CO<sub>2</sub>) which is the major factor in creating what is commonly referred to as a "greenhouse effect." Carbon dioxide in the atmosphere has been increasing to levels which may cause climate change by increasing the greenhouse effect (global warming). When forests are destroyed or damaged through burning, they release CO<sub>2</sub> into the atmosphere. When restored, forests remove (sequester) carbon dioxide from the atmosphere.

The use of our forests as carbon sinks not only contributes to atmospheric carbon sequestration and climate protection but may create opportunities for generating financial resources for the sector as a whole (refer to discussion in Section 15). The 1997 UN Framework Convention on Climate Change (FCCC) Kyoto Protocol adopted the ‘net’ accounting approach which established the basis for the offset of greenhouse gas emissions from fossil fuel by carbon sequestration through forestry activities.

Appropriate forestry activities include the protection of the dwindling closed broadleaf forest and biodiversity, reforestation of forest reserves, watersheds and privately owned forest land, energy plantations and the consolidation of Jamaica’s system of parks and protected areas. This initiative will also provide tangible support for Jamaica’s commitment to the FCCC.

## **6.2 Timber and Non-timber Products**

The value of the timber and non-timber products obtained from the country’s forests can only be estimated as much of the production takes place outside the formal economy. However, the value is significant: for example, in 1993 an estimated 59,000 cubic metres of hardwood lumber were produced locally. Lumber prices vary across the island by species and quality. Using an average price of J\$30.00 per board foot for lumber purchased from the sawmill, the value of this locally produced hardwood is J\$750 million.<sup>25</sup>

There also exists an active market for yam sticks and fence posts. Prices paid by farmers currently range from J\$8 to J\$10 per stick. Taking the 1996<sup>26</sup> estimated annual production figure of 15 million sticks, the annual value of yam stick production is between J\$120 million to J\$150 million.

In addition, unknown quantities of minor forest products are used in thatching of roofs, furniture construction and handicrafts. It is difficult to assign a specific value to these uses but a value could be approximated in an indirect way by using a percentage of the selling price of the final product.

## **6.3 Employment**

Total employment in the forestry sector cannot be accurately estimated due to a number of factors, eg, little information on number and size of sawmills, itinerant nature of the portable chainsaw operations, the part-time nature of many jobs, etc. However, timber production provides many jobs, particularly in rural areas.

The Forestry Department utilises a considerable amount of labour through its seedling production, reforestation and forest management activities. In 1999, the FD provided direct employment for 1,863 persons in rural areas. In addition, the Forestry Department employs a considerable amount of casual labour on an “as needed” basis.

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<sup>25</sup> One cubic metre is equal to 423.776 board feet.

<sup>26</sup> Integrated Watershed Management Investment Programme. November 1996. *Investment Preparation Report*.

#### 6.4 Energy

Wood-derived fuels account for only a very small percentage of national energy use but they provide a substantial proportion (estimated to be between 25 to 37 percent) of total energy used in household cooking. Fuelwood consumed through direct burning is still widely used as a household cooking fuel and in industrial processing.

The most recent comprehensive study<sup>27</sup> of the charcoal sector in Jamaica was completed in 1988. Although the pattern of charcoal use has undoubtedly changed, the study's estimate of 60,000 tonnes of charcoal consumption per year may be used to give an indication of the dollar value of the wood energy provided by Jamaica's forests. At current wholesale prices, this quantity of charcoal is valued at J\$500 million.<sup>28</sup>

#### 6.5 Recreation and Tourism

An extensive study on ecotourism in the Blue and John Crow Mountains National Park indicated that some 35,000 tourists visit the Park and spend as much as US\$2.5 million per annum there.<sup>29</sup> It also estimated that the Park may be able to generate as much as US\$420,000 per annum from fees.

Although care should be taken in interpreting these figures, the value of recreation is of course higher than the predicted potential fee revenue. The value to the economy includes the goods and services purchased by visitors. In addition to paying the tour operator, visitors buy local food and other items from local community shops and restaurants and may stay at local guest houses.

Despoiling of visual amenities has been identified as a major threat to Jamaica's tourism industry. Forests are a fundamental, intrinsic and traditional component of the Jamaican landscape, internationally renowned as the *land of wood and water*.<sup>30</sup> Although the total value of the visual quality of Jamaica's forests to the tourism industry is almost impossible to measure, it can be expected to exceed the direct revenues from specific niche markets like ecotourism.

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<sup>27</sup> Joint UNDP/World Bank Energy Sector Management Assistance Program. September 1988. *Jamaica Charcoal Production Project*.

<sup>28</sup> Calculation is based on 30 kg per bag of charcoal, at an estimated wholesale price of J\$250.00 per bag.

<sup>29</sup> Agricultural Research Programme, School of Agriculture. North Carolina A&T State University. 1998.

<sup>30</sup> Jamaica's mountains and forests are usually highlighted as the feature which makes the island unique among Caribbean tourist destinations.

## 7.0 GOALS OF THE FORESTRY SECTOR

Table 10 below shows the goals of the forestry sector relative to the forest values to society identified in Section 6. These goals were developed in consultation with a cross section of Government agencies with a statutory interest in forest lands and are consistent with the Forestry Department's mandate as set out in the Forest Act, 1996.

Strategies for achieving these goals are described in Part III of the Forest Plan. Activities to achieve the goals, indicators of achievement and specific objectives (operational targets) are included in Section 19.

**Table 10: Goals of the Forestry Sector**

<b>Values to Society</b>	<b>Goal</b>
<b><u>ENVIRONMENTAL</u></b>	Protect forest resource
<b>Water Production</b>	Restore tree cover
<b>Soil Conservation</b>	
<b>Conservation of Biodiversity</b>	Manage selected areas for biodiversity
<b>CO<sub>2</sub> Sequestration</b>	Manage forest lands for CO <sub>2</sub> sequestration
<b><u>NATIONAL WEALTH AND RURAL DEVELOPMENT</u></b>	
<b>Timber and Non-timber Products</b>	Improve the economic contribution of forests
<b>Employment</b>	
<b><u>ENERGY</u></b>	Produce fuelwood on a sustainable basis
<b><u>RECREATION AND TOURISM</u></b>	Maintain the visual quality of forests
	Plan and organise the use of select forests for recreation and tourism





## **National Forest Management and Conservation Plan**

### **PART III: IMPLEMENTATION STRATEGIES**

The strategies to achieve the goals of the forestry sector involve a wide range of programmes aimed at changing public perception of forests with respect to its environmental, productive and aesthetic values. The following Sections discuss the various strategies in detail. Strategies are not independent but complementary; any single goal requires several strategies to achieve.



## 8.0 STRATEGY 1: COMMUNITY PARTICIPATION

Until recently, communities were not involved in the planning for forest management or conservation and gained few benefits from local forests except for temporary employment opportunities during infrequent tree planting and harvesting operations.

It is now widely accepted that sustainable use, management and protection of the Nation's forest resources requires the participation and co-operation of local communities, particularly those living on the fringes of the forest. Further, the communities must derive real benefits from their efforts. The significance of this point was recognised by Government in 1996 with its ratification of the Forest Act.

The following sections show the first steps being taken through the Forest Plan to effect change in this direction and, as can be seen, they are closely related to the new role of the Forestry Department (as discussed below and referred to in other Sections).

It is expected that these steps will enhance and promote community participation in forestry and lead to:

- better understanding and respect for the Forest Act;
- improved partnership relations between Government of Jamaica (GOJ) agencies, NGOs and the communities involved;
- legal and sustainable economic benefits to communities from planned forest use;
- improved community values in support of forest conservation; and
- more effective and economic use of limited Government financial resources.

The Forestry Department will collaborate with the other Government agencies, donors and related projects working to promote sustainable community-driven rural development. In undertaking this initiative, the FD will address one of the goals of the forestry sector which is to increase the economic contribution of forests. This strategy is also expected to contribute to the forestry sector's goal to protect the forest resource through the participation of local communities in forest management.

### 8.1 Local Forest Management Committees

The formation of Local Forest Management Committees (LFMCs) is provided for by the Forest Act, 1996 and is an integral component of the "Community Participation" strategy. The LFMC is the institutional body to be created in watersheds for enabling the participation of the communities in the co-management of forested areas (specifically those managed by the Forestry Department).

#### 8.1.1 *Participation in LFMCs*

Membership on the LFMCs is open to all community groups, organisations, NGOs, private sector entities and Government agencies present in the particular forest area and whose members are willing to participate. Each stakeholder entity will be asked to select a representative and an alternate to serve on the Committee. Membership in the

LFMC will be ratified by the Minister of Agriculture on the recommendation of the Conservator. There is no limit to the number of entities represented on the Committee.

#### **8.1.2**         *Functions of LFMCs*

The purpose of LFMCs is to:

- monitor the condition of natural resources in the Committee's area;
- hold discussions, public meetings and the like about the state of the natural resources;
- advise the Conservator on matters relating to the development of the Local Forest Management Plan (LFMP) and the making of regulations;
- propose incentives for conservation practices in the Committee's area;
- assist in the design and execution of conservation projects in the area; and
- any other functions as may be provided for by or under the Forest Act.

The Committee itself may identify functions which they need to undertake.

The operations of the LFMC will benefit overall watershed protection and management. The role of the Committee may be expanded in the future to take in watershed responsibility as a result of changes in the structure of national watershed administration and management.

#### **8.1.3**         *Development of LFMCs*

For the Buff Bay/Pencar pilot watershed area, an LFMC was proposed for each sub-watershed – one for Buff Bay and one for Pencar with a joint meeting to be held at intervals to be decided by the Committees. This arrangement has been endorsed by stakeholders through a formal vote taken during meetings held in the two sub-watersheds. The formation of the Buff Bay LFMC and the Pencar LFMC is moving forward and it is anticipated that membership on the Committee will be ratified by early 2001.

The formation of LFMCs in other areas will follow the schedule for the implementation of the Local Forest Management Plan (see Section 11, Table 12). Work has begun on the Local Forest Management Committee for the Rio Minho watershed. FD foresters, extensionists and wardens have been identifying and contacting stakeholders to inform them about Forestry Department's activities in the local area and to solicit their interest to participate in the LFMC.

### **8.2**           **The Role of Forestry Department in Community Forestry**

Community forestry has not been a part of traditional forestry activities in Jamaica and foresters are not trained in this practice. Consequently, all levels of staff of the Forestry Department will receive training in participatory methods and practice. Special emphasis will be placed on training community-based foresters and wardens who will be working closely with the LFMCs. This training has already started with technical

assistance support provided jointly by GOJ/UNDP *Forestry Capacity (Bridging) Project* and GOJ/CIDA *Trees For Tomorrow Project*.

Similar training and forest education programmes to build general awareness will be provided at a level suitable for community-based organisations, relevant NGOs and other Government agencies.

It will take some time for community forestry practices to become standard FD procedure, hence the programme started up on a pilot basis in the Buff Bay/Pencar watershed. The Government is committed to building a strong cadre of wardens and foresters, trained as forest extension specialists, to help effect a paradigm shift in the way Forestry Department staff view their role in forest management.

### **8.3 Community Activities**

To make local forest management more attractive to communities, the strategy will be to develop new initiatives and technical approaches of both the Forestry Department and NGOs which aim at providing immediate earnings for local communities. Some of the activities falling within this category are:

- Ecotourism and nature tourism;
- Recreational park conservation;
- Agroforestry;
- Craft production;
- Furniture production;
- Plant nurseries, including exotic species;
- Medicinal plant production;
- Bamboo for low-cost housing and crafts;
- Bee-keeping;
- Portable sawmilling operations;
- Fuelwood and charcoal production; and
- Yam stick production.

Where suitable sites on forest reserve lands have been identified in Local Forest Management Plans (see Section 11), individuals and groups will be approached to lease parcels for use in accordance with the conditions prescribed in the Forest Act and in any subsequent Forest Regulation. In certain situations and where feasible, co-management arrangements or memorandums of understanding will replace standard lease agreements.

## 9.0 STRATEGY 2: PUBLIC EDUCATION

In order to build popular and political support for the forestry sector and the Forest Plan's implementation, public awareness must be raised as to the importance of the forest environment. The forest's linkages with water quality, health, soil conservation, agricultural production, the tourism industry, climate regulation and biodiversity need to be widely publicised, as does the important role of the forest in the social and economic development of the communities located on its periphery.

Protection of forest cover and conservation of forest resources must also be emphasised through public education at the national level. A basic level of public awareness as to the importance of the forest environment is essential to establish a meaningful context for conservation and protection activities. The provisions provided under the Forest Act, 1996 and Forest Regulations (in draft) will also need to be disseminated widely.

Some environmental education campaigns are being implemented through the formal education system as well as through publicly and privately sponsored campaigns. Many NGOs are active in environmental education programmes, but there is a place for a forestry-specific programme.

Based on emphatic and widespread recommendations from the public, the Forestry Department, the National Environmental Education Committee (NEEC) and the Ministry of Education have agreed to work together to build a strong environmental awareness component, not only into teacher training programmes, but also directly into the national school curriculum. This will include specific attention to the importance of forest conservation and forestry.

The National Forestry Awareness Programme is, therefore, a key element in both setting the context for the implementation of the Forest Plan and in raising forest conservation awareness and understanding across the country.

### 9.1 Guiding Principles

The public awareness strategy will be grounded in credible, up-to-date and relevant information on the state of the forest, its value to society and the cost/benefit of alternative actions. Consequently, the forest-related messages being developed and delivered to the various target groups need to be positive and stress the economic value of trees for timber and fuelwood, particularly to rural people. The forest also has to be perceived as integral to Jamaican life at all levels and considered as a source of water, biodiversity, recreation, national pride, and aesthetic and spiritual values. Messages delivered to schools and the general public will reflect this approach.

With a limited budget to mount a National Forestry Awareness Programme, collaboration will be sought with successful programmes at both the national and local levels. Collaboration will help avoid overlap with the work of other projects and programmes and enable the National Forestry Awareness Programme to focus on forest-related topics. Private sector resources will also be sought to sponsor environmental messages that relate to forestry. In particular, companies that benefit directly or

indirectly from the existence of our forests, such as those in the tourism industry, will be targeted. Sponsored messages could be in the form of radio and television programmes (acknowledging the sponsor) on the value and upkeep of forests, as well as posters, road and forest boundary signs, etc.

## 9.2 Target Groups

**Primary Public:** Those people who do, or have the potential to, impact on the forest reserves and the deforestation process, eg, the rural farmer, women (as farmers, fuelwood users and family heads), fuelwood producers, coffee plantation owners, agricultural workers, agro-chemical manufacturers and users, landowners, loggers and sawmill operators. These specific segments of the population will be sensitised through messages that correspond to their reality, capture their interest and motivate them to participate in the Programme.

**Secondary Public:** Those people who contribute, or have the potential to contribute, to forest conservation, eg, educators and students at all levels, organisations such as the Rural Agricultural Development Authority (RADA), the Jamaica Agricultural Society (JAS), the 4H Clubs and NGOs that are active and involved with forests and watershed management. A key group, between ages 11 to 21, will be targeted in schools and via the National Environmental Communications Campaign (NECC). Teacher training will be critical, as the “train-the-trainer” process has an important dispersal or “ripple” effect.

**Special Interest Public:** This group includes the FD staff and the enforcement community, eg, environmental rangers, park wardens, the police, judiciary, etc. The image of the FD will be rebuilt and improved. Personnel will be motivated through various techniques. An effective internal communications structure will be developed so that regional staff are kept up-to-date.

In addition, the training of the police, judiciary, Forestry Department staff and environmental wardens in the application of the Forest Act and Forest Regulations is fundamental in order to advance the legislative basis for forest protection.

## 9.3 Communications Programme

The National Forestry Awareness Programme will encompass the following actions:

- Define existing context: research, collect and evaluate existing environmental education materials and programmes from all appropriate sectors.
- Evaluate other community participation and environmental awareness campaigns to identify specific elements of success/problems that arose.
- Research key messages, promotional vehicles and potential sponsors. Utilise the National Environmental Communications Campaign to co-ordinate with participating public sector agencies that play a role in environmental public awareness. Ensure that forestry messages and symbols are highlighted. Test new messages and materials at public events, school programmes and summer camps.



- Collaborate with existing projects and programmes such as the Environmental Action Programme (ENACT), the NEEC programmes, and NGO-run Schools for the Environment Programme to contribute to, and extend forestry messages and minimise overlap.
- Adapt the communications and implementation strategy for the identified target group. Use popular education techniques such as stage drama and video. Identify and assess key media vehicles and use to disseminate materials. Engage intermediary organisations, eg, the Ministry of Agriculture, the Jamaica Cultural Development Commission, NGOs, etc. with a view to ensuring the long-term sustainability of the programme.
- Design, develop and pilot promotional and educational materials. Promote materials through the formal and non-formal education sectors at all levels of responsibilities.
- Build on the experiences and success of programme in the Buff Bay/Pencar pilot watershed area.

## 10.0 STRATEGY 3: FORESTRY RESEARCH

The Forestry Department is mandated by the Forest Act, 1996 to promote, establish and maintain a forest research programme. Areas of research specified in the Act are:

- enhance forest management and development;
- identify and obtain silvicultural data to be used in improving financial yields of species important to the national economy; and
- ensure reforestation/afforestation of suitable lands.

### 10.1 Past Forestry Research

Forestry research in Jamaica has been carried out at different times by various organisations with little co-ordination and only limited exchange of ideas/information. The main research entities have been the Forestry Department, University of West Indies (UWI) - Life Sciences Faculty in association with UK universities/academics, British Overseas Development Agency, bauxite companies, sugar companies and other Government science agencies. Simple adaptive research has been carried out in many donor-funded projects. Most of the research done by the FD took place during the 1980s and included the following:

- Pine plantation research: covered seed collection and nurseries management, provenance trials, weed control, spacing and thinning.
- Fuelwood: trials of fast-growing species to test adaptability, growth and yield for charcoal producing potential.
- Pathology and entomology: documentation and monitoring of insect and disease pathogens of nursery stock and forest plantations.
- Soil conservation: testing cost-effectiveness and impacts of various measures such as bench terraces, hillside ditches, reforestation, vegetative gully plugs, etc.

Research in the closed and disturbed broadleaf forests was carried out by the University of the West Indies and concentrated mainly on forest ecology. Description of forest types, nutrient cycling, forest succession and gap dynamics were some of the subjects investigated.

### 10.2 Direction of Present Forestry Research

The Forestry Department's focus has shifted from a supervisory, timber production-oriented organisation to one which promotes conservation and sustainable production of forest resources through extension, public education and public participation. The new direction of forest research will be to provide data, information and guidelines for:

- efficient forest management practices;
- sustainable management plans;
- conservation strategies;
- reforestation planning and development; and
- agroforestry, social/participatory forestry initiatives.

The most important priority is for trials to support the reforestation programme by evaluating and verifying species selection, silvicultural and agroforestry systems, and growth rates. The FD will use available information and seek assistance from the international forestry research community to design an applied research programme for this purpose.

### **10.3 Collaboration in Research**

Given that research in other scientific and social fields may be applicable to the forestry sector, the FD will seek opportunities to collaborate with public and private sector organisations in research programmes of mutual interest. The Forestry Department has collaborated with the UWI (Mona campus) on research projects in the past and will continue this partnership.

Two collaborative research programmes being undertaken at present with other organisations are:

- A Memorandum of Understanding (MOU) has been signed between the Forestry Department, the National Arboretum Foundation, and Public Gardens Division - Hope Gardens, to engage in the establishment, management and operation of a Central Germplasm Bank and Nursery.
- An MOU has been signed with the Caribbean Natural Resources Institute (CANARI) to undertake research on developing participatory methods in watershed management.

Fuelwood research and demonstration projects initiated in 1995 by the Petroleum Corporation of Jamaica (PCJ) represent an invaluable contribution to knowledge of species suitability, growth rates, financial returns, and integrated use options associated with intensive fuelwood production. The trials have already provided information highly relevant and important to the goals and objectives of the national forestry programme, and have great potential for further contribution over the next two to three years. The Forestry Department will collaborate with PCJ in the maintenance, analysis and interpretation of these trials.

## 11.0 STRATEGY 4: LOCAL FOREST MANAGEMENT PLANS

The Forest Act, 1996 provides guidelines for the preparation of Local Forest Management Plans (LFMPs). The Forestry Department will elaborate Local Forest Management Plans for:

- forest reserves;
- any Crown lands not in a forest reserve; and
- private lands declared by the Minister to be Forest Management Areas.

This strategy is expected to contribute to several of the forestry sector's goals including: protecting forest resources, restoring tree cover and increasing the economic contribution of forests.

### 11.1 Content of Plans

The guidelines for preparing the forest management plans are contained in several articles of the Forest Act, 1996 and specify:

- the procedures for the acquisition of land for gazetting forest reserves or declaration of forest management areas;
- the content of the Local Forest Management Plan;
- formation of Local Forest Management Committees (as detailed in Section 8.1);
- functions of Local Forest Management Committees; and
- determination of allowable annual cut.

Before writing the LFMP, the Forestry Department will carry out two studies to collect information for the area to be managed. These are:

- a biophysical inventory, which will include mapping of present land use at a scale of 1:15 000; and
- a socio-economic assessment of the main uses and users of forest land and forest products including the identification of the major stakeholders to participate in the Local Forest Management Committees.

Existing forestry studies, if any, for the area to be managed will be critically reviewed to complete the information needed to write the Local Forest Management Plan.

The LFMP will include the following documents:

- a main report (the proposed Table of Contents is shown in Appendix V);
- a series of maps at a scale of 1:10 000 and 1:25 000 showing the actual land use for forestry and the forest management options;
- a series of maps at scales of 1:10 000 and 1:25 000 showing the recommended uses of forest land, consistent with the guidelines stated in Section 13.2; and

- timber supply analyses, including proposed annual allowable cut levels for each forest reserve and forest management area.<sup>31</sup>

For the areas where timber harvesting is permitted, a second inventory will be done by the FD when applications for timber harvesting licences are received. The purpose of this inventory will be to provide a detailed knowledge of the characteristics of the trees to be harvested. This operational inventory is not a sampling but a full inventory and will be followed by the preparation of a “harvesting plan”. The content of the harvesting plan will be specified in the Local Forest Management Plan.

Local Forest Management Plans with a management option of timber harvesting will include all provisions related to the protection of the area’s cultural and environmental heritage such as:

- streams and river banks;
- recreational and tourist sites;
- archaeological sites;
- slopes and natural sites; and
- threatened flora and fauna.

A Local Forest Management Plan with a timber harvesting option will also include a replanting schedule and the bio-engineering guidelines for road construction and maintenance.

### **11.2 Preparation of Plans**

The process to prepare a Local Forest Management Plan will be similar to that used in the development of this Forest Plan. Key stakeholders will be consulted at an early stage to identify critical local issues. These stakeholders may subsequently be part of the Local Forest Management Committee. A draft LFMP will be prepared and circulated for public review. Community meetings will be held to present the local plan and to receive comments and input which, where relevant, will be incorporated into the final plan.

With the collaboration and assistance of local NGOs and CBOs, the Forestry Department will prepare a local public awareness programme for the implementation of each local forest management plan, including the public consultation process.

### **11.3 Planning Schedule**

As mentioned above, the Local Forest Management Plan will require field and office studies prior to its preparation. Twenty stages or activities are identified in the preparation process which is scheduled to take place over 17 months for each LFMP. The list of activities together with the detailed planning schedule of the biophysical

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<sup>31</sup> In certain forest reserves or forest management areas, the annual allowable cut level may be zero if the recommended land use is for protection forests.

inventory and Local Forest Management Plans are presented in Table V-1 in Appendix V. The first LFMP will be prepared for the Buff Bay/Pencar watershed.

The majority of the critical emphasis areas identified by the Forestry Department lie within WMUs that are classed by the NRCA/NEPA as having high priority under the National Watershed Classification and Monitoring Programme. Two of the FD's critical emphasis areas are in low priority WMUs as defined by NRCA/NEPA criteria. However, these WMUs contain significant portions of the country's forest reserves. Table 11 compares the NRCA/NEPA WMU priority levels with Forestry Department management priorities in terms of the area of forest reserves, national parks and proposed protected areas within the selected WMUs.

Table 12 is a preparation schedule of Local Forest Management Plans for the years 2001 to 2005. It lists the Crown lands, forest reserves, protected areas and proposed protected areas, the WMU in which these are located and the estimated completion date (critical emphasis areas are shown underlined). Limited additional local forest management planning activities will take place where required to support non-government agency projects in critical emphasis areas (eg, in the Dolphin Head and Dunn's River areas).

**Table 11: NRCA/NEPA WMU Priorities and FD Forest Management Priorities**

Watershed Management Unit (WMU)	NRCA/NEPA WMU Priorities (1)		Forestry Department – Forest Management Priorities (2)				
	Physical Condition	Socio-economic Condition	Critical Emphasis Areas (3)	% of Total Proposed or Protected Area			
				Forest Reserve	National Park	Protected Area	Proposed Protected Area
Buff Bay/Pencar River	Priority 2	Priority 1	Part of the Blue Mountains FR	0.2	5.5	0.0	0.0
Rio Minho	Priority 1	Priority 2	Portland Ridge PA, Brazilleto Mountains PA, Peake Bay FR, Bull Head FR	1.4	0.0	37.1	0.0
Martha Brae River	Low Priority	Low Priority	Part of Cockpit Country FR	30.3	0.0	0.4	0.0
Hope River	Priority 1	Priority 2	Part of the Blue Mountains FR	2.4	1.8	0.0	3.0
Wag Water River	Priority 1	Priority 2	Part of the Blue Mountains FR	0.0	7.5	0.0	0.0
Yallahs River	Priority 1	Priority 2	Part of the Blue Mountains FR	1.2	4.5	0.0	0.0
Rio Bueno/White River	Low Priority	Low Priority	Mount Diablo FR, part of Cockpit Country FR	26.5	0.0	0.1	0.0
Rio Grande	Priority 2	Priority 1	Part of Blue Mountains FR, part of John Crow Mountains FR	0.0	28.1	0.0	8.7
Rio Cobre	Priority 2	Priority 1	Hellshire Hills FR, part of Mount Diablo FR	16.2	0.0	8.0	0.0
Other 17 WMUs				21.8	52.5	54.3	88.3

(1) CADI/NRCA/NEPA. 1999. *Development of a National Watershed Classification and Monitoring Programme, Jamaica*. Technical Assistance Report, Fort Collins/Kingston, 24 p.  
(2) Forestry Department/TFT. 1998-99. *Land use/cover type areas per watershed management unit and protection status*. Technical Report, Kingston, 69 p. + 1:250 000 scale colour map.  
(3) FR = forest reserve; PA = protected area

Source: Forestry Department, November 2000.

**Table 12: Schedule of the Local Forest Management Plans: 2001 to 2005**

<b>Crown Lands Managed by the Forestry Department (1) (2) (3)</b>	<b>Location (4)</b>	<b>Estimated Completion Date</b>
<u>Blue Mountains FR (part)</u> , Dover FR, Fort Stewart FR, Grays Inn CL	Buff Bay/Pencar River WMU	April 2001
<u>Portland Ridge PA</u> , <u>Braziletto Mts. PA</u> , <u>Peake Bay FR</u> , <u>Bull Head FR</u> , Pennants (Douces) FR, Pennants FR (part), Peckham FR, Teck Pen FR (part), Mason River PA, Kemps Hill PA, Stepheney-John's Vale FR (part)	Rio Minho WMU	October 2001
<u>Cockpit Country (part)</u> , Hyde FR (part), Chatsworth FR	Martha Brae River WMU	June 2002
<u>Blue Mountains FR (part)</u> , Trumpet Tree FR, Elleston Run/Dallas Mountains FR, Rockfort FR, Flamstead CL, Bellevue CL (part), Good Hope CL	Hope River WMU	February 2003
<u>Blue Mountains FR (part)</u> , Tremolesworth CL	Wag Water River WMU	October 2003
<u>Blue Mountains FR (part)</u> , Bellevue CL (part), Orchard FR, Chesterfield FR, Lloyds FR (part)	Yallahs River WMU	June 2004
<u>Mount Diablo FR (part)</u> , <u>Cockpit Country FR (part)</u> , Industry Field-Rowkamp FR, St. Faith's FR, Camperdown CL, Stepheney-John's Vale FR (part), Greenock FR, Armadale FR, Baron Hill FR, Love River CL, Litchfield Matheson's Run FR, Brislington CL, Hyde Hall Mountain FR, Pike & Ravens FR, Hyde FR (part), Fergis Ramsay FR, Llandaff FR, Belmont FR	Rio Bueno – White River WMU	February 2005
<u>Blue Mountains FR (part)</u> , <u>John Crow Mountains PA (part)</u> , Bellevue II FR, Windsor FR, Fellowship FR, Adam Brandon FR, Friendship Hall FR	Rio Grande WMU	October 2005
<u>Hellshire Hills FR</u> , <u>Mount Diablo (part)</u> , Treadways FR, Dawson Mountain CL, Kellets Camperdown FR	Rio Cobre WMU	Starting
<p>(1) Underlined Crown lands are considered "critical emphasis areas".  (2) Forest mapping for the WMU is needed to propose new forest reserves, as well as a biophysical inventory, for all Crown lands in the WMU, starting in the critical emphasis areas.  (3) CL = Crown lands; FR = forest reserve; PA = protected area  (4) WMU = Watershed Management Unit (Water Resources Authority)</p>		

Source: Forestry Department, November 2000.

#### 11.4 Co-management of Forest Reserves and Crown Lands

The Forestry Department is mandated to prepare Local Forest Management Plans for forest reserves and other forested Crown lands. In areas where other agencies have some form of jurisdiction over forest reserves or forested Crown lands,<sup>32</sup> the FD will work with these agencies to develop the local management plans.

<sup>32</sup> For example, the Blue and John Crow Mountains National Park, which encompasses large areas of forest reserves, is under the jurisdiction of the NRCA/NEPA.

The FD will, where appropriate and practical, enter into co-management agreements with other Government agencies and NGOs in order to ensure a co-ordinated and sustainable approach to managing forest reserves and other Crown lands. In such cases, preparation and implementation of the Local Forest Management Plan will be a collaborative effort with the identified Government agency or NGO. An agreement between the Forestry Department and NRCA/NEPA and the Jamaica Conservation Development Trust has been signed for the co-management of Blue and John Crow Mountains National Park.



## 12.0 STRATEGY 5: CO-OPERATIVE MANAGEMENT AGREEMENTS

### 12.1 Co-management Agreements

Protection and conservation of Jamaica's forests will be most effectively achieved through co-management agreements between the Conservator of Forests and other agencies. The Government of Jamaica has designated, or intends to designate, most of the large remaining forests as protected areas or national parks, under the Natural Resources Conservation Authority/National Environmental Planning Agency (NRCA/NEPA) Act. Many of these areas are already forest reserves, under the authority of the Forest Act, whereby the Conservator of Forests is responsible for their sustainable management and effective conservation. The NRCA/NEPA Act has provisions for delegating and entrusting certain functions to non-governmental agencies. Both the NRCA/NEPA Act and the Forest Act have provisions for controlling the use of private lands for the protection of the national interest.

These arrangements create both the need and the opportunity for joint management of forest lands. The implementation of the Forest Plan will depend to a large extent on the development of co-management agreements for specific forest areas between the Conservator of Forests, NRCA/NEPA, delegated non-government agencies, and/or private landowners. Such agreements will specify:

- the identity and interests of each party;
- the specific purpose and area of agreement;
- responsibilities of the parties;
- requirements for planning and zoning land uses;
- provisions for enforcement of land use controls, including provision and training of staff, inspection and patrolling of the area, and applicable sanctions;
- management and administrative arrangements, including designation of an area manager, forest management committee, steering committee; and
- mechanisms for termination and dispute resolution.

Appendix VI contains the agreement governing co-operative management of the Blue and John Crow Mountains National Park between the Forestry Department, NRCA/NEPA and the Jamaica Conservation Development Trust.

Additional agreements are currently under development. In particular, a memorandum of understanding is being finalised between the Environmental Foundation of Jamaica and the Forestry Department, aimed at expanding forest reserves and restoration of tree cover along Jamaica's central mountain ridge. An agreement is also being developed between the Forestry Department and the National Water Commission (NWC) for the protection, restoration and conservation of forests on lands owned by the NWC.

**12.2 Co-operative Management of Mangrove Areas**

The Forestry Department, in association with NRCA/NEPA and the Department of Fisheries, will encourage NGOs and private landowners to participate in co-operative management of mangrove areas requiring protection as forest reserves or forest management areas.

### 13.0 STRATEGY 6: FOREST PROTECTION

#### 13.1 Forest Inventory Programme

The Forestry Department has embarked on a management inventory of areas scheduled for detailed forest management planning. The key elements of the management inventory are:

- detailed photo-interpretation and stratification of vegetation into classes, groups, formations, communities and further subdivisions using 1:15 000 scale colour photography;
- map transfer of photo-interpretation, preferably to digital orthophoto base maps combining planimetric and topographic features with geographically corrected aerial photography at a production scale of 1:15 000;
- update, at least once every five years, maps and photo-interpretation using aerial photography and/or satellite imagery;
- systematic stratified ground sampling to obtain data on vegetation, terrain features, soils, and fauna; and
- production of spatial and attribute databases.

The sequence and priorities for this level of inventory will be based on the schedule and priorities for Local Forest Management Plans (see Section 11).

A Monitoring and Evaluation (M&E) Unit is being established within the FD. The Unit will utilise data generated from this programme to monitor and evaluate evolution and change in the forests of Jamaica and provide analysis to aid in decision making.

#### 13.2 Guidelines for Forest Land Use

Jamaica has an established system for assessing agricultural land capability, based mainly on slope and other limiting soil, drainage and climatic factors. In addition, various supplementary or alternative approaches have been recommended to address crop potential, treatment orientation for soil conservation, land settlement and landslide susceptibility. However, up to now there has been no system which specifically addresses the evaluation and classification of land for forestry activities.

Land use allocation within any specific forest area will depend on local management planning which takes into account site-specific information on environmental, social and economic factors. However, the following general guidelines are proposed for forest land use allocation on Crown lands and on private lands in designated forest management or protected areas.

- Permitted uses will be limited according to slope and soil depth as indicated in Table VII-1 in Appendix VII. These land use allocations have been developed in consultation with NRCA/NEPA, the Rural Physical Planning Unit (RPPU) and the Land Information Council of Jamaica (LICJ).
- Where the existing forest cover is closed broadleaf forest or mangrove in forest reserves, parks or protected areas, no timber harvesting will be permitted.

- Where the existing forest cover is disturbed broadleaf forest in forest reserves, parks or protected areas, the land will be retained under forest land use: industrial, selection, or protection. Choice of forest land use will depend on slope and soil depth as indicated in Table VII-I in Appendix VII, socio-economic considerations, and values at risk as identified in the Local Forest Management Plan.
- In areas where cultivation or industrial forestry are permitted, but soil conservation measures are indicated as necessary, regulations (including those limiting vegetation removal near streams and to small openings) made under the Forest and NRCA/NEPA Acts will apply, together with any additional measures specified and approved in the Local Forest Management Plan.
- Industrial forestry development involving plantation establishment will normally be restricted to accessible sites, avoiding steep and very steep slopes and shallow soils (see Section 14).

### 13.3 Critical Emphasis Areas

#### 13.3.1 *Criteria for Identifying Priority Areas for Protection*

Limited human and financial resources will constrain implementation of the Forest Plan. Protection and conservation efforts need to be concentrated where they are most urgently needed and where they are likely to be effective.

Urgency for forest protection is dependent on the presence and severity of a number of threats:

- degradation of water supply or water quality;
- degradation or loss of soil;
- loss of biological diversity;
- non-sustainable harvesting (over-cutting) of timber or fuelwood;
- illegal removal of timber or fuelwood;
- legal cultivation on unsuitable sites;
- illegal cultivation;
- damage resulting from illegal or excessive grazing by livestock;
- fire;
- despoiling of recreational and scenic values; and
- other non-forest uses of the land.

Effectiveness in dealing with these threats is likely to be highest where:

- there exists broad consensus between Government, non-governmental and community-based organisations regarding both the threats and the required interventions;
- forest reserve status has been declared under the authority of the Forest Act;
- park or protected area status has been designated under the authority of the NRCA/NEPA Act;
- environmental non-governmental agencies are active and have been delegated responsibilities under the NRCA/NEPA Act;

- local communities are active, or interested in becoming active, in environmental conservation;
- opportunities exist for resolving conflicting land uses, rewarding co-operating stakeholders, and/or compensating displaced land users;
- benefits of forest protection can be quantified and demonstrated; and
- protection resources and effort can be shared.

### 13.3.2 NRCA/NEPA Priority Watersheds

Since the early 1970s, several efforts have been made to classify or rank Jamaica's watersheds with a view to establishing priorities for investment, protection and other interventions. The most recent and comprehensive was conducted for the NRCA/NEPA Watershed Protection and Management Branch.<sup>33</sup> Two categories of data were used: physical and socio-economic. The former included geology, soils, slope, land use and vegetative cover, rainfall, landslide potential, stream density and road density. The socio-economic data consisted of poverty levels, population density and the existence of downstream interests such as water storage locations, cities and tourism attractions.

The study identified ten watersheds with unstable upper areas and significant downstream interests. Of these ten, the highest priority in terms of physical condition and management needs are the Hope River, Wag Water River, Yallahs River, Rio Minho and Morant River, but the highest priority in terms of population pressure and poverty levels are the Rio Grande, Swift River, Buff Bay River, Rio Cobre and Oracabessa Page River.

### 13.3.3 Forestry Department Critical Emphasis Areas

Identification of critical emphasis areas for forest management and conservation by the Forestry Department has focussed on:

- threatened closed broadleaf forests, both within and outside forest reserves and other protected areas;
- the need to rationalise and regulate land use on disturbed lands within existing forest reserves;
- physical, management and socio-economic rankings of watersheds by the NRCA/NEPA study; and
- potential for effective interventions through partnering arrangements.

Two levels of focus and intervention are planned. The *broad level* will include large tracts of land designated as, or adjacent to, parks, protected areas or forest reserves containing significant areas of relatively undisturbed forest threatened by many or all of the threat factors listed above. There are five main *broad level* areas, totalling approximately 400,000 hectares:

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<sup>33</sup> Computer Assisted Development, Inc. April, 1999. *Development of a National Watershed Classification and Monitoring Programme, Jamaica.*

1. Blue and John Crow Mountains National Park, plus buffer areas in the Rio Grande, Swift, Buff Bay, Morant, Yallahs, Hope and Wag Water watersheds.
2. Cockpit Country Forest Reserve, plus outlying reserves and adjacent areas of closed broadleaf forest.
3. Litchfield Matheson's Run and Stepheney-John's Vale Forest Reserves, adjacent Crown lands subject to conflicting land uses, outlying reserves (Bull Head and Mount Diablo) extending into the upper portions of the Rio Minho, Rio Cobre and Rio Bueno/White River watersheds, and Crown lands in the Dunn's River watershed.
4. Inland portion of the Negril Protected Area, plus the forested area in and around Raglan Mountain, Bath Mountain and Burnt Savannah.
5. Terrestrial portion of the Portland Bight Sustainable Development Area, located in the lower Rio Minho and Rio Cobre watersheds.

Note that areas 1 through 3, properly reserved, managed, and reforested, would essentially constitute a spinal forest along the length of Jamaica's central mountain ridge.

The second *detailed level* of intervention will be based on selection of priority areas within the five *broad level* areas and will narrow the focus down to approximately 100,000 hectares.

The identification of critical emphasis areas at the *detailed level* (narrow focus) has been refined by the initial participatory planning activities in the five *broad level* critical emphasis areas. The following *detailed level critical emphasis areas* have been identified, based on their being designated as "critical" by either the Forestry Department, NRCA/NEPA, NRCA/NEPA-delegated non-governmental organisations, and/or the Environmental Foundation of Jamaica.

- Western Blue Mountains: park, forest reserve and National Water Commission lands, plus surviving unprotected areas of closed broadleaf forest, in the upper Hope, Wag Water, Buff Bay/Pencar and Yallahs watersheds;
- park and forest reserves, plus adjacent surviving unprotected areas of closed broadleaf forest in the Rio Grande watershed;
- forest reserves (Bull Head, Mount Diablo) and other forested Crown lands (eg, Guys Hill, Bogue) in the upper Rio Minho, Rio Cobre and Rio Bueno/White River watersheds;
- Portland Ridge Protected Area, Hellshire Hills, Peake Bay Forest Reserves, and Crown lands in the Braziletto Mountains (detailed inventory to be limited to selected areas);
- Cockpit Country Forest Reserve (priority areas to be identified by local consultation).

All the above areas except the Cockpit Country lie within watersheds designated as Priority 1 or 2 under the National Watershed Classification and Monitoring Programme.

Map 2 in Appendix VII shows the location of identified critical emphasis areas.

#### 13.4 Conservation and Protection Strategies

The initial approach to planning forest protection and conservation actions in the *broad level* critical emphasis areas will be as follows:

- Identify and contact partner agencies and community-based organisations for input on planning priorities and required interventions (see Section 8).
- Establish a basis for co-operative management agreements with relevant Government and non-governmental management agencies to develop and implement Local Forest Management Plans.
- Process available land use, forest inventory, land suitability and related data as a basis for initial land use zoning and identification of areas for detailed focus (see below). These data will include orthophoto base maps (or where these are not available, satellite images) combined with thematic map data, facilitating participation in the planning process by community representatives lacking in technical forestry training.

Within the *detailed level* critical emphasis areas, required interventions will be scheduled by the local forest management planning process (see Section 11). For public lands, initial actions will include:

- photo-interpretation, mapping and inventory of forest resources at a map scale of 1:15 000;
- appointment of Local Forest Management Committee(s) by the Minister of Agriculture consistent with sections 12 and 13 of the Forest Act (see Section 8);
- participatory planning of permitted and restricted land uses;
- boundary survey and/or demarcation of forest reserves;
- gazette forested Crown lands managed by the Forestry Department as forest reserves (see Appendix VII, Table VII-2 for details of proposed forest reserves); and
- entry into co-operative management arrangements with Government agencies and non-governmental agencies (where management delegations are approved or planned), for enforcement and implementation.

Where private lands are identified as urgently requiring forest conservation or protection, the Conservator will recommend to the Minister either:

- acquisition of the land for the purpose of forest reservation under the Land Acquisition Act and section 9 of the Forest Act; or
- declaration of the land as a forest management area, and enter into a forest management agreement with the owner of the land, conferring on the owner

obligations to conserve and protect the forest and entitlement to benefits, such as remission of property taxes under section 25 of the Forest Act.

The Forestry Department, in association with relevant Government agencies such as the NRCA/NEPA, the Jamaica Fire Brigade, the Jamaica Constabulary Force, etc. proposes to undertake an integrated approach to wild fire management and control through programmes involving NGOs as well as the Local Forest Management Committee. The programmes will provide equipment for and training in wild fire management and control techniques to FD forest officers and wardens, as well as to a voluntary community-based wild fire response team.

### **13.5 Declaration of Forest Reserves, Forest Management Areas and Protected Areas**

The Forestry Department's highest priority will be protecting what is left of Jamaica's rich and unique forest ecosystems from further encroachment by cultivators, livestock owners and timber cutters. The intent is to preserve these forests intact for biodiversity, watershed protection and ecotourism.

Addressing this intent requires rationalisation and agreement on acceptable land uses in disturbed and undisturbed forests, operational definition of forest land use zones, and enforceable guidelines for limiting deleterious land uses within these zones. Such guidelines (see Section 13.2) will form the basis for initial forest land use planning, and can be refined at the local level through participatory planning taking into account local environmental, sociological and economic factors.

It also requires declaration of threatened areas requiring protection as forest reserves, forest management areas, or protected areas.

Under the Forest Act, the Minister may declare to be forest reserves any Crown land, or private land if the owner requests such a declaration. He may order or declare any land not in a forest reserve to be a forest management area, including private land if he is satisfied that the use of the land should be controlled for the protection of the national interest. Forest reserves and forest management areas may be used for conservation of naturally existing forests, establishment of forest plantations, generation of forest products, conservation of soil and water, recreation, and protection of flora and fauna.

The Minister, on the recommendation of the Conservator, also may declare Crown land (or private land if the owner requests such a declaration) to be a protected area if required for a number of purposes specified in the Act, including flood and landslide protection, soil preservation, erosion, maintenance of water supply and protection of amenities, flora and fauna. On protected areas, the following land uses will be prohibited or strictly regulated:

- cultivation;
- grazing;
- burning; and
- clearing of vegetation.



Where protected areas are declared on private land, the Forest Act provides for:

- remission of property tax (this also applies to forest reserves and forest management areas);
- leasing of the land from the owner by the Government in order to place it under the control of the Conservator; and
- acquisition of the land by the Government.

Subject to available funding, additional incentives will be provided to private landowners for the protection of forests (see Section 15). Private lands declared as forest reserves, forest management areas or protected areas will not be deemed “idle” by the GOJ or the Land Utilities Development Commission (LUDC).

### **13.6 Restoration of Forests Disturbed by Mining**

The destruction of forests by the mining industry is a special case of great importance to the people of Jamaica because bauxite mining and associated access development are currently the most significant agents of deforestation in the country. Much of the damage to forests occurs in the limestone areas adjacent to bauxite deposits and disturbed by pit access development. This is particularly problematic, because whereas reclamation of pits is legally required, reclamation of roads is not required and is often socially impractical. The high quality roads built by the bauxite mining industry are frequently perceived as a social benefit but they provide public access into previously inaccessible forest, resulting in further forest degradation.

Two strategies are proposed for ameliorating this situation:

1. Mining lessees are already required by law to remove trees only subject to the direction of the Conservator of Forests. Increased diligence in notification and consultation prior to the location of roads will provide some opportunity to ameliorate or avoid damage to forests with high ecological, social or economic values.
2. A no-net-loss policy will be vigorously applied. Where destruction of forest is unavoidable, the industry should compensate the loss by reforesting an equivalent area elsewhere. The restoration may be undertaken directly by the industry, or be financed by the industry through another party, such as the Forest Fund. If restoration is in the form of agroforestry or other practices that produce only a partial tree cover, the equivalent forest area may be approximated based on the number of trees established (eg, 625 trees established under an approved agroforestry system may be deemed equivalent to one hectare of forest).

## 14.0 STRATEGY 7: FOREST PRODUCTION PROGRAMME

### 14.1 Forest Cover Types and Use

Primary Forest, Non-commercial Secondary Forests or Forests within Declared Protected Areas: The following categories of forest should be considered as non-commercial:

- all undisturbed broadleaf forests, including tall open dry forests;
- natural disturbed broadleaf forests on very steep slopes (over 30 degrees) and with shallow rocky soil; and
- forests and mangroves, either within declared protected areas or otherwise earmarked as having special ecological or eco-tourism value.

These forests will be preserved intact for watershed protection, biodiversity and eco-tourism. Protection is paramount and there is little or no justification for silvicultural interventions in these existing forests except for enrichment planting in certain categories of disturbed broadleaf forests.

Potentially Commercial Disturbed Broadleaf Forests: Disturbed broadleaf forests meeting the threshold slope, soil and accessibility criteria will be considered potentially commercial. The silvicultural objectives of this forest cover type are:

- preserve and encourage plant and animal species diversity;
- improve the commercial value of these forests by enrichment planting with commercially valuable hardwood species and allow low-intensity selection harvesting on strictly controlled diameter limits to maintain permanent tree cover;
- encourage the use of indigenous species for enrichment planting and particularly discourage the introduction of non-indigenous invasive species; and
- promote ecotourism and support visual quality objectives.

Existing Pine and Hardwood Plantations: Given the existence of the FIDCO road network and the FD forest roads and that some Pine and hardwood plantations still exist, the proposed policy is to continue managing the most productive of these plantations on moderate to steep slopes and reasonably deep productive soils for timber production. This will involve rehabilitating selected access roads (particularly drainage on the roads) and thinning dense stands.

Pine left on isolated upper ridges and inaccessible steep slopes represents a dilemma. On one hand, harvesting these stands is almost certainly uneconomic and environmentally damaging; on the other hand, dense Pine stands provide little or no soil protection, since the thick Pine needles suppresses ground vegetation and can actually exacerbate erosion. Opening up these stands by non-extractive thinning to encourage ground vegetation would seem to be the best course, however a full survey of all remaining Pine plantations is needed to determine their designations as “commercial”, “protective” or removal.

*Deforested Crown Lands:* Those lands meeting the threshold slope, soil and accessibility criteria will be put to their most economically productive use, preferably under timber trees or perennial agroforestry systems.

Clearing, repeated cultivation and burning have left vast areas covered in a thick mat of Guinea grass, fern or huge clumps of bamboo. The grass and fern sites outwardly seem appropriate for reforestation, but the thick mat and the risk of annual burning make for difficult conditions. The Forestry Department has, on occasion, replanted trees several times on grass sites following high mortality from cattle damage or fire. All these sites will be inspected and surveyed before deciding to plant, but there has to be strong economic justification for trying to reforest them.

The Forestry Department and the Commissioner of Lands will work towards repossession of lands leased for coffee production that are either abandoned or no longer economically viable, or lands where lease conditions are not being met. The most productive of these lands will then be available for reforestation, either by the Government or through the proposed forestry leasing arrangement.

*Forest Reserve Land Under Permanent Cultivation:* Some areas in forest reserves have been encroached upon for growing vegetables and coffee, even on rocky hillsides. These are lucrative enterprises with the vegetables supplying the nearby tourist industry, while the coffee is grown for export through the CIB. Evicting occupiers of this land cannot be considered realistic. In such cases, the Forestry Department will rationalise the use of land, strictly enforcing regulations against fresh encroachments, but regularising current land uses where it is appropriate. Any cultivators permitted to stay within reserve boundaries will be required to lease the land (under pre-established conditions), to install soil and water conservation measures and to establish a required cover of trees.

#### **14.2 Criteria for Selecting Lands for Reforestation**

The following variables were analysed using the Forestry Department GIS database, mapped at a scale of 1:250 000 and combined to identify the land with the greatest reforestation potential:

- land use and vegetation type;
- slope;
- accessibility (distance from the nearest road);
- various soil characteristics;
- forest reserve boundaries; and
- watershed boundaries.

A detailed discussion of these and other criteria used is provided in Appendix VIII(1).

Land on gentle to steep slopes (0-30 degrees), with moderately deep soil (more than 50 cm), and with reasonably good road access, will be considered as potentially suitable for reforestation. Table VII-1 in Appendix VII provides guidelines for potential forestry and other land uses based on slope and soil characteristics.

Closed broadleaf forests, tall open dry forests, disturbed broadleaf forests on steep slopes or shallow soils and lands declared or earmarked as having special biodiversity (eg, mangrove areas) or ecotourism values, will not normally be considered for either harvesting or commercial reforestation (See Table 13 below).

**Table 13: Classes of Land Use/Vegetation Cover Selected or Eliminated for Reforestation Potential**

Broad class of land use/vegetation cover	Sub-classes <b>SELECTED</b> as having reforestation potential	Sub-classes <b>ELIMINATED</b> as having no reforestation potential
Forest land use (cover>75%)	None	All
Mixed land use/cover	Bamboo and fields; Fields and disturbed broadleaf forest; Bauxite extraction and disturbed broadleaf forest.	Fields or disturbed broadleaf forest and Pine plantations; Disturbed broadleaf forests and fields; Bamboo and disturbed broadleaf forest
Non-forest land use/cover	Bauxite extraction	All except bauxite extraction

#### 14.3 Lands with Reforestation Potential

It must be emphasised that the reforestation criteria used here for national planning are extremely broadly based. The resulting maps and area summaries should not be interpreted or used for operational purposes, for which local knowledge or survey (as developed in the Local Forest Management Plan) is needed to identify plantable areas much more specifically. Firstly, because the reforestation criteria included mixtures of forest and disturbed areas (in unknown proportions), some of the land identified as having reforestation potential (on the disturbed areas) will actually be covered by disturbed broadleaf forest (and thus be unsuitable). Secondly, the elimination and selection of complete and highly variable soil types will undoubtedly have eliminated some suitable sites, or included unsuitable ones. Thirdly, the use of very broad (250-foot) contour lines to calculate slope will have smoothed out many topographic irregularities and thus wrongly eliminated some land with acceptable slope.

This said, the outcome of combining these criteria should generally indicate which watersheds or regions within watersheds have the greatest reforestation potential.

Map 3 in Appendix VIII shows the areas identified with reforestation potential. Table VIII(2)-1 lists the areas with reforestation potential by watershed and Table VIII(2)-2 lists potential areas by slope classes and accessibility. The following are the main conclusions:

- The five watersheds with greatest potential for reforestation are Rio Grande, Wag Water River, Spanish River, Buff Bay-Pencar River, and Hope River.

- Of the 69,244 hectares identified with reforestation potential, only 2,190 hectares (3 percent) are within forest reserves, which confirms that by far the greatest potential for reforestation is on private land.<sup>34</sup>
- Some 50 percent of the identified forest reserve land is on moderately steep to steep land (16 to 30 degrees), while 80 percent of identified land outside forest reserves is on gentle to moderately sloped land (0 to 15 degrees), again confirming that private land is likely to be the more productive.

#### 14.4 Reforestation Targets

Three factors were reviewed for setting Forestry Department and private sector reforestation targets for the 5-year period of this Forest Plan:

- area of land with reforestation potential;
- demand for wood products; and
- Forestry Department capacity for seedling production

The first factor has been covered above in Section 14.3 while the latter two factors are discussed in detail in Appendix VIII(2) - Rationale for Setting Targets. Table 14 below summarises the proposed reforestation targets.

The criteria for species selection and estimated yields and financial returns from reforestation are provided in Appendices VIII(3) and VIII(4) respectively.

The total area to be reforested during the 5-year Forest Plan is estimated to be 4,750 hectares, of which Pine for timber production would comprise 716 hectares (15 percent), and hardwood for timber 4,034 hectares (85 percent). Of the total area to be reforested, 890 hectares (19 percent) would be planted by the Forestry Department, the rest by the private sector. Between the years 2001 and 2005, the area planted by the Forestry Department would decline from 200 hectares (about 40 percent of the reforestation target for the year 2001) to 150 hectares (10 percent of the reforestation target for the year 2005).

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<sup>34</sup> See Table VIII(2)-1 in Appendix VIII for detailed list of areas identified with reforestation potential.

**Table 14: Targets for Government and Private Reforestation**

Item	Area to be planted each year (hectares)					
	2001	2002	2003	2004	2005	Total
<b>Government planting</b>						
- pine	24	23	22	20	18	107
- hardwood	176	167	158	150	132	783
<b>Sub-total</b>	<b>200</b>	<b>190</b>	<b>180</b>	<b>170</b>	<b>150</b>	<b>890</b>
<b>Private planting</b>						
- pine	67	92	126	155	169	609
- hardwood	233	368	594	875	1181	3251
<b>Sub-total</b>	<b>300</b>	<b>460</b>	<b>720</b>	<b>1030</b>	<b>1350</b>	<b>3860</b>
<b>Total</b>						
- Government planting	200	190	180	170	150	890
- Private planting	300	460	720	1030	1350	3860
<b>Grand Total</b>	<b>500</b>	<b>650</b>	<b>900</b>	<b>1200</b>	<b>1500</b>	<b>4750</b>

Based on the estimated demand for fuelwood, charcoal and yam sticks (see Appendix VIII(2) – Demand for Wood Products), some 35,700 hectares of plantation would be needed to provide for the annual roundwood demand for these products. Less than this area would suffice if some wood still continued to be cut from disturbed broadleaf forests on a sustainable basis, but the scale is far beyond available resources. Special studies are needed to determine how to bring wood cutters, charcoal producers and yam stick cutters together with landowners and potential investors to negotiate acceptable funding and implementation arrangements. In view of this, no targets are included at this stage for establishing energy/yam stick plantations.

The seedling requirements to meet the proposed reforestation targets, estimated direct costs of seedling production and reforestation are detailed in Appendix VIII(3) together with the expected sustainable outputs and value resulting from the above levels of reforestation.

#### 14.5 Identification of Potential Investors

Potential investors in forestry can range from a smallholder farmer planting a half-dozen timber trees to an NGO establishing a multi-hectare plantation for sustainable fuelwood production. Potential investors include:

- smallholder farmers;
- large estate farms and commercial farmers with mid-sized holdings;
- absentee owners whose lands are not presently being used;
- bauxite industry;
- National Water Commission;
- energy sector, eg, Petroleum Corporation of Jamaica, Jamaica Public Service Company, other private energy companies;
- tourism industry; and
- pension funds and long-term financial investors.

**14.6 Urban Forestry**

The Forestry Department will continue in its role as a major provider of seedlings for ornamental and shade purposes in the urban areas of the country. Adequate stocks of suitable seedlings will be kept to satisfy demand for seasonal planting in established and newly developed urban communities.

Advice on the maintenance and care of particular tree species and individual trees, as well as on species selection and effective protection methods for young tree seedlings, is provided to private and public interest groups when requested.

Urban planting programmes add an important “hands-on” component to the FD’s public education programme especially for schools in lower income urban areas and communities which are often bereft of trees and green spaces.

## 15.0 STRATEGY 8: INVESTMENT AND INCENTIVES

The forests of Jamaica provide many goods and services and have a substantial impact on the island's economy at large, mainly through wood-based fuels, water supplies, tourism and various forest products. *The Forest Land Use Policy* (1996) explicitly recognises that the forests of Jamaica are essential for the protection of the country's soil and water resources as well as for increasing production of forest products.

To date, however, public investment in the forestry sector and in watershed protection has been modest. Government budget allocations have been inadequate to fund the necessary management and conservation practices on forest lands and watersheds on a sustainable basis. If the sector is to achieve the goals identified in this Forest Plan, substantially increased funds will be required. Success also depends on stability in funding levels to achieve continuity.

While recognising that the first priority of forestry investment is to safeguard existing forests for their watershed, biodiversity and ecotourism values, national demand for products from our forests must also be addressed. Investment in plantations to supply timber, yam sticks and fuelwood/charcoal is needed to satisfy demand and to reduce the pressure on natural forests. Most of the land with the greatest potential for forestry development is privately owned, hence the private sector must be encouraged to engage in forestry/plantation development.

### 15.1 Establishment of the Jamaica Forest Management and Conservation

To fill the funding gap for forest management and conservation, the Forestry Department will establish the Jamaica Forest Management and Conservation Fund ("Forest Fund" or "Fund"). During his address<sup>35</sup> at the launch of the NFMCP in March 2000, the Prime Minister, the Rt. Hon. P.J. Patterson, recognised the need for long-term funding in the forestry sector and gave his endorsement to such a fund.

#### 15.1.1 Supported Activities and Beneficiaries

The Fund would be used to support activities and projects identified in Section 19 as requiring external funding. Eligible activities include, but are not limited to:

- protection of forest reserves, including maintenance of boundaries, trails and fire breaks;
- forest conservation on private lands (grants, leasing, easements, and/or acquisition);
- reforestation and agroforestry on suitable private and public lands;
- expansion and operation of the nursery system to support private sector reforestation;
- mangrove protection and restoration; and

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<sup>35</sup> Excerpt from the Prime Minister's address, "... New funding mechanism will be needed to supplement the resources provided by Government. As the role of Government changes, it will develop new policies and involve the private sector, communities, and NGOs in implementing the [Forest] Plan. To meet this need a Jamaica Forest Fund is being proposed to provide long-term funding for reforestation and forest conservation. ..."



- local forest-based community projects.

Funds will be disbursed to agencies and individuals implementing the above activities, namely:

- non-profit, non-governmental and community-based organisations;
- educational institutions;
- lessees and owners of private lands; and
- contractors.

#### 15.1.2 *Organisation of the Fund*

Successful procurement of funds will require a structure that is acceptable to multiple contributors. Investors must have the necessary control and assurances that their contributions are spent on activities consistent with their investment criteria. Financial management must be highly credible and perceived as free from governmental or political intervention. At the same time the Government must retain the necessary control to meet its responsibilities under the Forest Act and to ensure resources are directed at implementation of the approved Forest Plan.

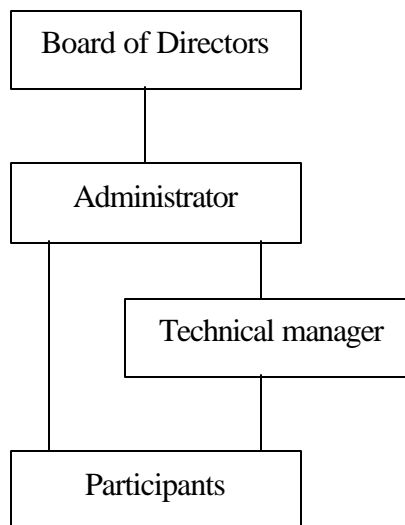
Towards these ends, the following elements are recommended:

- *Legal Entity.* The Fund would be incorporated under section 13, the Companies Act 1967 as a company limited by guarantee without a share capital. The Memorandum and Articles of Association would limit the objectives and activities of the Fund to implementation of a Forest Plan approved by the Government of Jamaica under the Forest Act.
- *Members.* Members would be agencies or persons subscribing to the Fund. They would have the option of tying their contributions to specific implementation activities or projects. The Government of Jamaica would always be a member.
- *Directors.* The Board of Directors would be structured to include at least:
  - one director appointed by the Government of Jamaica;
  - three directors elected from the members at large; and
  - one director appointed from the public at large.
- *Administrator (Financial Manager).* An internationally recognised management consulting firm would be contracted to provide financial administration services, including accounting, Fund revenue collection, disbursement of funds, and reporting.
- *Technical Manager.* Delivers technical services including planning, extension, and monitoring of conformance (to the Plan, the Forest Act and pertaining regulations, and standards of practice). The Forestry Department would assume the lead role, given its responsibilities under the Forest Act. The technical services provided would continue to be covered under the Government's recurrent budget to Forestry Department. Additional technical services may be provided by contractors, and paid for by the Fund (see "participants" below).

- *Participants.* Parties engaged in operational implementation of the Forest Plan, would include contractors, community based-organisations and lessees or owners of forest lands.

The basic relationships between the Board, administrator, technical manager, and participants are illustrated in Figure 4.

**Figure 4: Jamaica Forest Management and Conservation Fund - Reporting Relationships**



## 15.2 Sources of Funding

The primary sources so far identified for initial capitalisation and start-up of the Fund are:

- *Bilateral and Multilateral Contributions.* Donors have expressed interest in supporting implementation of the Forest Plan, either through individual development projects or contributions to an appropriately organised Fund.
- *Debt Reduction Agreements.* Environmental funds from existing agreements might be incorporated into the Forestry Fund through appropriate arrangements with agencies like the Environmental Foundation of Jamaica. Further debt relief under the US Tropical Forest Conservation Act (1998) could create additional funding.
- *Sponsorship from the Private Sector.* A well-organised and marketed Fund is likely to attract private sector sponsorship or endowments. Targeted sponsors would include the bauxite, tourism, petroleum and agriculture industries (domestic and international), landowners, and international non-government organisations.

It is stressed that the purpose of the Fund is to implement the Forest Plan. Contributors to Plan implementation will have the option of contributing to the Fund, and/or directly participating in the implementation of planned activities and projects.

Other sources that will be investigated are discussed below.

#### *15.2.1 Government Contribution*

The Government of Jamaica may wish to seed the Fund, but its most crucial and essential contribution will be to maintain a basic but effective Forestry Department organisation that will facilitate and audit funded activities consistent with the Forest Act, regulations, and Forest Plan.

#### *15.2.2 Water User Fees*

Water user charges are an important potential source for establishing a viable fund. A prerequisite for sustainable management of water as a scarce and vulnerable resource is that its full cost should be acknowledged in all planning and development. The economic value of water must reflect the cost of maintaining regular supplies at high quality, and not merely the cost of treatment and transportation.

The Water Resources Authority (WRA) has authority to charge for the abstraction of water from surface or underground sources. The present charges are J\$15,000 for the drilling application fee and J\$15,000 for the abstraction application fee. The WRA further proposes that an annual licence fee of J\$0.20/1000 gallons be charged to abstractors for funding the capital works and monitoring programmes of the WRA. The Forestry Department suggests that a portion of any annual licence fee should be used to fund watershed forest management activities. This could provide a significant annual contribution to the Jamaica Forest Management and Conservation Fund.

#### *15.2.3 Carbon Sequestration*

Carbon sequestration is another potential source of funds already successfully utilised by some Latin American and Caribbean countries. Under the Clean Development Mechanism of the Kyoto Protocol to the United Nations Framework Convention on Climate Change, countries can get credit for reducing carbon emissions or from absorbing carbon from other countries under a Joint Implementation project. These projects provide an opportunity for obtaining long-term financing for forestry development and conservation.

Deforestation in tropical countries contributes about 20 percent of the annual global emissions of carbon dioxide and a reduction in Jamaica's rate of deforestation could have far-reaching environmental as well as financial benefits.

The Forestry Department will work with the Government to develop policy support for Joint Implementation of carbon sequestration projects and encourage the involvement of the local private forestry sector and foreign companies.

#### **15.2.4      *National Park Fees***

Forest reserve areas make up the bulk of the country's national parks. A portion of entrance and other user fees collected by national parks should be made available to the Fund to support management activities of the parks' forests.

#### **15.3          *Investment in the Forestry Sector***

The Forestry Department will address the problem of low investment in the forestry sector by working to promote an environment which encourages investment by creating incentives and by reducing the barriers to investment in forestry.

##### **15.3.1      *Public Land Management and Utilisation***

The Forestry Department will develop a programme that allows tenure on Crown lands in return for money or services such as maintaining a prescribed type and amount of tree cover and would be tied to good land management practices. More specific criteria guiding tenure on Crown lands is discussed in Appendix IX(2).

Crown lands with any reasonable commercial potential for reforestation are frequently under illegal permanent or temporary use by cultivators and herders. Legally evicting them from Crown lands carries little or no political support and is often extremely difficult. It is more logical to seek co-operation with illegal occupants than to work against them. The FD will explore the option of creating buffer zones around adjacent remaining forests and enlist the involvement of local people in forest management.

The Forestry Department will clearly mark boundaries which are in dispute and take steps to resolve border disputes. In cases where there is clear encroachment, the FD will attempt to work with farmers to acquire other suitable lands or help them to obtain tenure, under controlled land use conditions.

##### **15.3.2      *Reduce Praedial Larceny***

The FD will intensify their enforcement programme and increase their monitoring of sawmills and furniture manufacturers to reduce the theft of lumber. The arrests and other enforcement actions taken by the environmental service wardens of the Blue and John Crow Mountains National Park and members of the Forestry Department have been successful in reducing the amount of lumber stolen.

##### **15.3.3      *Fire and Animal Damage***

The Forestry Department will work with NGOs to implement community education programmes to control animals as well as fire management and control. The existing Country Fires Act will be revised; fines will be increased and enforced. New regulations to accompany the revised Act will be drafted.

#### 15.4 Incentives for Investment

The following incentives will be provided to encourage investment in forestry development and conservation:

- free timber seedlings (from nursery site), and subsidised cost on other species;
- remission of property tax on lands declared as forest management areas or forest reserves;
- income tax exemption, duty concession on motor vehicle purchase, and waiver of GCT on capital goods, activities and supplies prescribed under a forest management agreement and approved forest management plan; and
- long-term conditional leasing at competitive rates of public land for reforestation, agroforestry and other purposes prescribed in an approved Local Forest Management Plan, including investiture of full ownership of planted trees on the lessee.

In addition, the following incentives will be provided, subject to the availability of capital in the Jamaica Forest Management and Conservation Fund, and priorities established by the Fund's Board of Directors:

- grants for plantation establishment on lands qualifying for reforestation under the Forest Plan;
- direct acquisition or leasing of lands for maintenance as protection forest;
- annual grants to landowners, of up to 50 percent of the land rental value, for maintaining protection forests;
- grants and/or long-term low-interest loans for community forestry and recreational ventures;
- maintenance of boundaries, trails and fire breaks; and
- surveying of suitable Crown lands for leasing to forestry or agroforestry uses.

All incentives will be subject to activities being prescribed in an approved Local Forest Management Plan and performance verification by the Forestry Department.

## 16.0 STRATEGY 9: ROLE OF THE FORESTRY DEPARTMENT

### 16.1 Present Organisation and Capacity

The present organisational structure for the Forestry Department was approved in 1997 – see Appendix X(1). One objective of this structure was to provide for staff positions to prepare the FD to expand its scope of activities proposed through the CIDA-funded *Trees for Tomorrow Project*. Several of the staff positions approved in the 1997 organisational structure remain unfilled due to budgetary constraints and this has limited the ability of Forestry Department to carry out its role.

The existing FD structure was analysed by the UNDP *Forestry (Bridging) Capacity Project*. Recommendations made to strengthen the Forestry Department's capacity in forest protection and management, developing community participation in forest protection and management, and providing information are under review.

As part of a general programme to increase overall efficiency and effectiveness of Forestry Department personnel, job descriptions have been reviewed and rewritten for operational and administrative staff and procedures manuals have been written for a number of field operations.

### 16.2 Recent and Current Projects

The projects presently being implemented by the Forestry Department are:

- *Trees for Tomorrow Project*: The Project is funded by the Canadian International Development Agency and the Government of Jamaica. The objectives of the Project are to strengthen the institutional capability of the forestry sector, primarily the Forestry Department, to implement sustainable forest management and other soil and water conservation measures in Jamaica's upper and middle watersheds, and at the same time increase awareness of the importance of forests throughout the country.
- *Forestry Capacity (Bridging) Project*: This Project, funded by UNDP and the Government of Jamaica, was designed to achieve improved capacity of the forestry sector by encouraging participatory approaches to the planning and management of the forestry resources. It is also aimed at improving the project planning and management capacity of the Forestry Department, selected National Environmental Societies Trust (NEST) members and Government institutions.

Recently completed projects undertaken by the Forestry Department are:

- *Agroforestry Development in North-Eastern Jamaica*: The Project assisted small-scale farmers in the Rio Grande watershed in establishing suitable agroforestry systems on their farms. The Project also increased the capabilities of the Forestry Department to implement agroforestry programmes on a sustainable basis.
- *Morant Yallahs Agriculture Development - Forestry Sub-component*: The Forestry Department was contracted to replant the public lands and assist private farmers in establishing timber and fruit trees in the Morant and Yallahs watersheds.

### **16.3 Expanding Capacity**

The role of the Forestry Department is defined in section 4 of the Forest Act, 1996. Fulfilling these roles and implementation of the National Forest Management and Conservation Plan are impossible without the Forestry Department strengthening its capabilities in community liaison, extension and enforcement.

The FD presently collaborates with the Rural Agricultural Development Authority (RADA) for its extension needs. The Forestry Department will continue to forge close links with RADA by providing them with technical forestry information, and where possible, provide “hands-on” training to RADA extensionists on specific forestry subjects.

But RADA is primarily agricultural and also has very limited resources, and collaboration with it alone is not sufficient. It has been identified that by far the greatest potential for reforestation is on private land (see Section 14.3). Therefore the Forestry Department will work towards becoming more of a service-oriented agency for the private sector by improving its capacity to liaise with individuals and communities. The kind of services aimed at will include:

- involve communities in forest protection, management and conservation activities;
- public education about trees, forests and the environment;
- creation of a database of tree growers, with details of their situation and requirements;
- creation of a timber/lumber market database, including a list of primary timber/lumber producers;
- provision of free timber seedlings of the desired quality, and at the desired time, provision of other tree species at subsidised cost;
- documenting case studies, including costs and returns;
- collection, preparation and dissemination to tree growers of technical, management and marketing information; and
- monitoring and evaluation of private forestry participants and programmes.

Green Paper 2/99, *Towards a Watershed Policy for Jamaica*, identifies the Forestry Department as the implementing agency for national watershed management. When the FD’s additional duties are defined, the Department’s organisation structure and capacity will be carefully reviewed to ensure that the FD will be provided with the appropriate resources to fulfil the new watershed management mandate.

### **16.4 Human Resources Development**

The human resources development (HRD) objective is to establish new facilities while utilising existing ones for the education and training of personnel to provide effective leadership and service at all levels in the Forestry Department, in other Government agencies and in the private sector (including NGOs) in order to attain the goals of the forestry sector as set out in this Forest Plan.

In pursuing this objective, the following strategies will be used.

**16.4.1      *Gender Equity (Expanding the Role of Women)***

In view of the fact that only a few women are employed at the technical level within the Forestry Department, the gender strategy will seek to focus on the role of women by:

- making the FD a more gender-sensitive organisation that is fully equipped to incorporate gender issues in its operations;
- promoting the recruitment of women into professional and technical levels within the Forestry Department; and
- improving the socio-economic condition of rural women in the communities served by the FD.

These aims will be attained, in part, through the following institutional support actions:

- design and implement gender sensitisation programmes;
- encourage and assist young women to pursue forestry as a career;
- address concerns of women in relation to facilities, conditions of work and terms of employment, particularly in the nurseries; and
- widely advertise training opportunities, with special attention paid to women, in order to offer staff mobility and opportunities for promotion.

The Forestry Department will make a special effort to involve women at all levels within its activities to develop community participation in forest management.

**16.4.2      *Staff Motivation and Morale***

To develop and maintain a motivating climate and to build staff morale, the following initiatives will be utilised:

- the use of a range of psychological rewards to recognise excellent performance;
- deliver value-added service internally and externally;
- improve working conditions/work environment;
- implement controls for handling unsatisfactory behaviour and performance; and
- involve staff in decision making.

The Forestry Department has prepared a Customer Care Charter which sets down the service standards that FD personnel must provide to internal and external customers. The Charter was presented to Forestry Department staff at a series of one-day workshops held in each Region and Head Office. A Customer Care Team has been set up to receive and promptly resolve complaints from any staff member or external customer.



#### **16.4.3      *Forestry Department Training Needs***

A training needs analysis (TNA) undertaken in 1998 within the Forestry Department (see Appendix X(2)) indicated that the level of technical and general forestry knowledge is very low at most levels of the Forestry Department below the Director level.

This lack of knowledge is being addressed by the preparation and carrying out of annual training plans. Resources for undertaking these training activities are presently being provided by the FD, the *Trees for Tomorrow Project* and the *Forestry Capacity (Bridging) Project*.

A Field Skills Training Analysis was completed in mid-2000. This analysis focussed on the FD's field personnel and identified areas in which skills and/or knowledge was lacking. A curriculum is being prepared to address these weaknesses and a series of specialised courses will be given to all Forestry Department field staff.

#### **16.4.4      *Forestry Sector Training Needs***

The Forestry Department will undertake a TNA for each NGO, CBO and private organisation with which it becomes involved and will assist other Government agencies with TNAs when requested.

#### **16.4.5      *Periodic Training Needs Assessment***

- Existing and new instruments will be employed to conduct periodic training/development needs assessment of staff within the Forestry Department and the wider forestry sector.
- All training programmes and interventions will be provided only within the context of the needs identified and analysed.
- All training activities will be monitored and evaluated (at Level 4)<sup>36</sup> to ensure they produce significant and positive changes to benefit the Department, the forestry sector and the Nation.

#### **16.4.6      *Performance Management***

- Design and implement an objective Performance Management System to ensure the highest possible levels of performance and productivity by a competent and committed workforce.
- Provide for close monitoring and evaluation of the system.

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<sup>36</sup> In Human Resource terminology, Level 4 Evaluation refers to the assessment of the impact of training on the organisation.

### **16.5 Monitoring FD Performance**

The systematic monitoring and evaluation of the Forestry Department's routine activities, the intervention of donor-sponsored projects, as well as community-based and NGO-supported activities will be undertaken by the Forestry Department's Monitoring and Evaluation Unit<sup>37</sup>. These monitoring roles will be carried out through a combination of participatory monitoring, accessing existing information from partners, developing new approaches with other stakeholders and utilising internal reports.

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<sup>37</sup> To be fully operational by end of 2001.

## **17.0 STRATEGY 10: ROLE OF THE PRIVATE SECTOR**

### **17.1 Private Sector Investors**

Given the right incentives, the private sector has a much greater capacity to meet national reforestation requirements than any Government agency. The availability and general productivity of private land offers much greater potential for reforestation than does Crown land. Of the 69,244 hectares of forested or partially forested land identified with reforestation potential, only 2,190 hectares are within forest reserves. The majority is on private land. More land is becoming marginal or idle for agricultural use as farmers struggle with global competition and other problems. Growing trees can provide farmers an alternative viable use for such lands. Jamaica enjoys very high site productivity relative to many timber-producing nations.

Notwithstanding the strong reasons above for encouraging private forestry in Jamaica, such a radical shift in investment and land use is unlikely to happen quickly without encouragement. Hence the introduction of the incentives described in Section 15.

As the Forestry Department focusses its resources on public liaison, extension, and regulation, there will be increased opportunities for the private sector in seedling supply and nursery production. Incentives and co-management arrangements for the participation of the private sector in both forest protection and production have already been outlined. The implementation of this Forest Plan will rely heavily on the involvement of the private sector in all the following activities:

- seedling production;
- commercial reforestation, agroforestry and plantation establishment on private lands;
- commercial agroforestry and plantation establishment on leased Crown lands;
- protection of natural forests on private lands;
- recreation and water production services on Crown and private forests; and
- reclamation of mined forest lands.

As mentioned previously (Section 13.6), the restoration or replacement of forests disturbed by mining is a special case and of great importance to the people of Jamaica. All costs of reclamation should be borne by the operator. However, provision has been made in the Forest Plan for the FD to dedicate a Senior Officer to reclamation support, technical assistance, liaison and regulation.

### **17.2 Tree Growers' Associations**

The Forestry Department ultimately has to deal with individuals when extending forestry services or mobilising lease arrangements, since farmers traditionally act independently. The process can be greatly facilitated by organising tree growers' associations, or working through existing community-based organisations. Grouping can aid communication, sharing of ideas and resources, and mobilisation of participants.

If encouraged to take up tree growing on their own or on leased public land, people living in critical emphasis areas and adjacent to forest reserves could help protect remaining forest and create an effective buffer around the reserves. As peers, they could convey environmental messages to their community more effectively than any outside Government agency. Three models can be considered for groupings:

- the co-operative model with equity participation;
- the association as a forum for communication and sharing between stakeholders; or
- an informal unstructured grouping simply to receive Forestry Department seedlings and technical assistance.

The second model seems the most logical, as the first is more suited to agriculture than to reforestation (given the long waiting period for any income from forestry) and the third serves little purpose.

### **17.3 Privatisation of Seedling Production**

The Forestry Department's policy of providing free seedlings is a necessary incentive for the foreseeable future to encourage farmers to grow trees. But this also works against the development of an open market in seedlings and is a disincentive for private operators to raise seedlings. In most jurisdictions throughout the world, internal nursery operations have been phased out and the work contracted out. Ample expertise exists in Jamaica's private sector for raising fruit, coffee and ornamentals, which could easily be adapted to timber tree seedlings. During the term of this Forest Plan, the Forestry Department will undertake a review of its seedling policy and an investigation into privatising seedling production.

### **17.4 Land Tenure**

One way the private sector will be encouraged to participate in forestry is through the controlled leasing of public land for growing timber trees or adopting agroforestry systems. This will enable the Forestry Department to collaborate closely with private growers and jointly achieve the following goals:

- increase tree cover in forest reserves and other public watershed lands;
- make productive use of currently under-utilised deforested lands;
- provide Treasury with income from otherwise under-utilised land;
- build up a valuable asset and future income for small-scale farmers and tree growers;
- contribute to the national wood supply, thereby reducing the pressure on broadleaf and open dry forests;
- ensure the vested interest of tree growers to protect their own plots of trees from encroachers; and
- create greater environmental awareness among the lessees, and possibly their co-operation in protecting adjacent areas of forest.

**18.0 STRATEGY 11: CO-ORDINATION AND MONITORING****18.1 Review Process**

The Forest Act, 1996 requires that the Forest Plan be reviewed and amended as necessary at intervals not exceeding five years. Performance will be monitored against the specific objectives of the Forest Plan, using measurable and verifiable indicators. This task will be conducted and reported to the Minister and the public by an independent Forestry Planning and Development Committee (referred to in the draft plan as the “Strategic Planning and Development Committee”), with technical monitoring and evaluation support from the Forestry Department. The indicators will be refined by the Committee, but are essentially predicated by the objectives of the Forest Plan (see Table 15). These are listed below by goal:

***Goal: Protect forest resource/biodiversity conservation***

- hectares reserved and effectively patrolled;
- current biophysical inventory and vegetation change data provided;
- hectares of private forest acquired or under protection agreement;
- km of new and existing forest reserve boundaries surveyed;
- km of boundaries, trails and fire breaks maintained;
- number of Local Forest Management Plans (LFMPs) approved by Minister and endorsed by Local Forest Management Committee (LFMC);
- number of LFMCs appointed and functioning;
- the percentage of critical emphasis areas covered by LFMPs;
- forest policy update completed;
- percent of Nation’s school children receiving environmental forestry education; percent of residents in critical emphasis areas receiving local public awareness programme;
- number of residents in critical emphasis areas participating in forest management activities; and
- km of forest roads maintained or restored.

***Goal: Restore tree cover***

- hectares planted and maintained to defined standards;
- hectares of Crown land leased for suitable agroforestry use;
- number of seedlings produced;
- hectares of forest, disturbed by mining and related activities, reclaimed/replaced; and
- hectares of mangrove forest protected or restored.

***Goal: Carbon dioxide sequestration***

- manage forests to contribute to carbon sequestration – specific indicators for this objective will be developed in a proposed feasibility study to investigate a carbon sequestration programme for Jamaica.

***Goal: Economic contribution of forests***

- the contribution of the forestry sector to national gross domestic product – the value indicators will be developed in three proposed studies, “Forest Resource Valuation”, “Yam Stick Market Study” and “Fuelwood/Charcoal Studies”;
- revenue collected from wood and other goods produced on Crown forests;
- number of wardens and forest officers trained in forestry and agroforestry extension;
- hectares of commercial plantation established by private sector;
- number of small community projects started and successfully operating; and
- capital value of Jamaica Forest Management and Conservation Fund.

***Goal: Sustainable fuelwood production***

- establish plantations and manage forests to ensure sustainable fuelwood production – indicators will be developed following a survey of the fuelwood and charcoal industries.

***Goal: Recreation and tourism***

- number, size, and use levels of recreational facilities operating in forest areas.

**18.2 Forestry Planning and Development Committee**

To facilitate this undertaking, the Minister of Agriculture will appoint a high level Forestry Planning and Development Committee (FPDC or “Committee”). The role of the Committee is to:

- Provide leadership and guidance in the strategic planning process in the FD.
- Facilitate intersectoral linkages and linkages between the public and private sectors.
- Keep the Forestry Department focussed on achieving the goals of the forestry sector and the objectives of the Forest Plan, whilst being open and responsive to the need for change in strategies.
- Act as a lobby group on behalf of the forestry sector.
- Be independent, objective and impartial, to be an enabler and facilitator.

The major responsibilities of the FPDC are to:

- Monitor the implementation of the Forest Plan and report annually to the Minister and the public on implementation achievement relative to the Plan objectives.
- Recommend strategies and courses of action to the Minister to remedy problems, failures or difficulties encountered in implementation of the Forest Plan.
- Keep abreast of international trends and developments in forestry, environmental and conservation issues.

- Conduct/lead the annual strategic planning review and provide an objective assessment of progress towards achievement of the goals of the forestry sector as identified in the Forest Plan.
- Provide guidelines for prioritising Forestry Department objectives for the coming year.
- Provide advice and guidance to the Conservator in issues related to forestry.

The Forestry Planning and Development Committee will consist of seven members representing regional, community, private sector and forestry interests:

- One public representative from each of the Eastern, Central and Western Forest Regions. These three members will be active participants in their Local Forest Management Committee and have a strong interest in and commitment to the protection and conservation of forests, soil, and water.
- Financial specialist with experience and status in the banking, financial management and economic sectors.
- Representative of national tourism and recreation interests.
- Wood industry representative, with interest and knowledge in growing timber or fuelwood, wood processing and forest product marketing.
- Conservator of Forests.

The Forestry Planning and Development Committee will serve as a sub-committee to any national-level watershed management committee that may be formed when the Watershed Policy is implemented.

The FPDC will be supported in its role by the Management Committee of the Forestry Department and by a number of *ad hoc* sub-committees called Focus Groups.

### **18.3 Management Committee**

The Management Committee consists of the senior managers of the Forestry Department and will, *inter alia*, prepare internal appraisals of the Forest Plan, undertake technical and operational planning and provide technical assistance and support to the as part of a strategic planning process.

### **18.4 Focus Groups**

Focus Groups, representing the large number of Government and non-governmental agencies involved in forest management, may be convened by the Committee to:

- facilitate inputs from stakeholders related to specific issues; and
- provide additional specialised planning expertise to the Forestry Department as needed.

The agencies which will form Focus Groups include:

- Ministry of Agriculture;

- 
- Ministry of Lands and Environment;
  - Ministry of Water and Housing;
  - Planning Institute of Jamaica;
  - Natural Resources Conservation Authority/National Environmental Protection Agency;
  - Cabinet Office/Office of the Prime Minister;
  - National Water Commission;
  - Urban Development Corporation;
  - Water Resources Authority;
  - Environmental NGOs (eg, STEPA, STEA, PEPA, NEPT); and
  - Private forest growers.



## 19.0 IMPLEMENTATION OF THE FOREST PLAN

It is recognised that formal commitment to the Forest Plan is implied by its approval, but explicit commitment by the Government of Jamaica to donors and other investors, including commitment to a budget contribution sustained for at least the 5-year period of the Forest Plan, will be sought. Forestry Department will seek broad-based endorsement from both political and civil sectors of society for the Forest Plan.

### 19.1 Activities and Objectives

Table 15 below itemises the activities and targets by goal, consistent with strategies stated in the Forest Plan; feedback received from the general public and reviewers of the Forest Plan; and Forestry Department's interpretation of required or achievable targets. The targets relate to a 5-year implementation period which commences from the approval date of this Forest Plan by the Minister of Agriculture.

**Table 15: Activities and Quantified Objectives of the Forest Plan**

<b>ACTIVITY</b>	<b>OBJECTIVE (Indicators and Targets)</b>
<b><u>GOAL: PROTECT FOREST RESOURCE</u></b>	
Establish and operate protection system	100,000 ha currently reserved, plus additional remaining closed broadleaf forest (approximately 23,000 ha), and mangrove (5,600 ha), effectively patrolled and protected by staff of 60 trained wardens
Establish and maintain inventory and monitoring system	Current broad biophysical inventory of all forest land; detailed inventory of critical emphasis areas; change detection system in place for assessing forest cover change at 5-year intervals
Protection/forest conservation on private lands	Preservation of threatened undisturbed forest on private land in critical emphasis areas (assumed 5000 ha) through acquisition or incentives to landowners
Survey existing forest reserve boundaries	400 km (consisting of the 100 km being surveyed at present by FD plus an additional 300 km)
Survey new forest reserve boundaries	75 km
Maintain boundaries, trails, fire breaks	300 km per year
Produce Local Forest Management Plans (LFMPs)	LFMPs approved by Minister and endorsed by public for all forest reserves in critical emphasis areas within 5 years (including new declarations and forest management areas)
Establish and support Local Forest Management Committees	10 committees appointed and functioning, focussed on critical emphasis areas
Forest policy update	Updated Forest Policy
Public awareness	Local public awareness programme reaching all residents and stakeholders within critical emphasis areas; national public awareness programme reaching all school children
FD training	All FD staff trained and functionally competent in areas of responsibility
Community training	Effective community participation in forest management in 10 critical emphasis areas
Forest road maintenance and restoration	100 km per year

<b>ACTIVITY</b>	<b>OBJECTIVE (Indicators and Targets)</b>
<b><u>GOAL: RESTORE TREE COVER</u></b>	
Reforestation (planting, maintenance, silviculture)	1000 ha per year planted and maintained (20% Government; 80% private)
Survey Crown land for leasing	1100 ha of suitable Crown land leased for approved agroforestry use
Establish nursery system	3 nurseries with combined capacity of 1.5 million seedlings per year
Operate nursery system	1.1 million seedlings per year (to support 1000 ha per year); includes 65,000 seedlings for urban use
Develop and implement research programme	Reforestation programme supported by trials evaluating and verifying species selection, silvicultural and agroforestry systems and productivity
Mining reclamation support	No net loss of tree cover
Mangrove protection and restoration	Protect or restore mangrove forests to maintain at least 10,000 ha
<b><u>GOAL: CO<sub>2</sub> SEQUESTRATION</u></b>	
Develop CO <sub>2</sub> sequestration programme	Exploratory studies and trials completed; definitive programme in place
<b><u>GOAL: BIODIVERSITY CONSERVATION</u></b>	
The activities for this goal are encompassed within the goals for "Protect Forest Resource" and "Restore Tree Cover"	Habitat for native flora and fauna is maintained by increasing the extent of forest reserves and other protected areas together with effective patrolling and protection of these areas.
<b><u>GOAL: ECONOMIC CONTRIBUTION OF FORESTS</u></b>	
Forest resource valuation	Established financial values for forest services including wood products, non-wood products, water, soil conservation, recreation
Revenue collection and administration	Fair stumpage value being paid by users for all wood harvested on Crown land
Develop extension capability	60 wardens, 31 foresters trained and competent in extension
Extension operations	Reforestation and protection objectives met; private sector establishing minimum of 800 ha per year of productive forest
Support community project start-up	50 small projects started and successfully operating
Tree growers' association	Tree growers' association formed and functioning
Manage the Jamaica Forest Management and Conservation Fund	Fund established and independently administered with a capitalised value, or equivalent income, of at least J\$500 M
Yam stick market study	Production, consumption, utilisation and economics evaluated; production programme established
<b><u>GOAL: SUSTAINABLE FUELWOOD PRODUCTION</u></b>	
Fuelwood/charcoal studies	Production, consumption and economics evaluated; definitive implementation programme established
<b><u>GOAL: RECREATION AND TOURISM</u></b>	
Develop and maintain recreational facilities	3 sites operating in forest areas
	See also forest protection objectives and activities

## 19.2 Estimated Implementation Costs

To develop a budget for the implementation of the Forest Plan, the Activities in Table 15 above were sorted, and sub-divided if necessary, into recurrent (annual cost) and development (one-time cost) components. Associated costs were estimated and further categorised into committed, “approved”, and proposed components. Note that “approved” here refers to costs associated with GOJ positions that have been approved for the FD but not budgeted or filled.

Government of Jamaica costs are separated from externally funded projects (although this separation is obviously open to revision). Results are shown in Table 16. Nominal capitalised values are shown for recurrent as well as development costs, based on an assumed real interest rate of 10 percent. The intent here is to provide a basis for establishing capitalisation targets for the Jamaica Forest Management and Conservation Fund.

A baseline GOJ funding level of J\$66 million per year is assumed. The costs for the “unfilled approved positions” component of the expanded annual operating programme are all additional to the baseline.

The costs for the “other” component of the expanded operating programme are partially covered by the Capital A portion of the baseline budget. Because of this, the Capital A amount (J\$13 million) is subtracted from the costs of the expanded operating programme.

**Table 16: Estimated Implementation Costs**

Item	Type	Cost by Source (J\$ million)		Capitalised Cost (J\$ million)			Total (J\$ mil.) 5-yr Cost
		GOJ	Ext.	GOJ	Ext.	Total	
<b>GOJ BASELINE ANNUAL PROGRAMME</b>							
Baseline FD budget - recurrent	R	53.00		530		530	265
Baseline FD budget - Capital A	R	13.00		130		130	65
<b>Total GOJ baseline</b>		<b>66.00</b>		<b>660</b>		<b>660</b>	<b>330</b>
<b>CURRENT FORESTRY PROJECTS – ANNUAL PROGRAMME (AVERAGE)</b>							
Trees for Tomorrow Project	D	17.60	42.40	88	212	300	300
Bridging Project	D	11.40	8.10	23	16	39	39
<b>Total current forestry projects</b>		<b>29.00</b>	<b>50.50</b>	<b>111</b>	<b>228</b>	<b>339</b>	<b>339</b>
<b>EXPANDED ANNUAL OPERATING PROGRAMME – UNFILED APPROVED POSITIONS (GOJ)</b>							
Maintain & operate protection system		7.90		79		79	40
Maintain inventory & monitoring system		1.46		15		15	7
Produce LFMPs for forest reserves		1.62		16		16	8
Implement research programme		2.01		20		20	10
Mining reclamation support		1.01		10		10	5
Revenue collection & administration		0.40		4		4	2
Extension operations		8.43		84		84	42
Other FD unfilled overhead positions		2.80		28		28	14
<i>Sub-total (1) - approved positions</i>		<b>25.63</b>		<b>256</b>		<b>256</b>	<b>128</b>

Item	Type	Cost by Source (J\$ million)		Capitalised Cost (J\$ million)			Total (J\$ mil.)
	D/R	GOJ	Ext.	GOJ	Ext.	Total	5-yr Cost
<b>EXPANDED ANNUAL OPERATING PROGRAMME – OTHER</b>							
Maintain inventory & monitoring system	R		3.80		38	38	19
Forest conservation incentives	R		15.60		156	156	78
Maintain boundaries, trails, fire breaks	R		3.96		40	40	20
Establish & support LFMCs	R		1.10		11	11	6
Public awareness programme	R		2.05		21	21	10
FD training	R		4.69		47	47	23
Community training	R		2.65		27	27	13
Forest road maintenance	R		4.00		40	40	20
Reforestation (planting, maintenance, silviculture) – Crown lands	R		9.22		92	92	46
Reforestation - private sector	R		40.00		400	400	200
Operate nursery system	R		10.51		105	105	53
Maintain recreational facilities	R		0.75		8	8	4
Manage Jamaica Forest Management and Conservation Fund	R		6.60		66	66	33
<i>Sub-total (2) - other (less baseline Capital A)</i>			<b>91.93</b>		<b>920</b>	<b>920</b>	<b>460</b>
<b>Total expanded annual operating programme</b>							
<b>Sub-total (1) + Sub-total (2)</b>		<b>25.63</b>	<b>91.93</b>	<b>256</b>	<b>920</b>	<b>1176</b>	<b>588</b>
<b>PROPOSED DEVELOPMENT PROJECTS</b>							
Establish protection system	D		10.20		10	10	10
Establish inventory & monitoring system	D		13.25		13	13	13
Protection forest acquisition	D		125.00		125	125	125
Survey existing forest reserve boundaries	D		27.20		27	27	27
Survey new forest reserve boundaries	D		6.80		7	7	7
Produce local LFMPs for forest reserves	D		5.30		5	5	5
Forest policy update	D		4.20		4	4	4
Develop public awareness programme	D		10.60		11	11	11
Establish nursery system	D		2.10		2	2	2
Restoring mined bauxite lands with trees	D		48.90		49	49	49
Develop research programme	D		3.63		4	4	4
Mangrove protection & restoration	D		11.10		11	11	11
Develop CO <sub>2</sub> sequestration programme	D		4.20		4	4	4
Forest resource valuation	D		7.95		8	8	8
Survey Crown land for leasing	D		6.80		7	7	7
Develop extension capability	D		30.80		31	31	31
Support community projects start-up	D		5.00		5	5	5
Tree growers' association	D		1.33		1	1	1
Design and establish the Jamaica Forest Management and Conservation Fund	D		9.60		10	10	10
Yam Stick Market Study	D		9.50		10	10	10
Fuelwood/charcoal studies	D		14.00		14	14	14
Develop recreational facilities	D		15.00		15	15	15
<b>Total proposed development projects</b>			<b>372.46</b>		<b>373</b>	<b>373</b>	<b>373</b>

**D = Development (one-time) Activity**

**R = Recurrent (annual ongoing) Activity**

**Ext = External**

Note that the estimates do not include the operating costs of mining reclamation.

### 19.3 Development Project Descriptions

Table 17 below gives a brief description of the proposed development projects of the Forest Plan.

**Table 17: Development Project Descriptions**

<b>Proposed Development Project</b>	<b>Cost (J\$ million)</b>	<b>Brief Description</b>
Establish Protection System	10.20	Effective protection of forest lands managed by FD requires adequately equipped and trained personnel. This project will provide radios, vehicles (six - 4x4s) and motorcycles, fire fighting equipment, and training to wardens, forest officers and community groups in wild fire management/control techniques. Equipment purchase and training will be completed within 1 year.
Establish Inventory and Monitoring System	13.25	Additional information is required to accurately monitor and analyse the state of Jamaica's forests. The project will undertake field inventory work including comprehensive biodiversity baseline and forest land suitability studies over a 2-year period, in areas not completed by <i>Trees for Tomorrow Project</i> . The project will also produce new aerial photographs (ie, in year 2004) to enable monitoring of land use changes.
Protection Forest Acquisition	125.00	Large areas of unprotected closed broadleaf forest, and other forest types representing unique eco-systems have been identified. This 5-year project will purchase approximately 2500 hectares of lands containing such forests and declare them protected areas under an appropriate institutional mechanism.
Survey Existing Forest Reserve Boundaries	27.20	The boundary survey of forest reserves being undertaken by the CIDA-funded <i>Trees for Tomorrow</i> project covers only a portion of reserves under threat of encroachment (or already encroached upon). This project will extend the present survey to other critical areas by surveying an additional 300 km of most disputed boundaries.
Survey New Forest Reserve Boundaries	6.80	The NFMCP has identified a number of areas totalling nearly 1300 hectares for gazetting as forest reserves. The project will carry out 75 km of boundary survey and demarcation for the new forest reserves.
Produce Local Forest Management Plans for Forest Reserves	5.30	This project will extend the work of the <i>Trees for Tomorrow</i> project by providing an internationally recruited Land Use Specialist for one year to assist FD in preparing and implementing Local Forest Management Plans in the remaining critical emphasis areas.
Forest Policy Update	4.20	The <i>Trees for Tomorrow Project</i> will prepare an updated forest policy for presentation to the Minister. This project will support the public consultation process, if required, for the forest policy from Green Paper to White Paper.
Develop Public Awareness Programme	10.60	This project also builds on the work already completed through the <i>Trees for Tomorrow Project</i> . The project will fund a specialist in sustainable forestry education for 2 years who will continue to develop new programmes and to initiate, in collaboration with appropriate agencies, development of a forestry/environmental section to be included in the core school curriculum.

<b>Proposed Development Project</b>	<b>Cost (J\$ million)</b>	<b>Brief Description</b>
Establish Nursery System	2.10	The FD's nurseries (Mt. Airy, Moneague, Williamsfield, and Clydesdale) will have to increase production to provide sufficient seedlings for the expanded reforestation programme proposed in the NFMCP. The project will support the rehabilitation of and equipment purchase for the four nurseries. Work will be completed within 6 months.
Restoring Mined Bauxite Lands with Trees	48.90	This 3-year applied research project will establish 5 tree growing systems to demonstrate their effectiveness in restoring mined bauxite lands. A methodology for installation, management and monitoring and evaluation will be developed (including assessment of areas disturbed by mining and mine access); and training provided to enable FD staff to work with mining companies and communities to continue and expand the restoration activities.
Develop Research Programme	3.63	FD has prepared a paper to identify and prioritise areas for forestry research. The project will contract the services of a forestry research development specialist for a 2 to 3-month period to develop specific research projects. The project will also provide one vehicle, two motorcycles and miscellaneous equipment to start up the research unit.
Mangrove Protection and Restoration	11.10	In recent years these important ecosystems have come under increasing threat as a result of urban development and unsustainable extraction rates (for charcoal production). This project will engage the services of, and provide equipment for a mangrove management specialist and a local counterpart to carry out a comprehensive biophysical inventory of the island's mangroves, and prepare a management plan, involving consultation with local communities, for their protection, restoration and utilisation. Work will be completed within 18 months.
Forest Land Use and CO <sub>2</sub> Sequestration	4.20	This short-term (3 to 4-month) project will fund a feasibility study to investigate how a carbon sequestration programme for Jamaica could be set up, and will include identification of potential sources of carbon credits as well as potential joint venture partners.
Forest Resource Valuation	7.95	A major drawback in convincing decision makers about the importance of forestry is the lack of information as to what our forests are worth. The project will provide for the services of a multidisciplinary international team, totalling 12 months of work, to place a value on the various components of the forest.
Survey Crown Land for Leasing	6.80	Approximately 2200 ha of forest reserves have been identified as suitable for leasing for private forestry investment. The project will provide the funding to enable surveying of boundaries for each lease. The surveys will be carried out over the 5-year period of the NFMCP.
Develop Extension Capability	30.80	The participatory forest management strategy proposed in the NFMCP requires field personnel with skills in community liaison and extension methods. This project will provide an extension training/community forestry specialist for each region for a period of 2 years to work alongside wardens and forest officers to provide hands-on (and classroom) training.
Support Community Projects Start-up	5.00	To encourage participation in local forest management, the NFMCP proposes that financial and technical assistance be provided to start up local income-generating activities, especially those based on non-extractive use of the forest resource. The project will assist about 10 enterprises each year over a 5-year period.

<b>Proposed Development Project</b>	<b>Cost (J\$ million)</b>	<b>Brief Description</b>
Tree Growers' Associations	1.33	This project will fund the services of one or two persons who have had extensive involvement with tree growers' associations to assist local interest groups in the development, establishment, organisation and management of local associations. <i>Note: the project will likely draw on assistance of a programme such as Canadian Executive Services Overseas.</i>
Design and Establishment of Jamaica Forest Management and Conservation Fund	9.60	The project will design and set up the Jamaica Forest Management and Conservation Fund as a legally registered entity, and develop administrative and operational procedures. Strategies for Fund capitalisation will be identified and put in place. Overall implementation time is 2 years.
Yam Stick Market Study	9.50	This project will provide additional information for the development of an industrial forestry policy. The study will determine the number of sticks used annually, preferred species, coppicing ability, longevity, size, etc. of yam sticks. This is a 6-month project.
Fuelwood/Charcoal Studies	14.00	The lack of reliable data on the extent of forest extraction for fuelwood, charcoal production and yam sticks is hampering the development of a coherent industrial forestry policy. The project will provide personnel and equipment to carry out a socio-economic assessment and market survey, in selected areas, of fuelwood use and charcoal production. Elapsed time to completion is 1 year.
Develop Recreational Facilities	15.00	The project will provide funds over 5 years to build cabins for public recreational use at 3 forest reserves. A local NGO or CBO will be contracted to operate the sites on a concession basis.

#### 19.4 Other Proposed Projects

Parallel to the preparation of the Forest Plan, the UNDP-funded *Forest Capacity (Bridging) Project* identified and prepared the following project proposals:

1. Restoring Mined Bauxite Lands with Trees
2. Design and Establishment of a Forest Fund for Jamaica
3. Fuelwood Use and Charcoal Production Market Study
4. Bamboo Audit and Conversion Technology Investigation to Determine the Potential for a Bamboo Industry in Jamaica
5. Pilot Project for Management of Forested Crown Lands for Yam Stick Production
6. Establishment of Fuelwood Plantations on Public Lands (Phase I)

The first three project proposals coincide with activities of the Forest Plan and they are already included in the implementation costs in Table 16 and the project descriptions in Table 17.

Brief descriptions of the remaining three project proposals are provided below:

*Bamboo Audit and Conversion Technology Investigation to Determine the Potential for a Bamboo Industry in Jamaica:* This 3-year project will investigate the potential for

developing a bamboo industry in Jamaica. The project will assess the existing bamboo resource; develop silviculture, harvesting and preservation techniques; investigate uses of bamboo; document growing and processing costs; undertake a review of its potential and demonstrate its use in low-cost housing; and prepare a plan of action of development of a bamboo industry. *Cost: Local component – US\$280,000; Foreign component – US\$1,130,000.*

*Pilot Project for Management of Forested Crown Lands for Yam Stick Production:* This 3-year technical assistance project is designed to develop appropriate forest management systems for the sustainable production of yam sticks to reduce the degradation of natural forests arising from the increasing cutting of yam sticks. The project will establish plantations of suitable fast-growing tree species and develop a management regime for each species. The project will also develop sustainable management systems for yam stick production from natural forests on a pilot basis. *Cost: Local component – US\$484,000; Foreign component – US\$2,099,000.*

*Establishment of Fuelwood Plantations on Public Lands (Phase I):* This 6-year community-based project is intended to demonstrate the feasibility of establishing fuelwood plantations which will be managed and utilised by the local charcoal-producing communities. Four – 50 hectare fuelwood plantations will be established in phases over a 5-year period near key charcoal producing areas. A collaborative approach involving community members will be taken to develop a system for “leasing” plots to local charcoal producers. Training will be provided to charcoal producers and Forestry Department staff in fuelwood plantation management. *Cost: Local component – US\$486,500; Foreign component – US\$2,656,500.*

These three projects were not included in the budget for implementation of the Forest Plan as there is flexibility in the scope and scale of their activities. However, the objectives of these projects address the stated goals and they will be promoted, alongside the Forest Plan, to prospective development partners for assistance with implementation.



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**GLOSSARY OF TERMS**

<b>afforestation</b>	The establishment of a forest or plantation in an area where the preceding vegetation or land use was not forest – compare with “Reforestation”.
<b>agroforestry</b>	A land use system that involves deliberate retention or introduction of trees in crop and animal production systems to benefit from their economic and ecological interactions.
<b>biodiversity</b>	The variety and abundance of life forms, functions and structures of plants, animals and other living organisms on earth. It includes genetic differences among species, the variety of species that live within a particular area (ecosystem) and the many such ecosystems or homes that exist on the planet.
<b>biomass</b>	<b>1. Ecology</b> The total dry organic matter at a given time of living organisms of one or more species per unit area (species biomass) or of all the species in the community (community biomass) <b>2.</b> The living or dead weight of organic matter in a tree, stand, or forest in units such as living or dead weight, wet or dry weight, etc. <b>3. Harvesting</b> the wood product obtained from in-woods chipping of all or some portion of trees including limbs, tops, and unmerchantable stems, usually for energy production.
<b>board foot (bd ft)</b>	The amount of wood contained in an unfinished board 1 inch thick, 12 inches long and 12 inches wide (2.54 cm x 30.5 cm x 30.5 cm).
<b>carbon offset</b>	The planting of trees on non-forested land such that the uptake of carbon dioxide from the growing trees will offset the production of carbon dioxide from industrial sources.
<b>carbon sequestration</b>	The incorporation of carbon dioxide into permanent plant tissues.
<b>co-management agreements</b>	The sharing of power, responsibility and benefits between the Government and resource users; provides a middle ground upon which the two can meet and co-operate.
<b>community forest</b>	A forest owned and generally managed by a community, the members of which share its benefits.
<b>community forestry</b>	Managing forests with the expressed intent of benefiting neighbouring communities. See also “social forestry”.
<b>cubic metre</b>	A unit of volume that measures 1 x 1 x 1 metres, most often used for volumes of standing timber or otherwise unsawn timber.
<b>database</b>	A collection of data stored in a systematic manner such that the data can be readily retrieved, modified and manipulated to create information, most often computerised.
<b>deforestation</b>	The removal of a forest where the land is put to a non-forest use.
<b>dendrology</b>	A branch of botany devoted to the study of trees and their identifying characteristics.
<b>ecosystem</b>	A self-regulating natural community of living things interacting with one another and with their non-living physical environment.
<b>ecotourism</b>	Travel undertaken to sites or regions of unique natural quality, or the provision of services to facilitate such travel.

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<b>forest</b>	An ecosystem characterised by a more or less dense and extensive tree cover, often consisting of stands varying in characteristics such as species, composition, structure, age classes, and associated processes, and may include meadows, streams, fish, and wildlife. Note that forests include special designations such as <i>industrial forests</i> , <i>non-industrial private forests</i> , <i>plantations</i> , <i>protection forests</i> .
<b>forest inventory</b>	A set of objective sampling methods designed to quantify the spatial distribution, composition and rates of change of forest parameters within specified levels of precision for the purposes of management.
<b>forest reserve</b>	An area designated under a forest act in which timber production is allowed but not conversion to agriculture or other non-forest uses.
<b>forestry</b>	The profession embracing the science, art and practice of creating, managing, using, and conserving forests and associated resources for human benefit and in a sustainable manner to meet desired goals, needs and values. Note the broad field of forestry consists of those biological, quantitative, managerial and social sciences that are applied to forest management and conservation; it includes specialised fields such as agroforestry, urban forestry, industrial forestry, non-industrial forestry, and wilderness and recreation forestry.
<b>fuelwood</b>	Wood used for conversion into some form of energy, eg, cooking fires, charcoal production, energy -generating plants.
<b>greenbelt</b>	A park-like strip of unoccupied land with little or no development, usually surrounding or partially surrounding urban areas.
<b>greenhouse effect</b>	The warming effect exerted by the atmosphere upon the earth because the atmosphere (mainly its water vapour and carbon dioxide) absorbs radiant energy from the earth and re-emits infrared radiation or heat.
<b>hectare</b>	Approximately 2.5 acres (approx. 25 squares).
<b>inventory</b>	See “forest inventory”.
<b>LANDSAT™</b>	(land satellite) One of a series of US satellites designed in 1972 to transmit multispectral images of portions of the earth’s surface to ground stations.
<b>lumber</b>	The sawn product from a tree – synonym is sawn wood.
<b>natural forest</b>	A forest in nearly natural condition, without any direct human intervention.
<b>overstorey</b>	That portion of the trees, in a forest of more than one story, forming the upper or upper-most canopy layer.
<b>plantation forest</b>	A forest or stand composed mainly of trees established by planting or artificial seeding.
<b>reforestation</b>	The re-establishment of forest cover either naturally or artificially. Note reforestation usually maintains the same forest type and is done promptly after the previous stand or forest was removed.
<b>roundwood</b>	A length of cut tree generally having a round cross section, such as a log.

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<b>silviculture</b>	The art and science of controlling the establishment, growth, health and quality of forests to meet the diverse needs and values of society.
<b>social forestry</b>	Forestry programmes that purposefully and directly involve local people, their values and their institutions (also called development forestry, community forestry).
<b>sustainable development</b>	<p>1. Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment &amp; Development Report, 1987).</p> <p>2. Sustainable development is used to mean: improving the quality of human life while living within the carrying capacity of supporting ecosystems (IUCN, Caring for the Earth, 1991).</p>
<b>sustainable forest management</b>	Practicing a land stewardship ethic that integrates the reforestation, managing, growing and harvesting of trees with the conservation of soil, air and water quality, wildlife and fish habitat, and aesthetics (UN Conference on Environment and Development, Rio de Janeiro, 1992).
<b>timber</b>	Wood, other than fuelwood, potentially useable for lumber.
<b>tonne</b>	1000 kg: in the context of “tonnes of fuelwood” in this document for air-dried hardwood, 1 tonne is approx. 1.38 cubic metres of wood.
<b>understory</b>	All forest vegetation growing under an overstory.
<b>urban forestry</b>	The art, science and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic and aesthetic benefits trees provide society.
<b>watershed</b>	A region or land area drained by a single stream, river, or drainage network. Jamaica is divided into 26 Watershed Management Units (WMUs), and these may include one or more rivers (ie, WMUs may include one or more watersheds).
<b>yam stick</b>	A pole, usually wood or bamboo, of 3 to 4 metres in length and 6 to 8 cm in diameter, used in yam growing to support the above ground plant biomass in an upright position to enable the plant to obtain maximum sunlight for photosynthesis. A yam stick supports one plant.
<	Symbol for “less than”
>	Symbol for “greater than”

Glossary terms adapted from: *The Dictionary of Forestry* (1998, Society of American Foresters) and *The Global Biodiversity Strategy* (WRI, IUCN 1992)

**APPENDIX II**

**FOREST POLICY 2001**

*(UPDATED FOREST LAND USE POLICY, 1996)*



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**Forest Policy 2001** (*Updated Forest Land Use Policy, 1996*)**FOREST POLICY 2001**

*(Updated Forest Land Use Policy, 1996)*

Jamaica's forest resources are indispensable for our social, economic and environmental development. The value of forests to Jamaica is related to their crucial role in protecting and conserving water, soil and biological diversity. Owing to the mountainous and rugged nature of the Island, a large proportion of the forest estate has a primarily protective function, conserving water supplies and reducing erosion and flooding.

About 30 percent of Jamaica, approximately 336,000 hectares, is classified as forest. The majority of forest land has been disturbed and degraded, and only about 8 percent of the island remains as natural forest showing little evidence of human disturbance. Forests are threatened by industrial, agricultural and urban development. Approximately 110,000 hectares of land are designated as forest reserves, but over one-third of forests in reserves or other protected areas have been significantly disturbed by human encroachment. Such disturbance has adversely affected timber and water production, and caused accelerated soil erosion, flooding and siltation, and other environmental degradation such as loss of biodiversity, wildlife habitat and aesthetic values.

The Government of Jamaica recognises the importance of involving local communities, the private sector, landowners and non-governmental organisations in the planning, implementation and monitoring of activities to support forest conservation and development in the national interest. Since assent was given by Parliament to the Forest Land Use Policy in 1996, the Government has revised forest legislation, strengthened the Forestry Department, and, with extensive public input, developed a National Forest Management and Conservation Plan.

The following updated Forest Policy sets out in the first section, the primary goals and priorities pertaining to the conservation and protection of forests and the sustainable management of forested lands and watersheds. The second section deals with strategies and tools for implementation of these goals, including community participation, the promotion and regulation of forest industries, forest research, public education and forestry training, incentives, funding, and monitoring. The third section outlines the mandates and roles of the Government agencies involved in forest land management (including changes effective April 1, 2001). Updates relative to the 1996 Policy Statement reflect legislative, institutional and other developments that have occurred since 1996, and public input received during the development of the National Forest Management and Conservation Plan.

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**Forest Policy 2001** (*Updated Forest Land Use Policy, 1996*)

## 1.0 GOALS AND PRIORITIES

### 1.1 *Conservation and Protection of Forests*

- Forest lands, especially the last remaining areas of natural forests, will be conserved to protect and enhance the native and endemic flora and fauna of the Island. No harvesting will be permitted of primary closed natural forest in forest reserves, national parks, or protected areas.<sup>1</sup>
- Mangrove forests must be conserved in order to protect coastal diversity and near shore marine environments from sedimentation, land-based pollution and irregular fresh water input.
- Forest management will support the development of the National Park and Protected Areas System that will assist in the conservation of all natural resources.
- Forests must be protected from all threats including damage from fires, illegal cutting and theft of trees, illegal hunting of birds and animals, soil erosion and other processes which damage soil, water, plants, birds, animals and landscape features.
- No net loss of forest cover will be permitted on lands owned by the Government of Jamaica. Where forest stands are wholly or partially cut or otherwise damaged, they should be promptly reforested with the same, or other suitable species. Where destruction of forest cover is unavoidable, the loss will be compensated by reforesting an equivalent area elsewhere.

### 1.2 *Management of Forested Watersheds*

- Forested watersheds must be conserved and managed so as to:
  - minimise the effects of flooding on communities, farms, roads and bridges;
  - minimise soil erosion, siltation of rivers and sedimentation of near shore marine environments to protect coral reefs and sea grass beds; and
  - ensure an adequate supply and quality of water for domestic consumption and other purposes.
- Soils and environmentally sensitive areas will be protected. Uses of forest land, including the removal of tree cover, will be limited according to slope, soil depth, and proximity to watercourses. Protective buffers of forest cover will be maintained adjacent to waterways, streams, rivers and wetlands.

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<sup>1</sup> Any exception to this prohibition must be referred to Cabinet for approval, and will be made only where the prohibition is clearly demonstrated to compromise the national interest.

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**Forest Policy 2001** (*Updated Forest Land Use Policy, 1996*)

- Degraded watersheds will be rehabilitated and tree cover restored.

**1.3 Management of Forest Lands**

- Jamaica must receive the maximum sustainable economic and social benefit from the management of forest lands. A sustainable flow of forest products and services will be provided so as to create jobs and revenue.
- The private and non-governmental sectors will be encouraged to develop forests, plantations and other forestry activities on suitable private and Crown lands to restore tree cover and provide tree crops for wood-based industries.
- Industrial forestry development will be encouraged or permitted only where economically viable and environmentally safe. Commercial plantation establishment therefore will be restricted to accessible sites, avoiding steep slopes and shallow soils.
- Where trees enhance farming systems, farmers and landowners will be encouraged to grow tree crops and adopt agroforestry practices.
- Sustainable wood-based energy programmes will be fostered, facilitated and encouraged.

**2. STRATEGIES AND TOOLS FOR IMPLEMENTATION****2.1 Community Participation**

Sustainable use, management and protection of the Nation's forest resources require the participation and co-operation of local communities, particularly those living on the fringes of the forest. Community-based organisations, schools, churches and local parish councils will be encouraged to promote and support forest development, protection and conservation.

The Forest Act provides for the formation of Local Forest Management Committees for forest reserves, forest management areas and protected areas. These committees will be the institutional bodies for enabling the direct participation of communities in forest management. The functions of the committees will include monitoring forest conditions, providing input to Local Forest Management Plans and land use regulation, identifying incentives for conservation practices, and the design and implementation of conservation projects. The Forestry Department will provide such assistance as may be necessary to support the committees in undertaking their functions.



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**Forest Policy 2001** (*Updated Forest Land Use Policy, 1996*)**2.2 Public Awareness and Environmental Education**

In order to build popular support for the wise use of forest land, public awareness must be raised as to the importance of the forest to Jamaica's economy, environment and society. A National Forestry Awareness Programme is crucial to raising awareness and understanding. The Programme will communicate key messages and information to specific target groups: those people who have the greatest actual or potential impact on forest reserves and deforestation, people currently or potentially contributing to forest conservation, special interest groups, and environmental and law enforcement agencies.

Collaboration with other environmental education programmes is essential. The Forestry Department, the National Environmental Education Committee and the Ministry of Education, in response to emphatic and widespread recommendations from the public, will work together to build a strong environmental awareness component into teacher training programmes and the national school curriculum.

**2.3 Forest Research**

A forest research programme will be promoted, established and maintained with a view to:

- enhancing forest management and development;
- identifying and obtaining silvicultural data to be used in improving financial yields of species important to the national economy; and
- ensuring reforestation of suitable lands;

Forest research priorities will be aligned, and adjusted from time to time, to address those problems impeding implementation of the National Forest Management and Conservation Plan. Current priorities are:

- valuation of forest resources, including non-wood products and services;
- establishment of a germplasm bank for tree species with application to conservation, commercial forestry and agroforestry;
- development of participatory methods in watershed management and agroforestry;
- restoration of mined and otherwise degraded lands;
- mangrove protection and restoration;
- growth, economic and market studies of fuelwood, charcoal and timber production; and

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**Forest Policy 2001** (*Updated Forest Land Use Policy, 1996*)

- bamboo utilisation.

The approach will be collaborative, involving partnerships with other government, industrial and university research institutions.

#### **2.4** *Co-operative Management Agreements*

Forest protection and conservation in Jamaica will be most effectively achieved through co-operative management agreements between responsible partners. For public lands, agreements normally will be made between the Conservator of Forests, the National Environmental Planning Agency and/or delegated non-governmental agencies. For private lands, an agreement may be entered into between the Conservator of Forests and any owner designating their land as a forest management area, as provided for in the Forest Act.

Such agreements will specify:

- the identity and interests of each party;
- the specific purpose and area of agreement;
- responsibilities of the parties;
- designation of permitted land uses;
- provisions for enforcement of land use controls;
- incentives and payments (if applicable);
- management and administrative arrangements; and
- mechanisms for termination and dispute resolution.

#### **2.5** *Regulation of Forest Industries and Forest Land Use*

In order to minimise negative impacts on the environment, the following activities will be strictly regulated on forest reserves or any other land managed by the Forestry Department pursuant to the Forest Act:

- road construction and use;
- fires and charcoal kilns (restrictions also apply to any land within 1 kilometre of a forest reserve);
- agricultural use, including cattle and other livestock;

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**Forest Policy 2001** (*Updated Forest Land Use Policy, 1996*)

- removal, transport and sale of forest produce;
- use of power saws;
- sawmilling;
- hunting;
- recreational use; and
- leasing of land.

Sawmilling activities, and the trade, storage and purchase of locally produced lumber, will not be permitted anywhere in Jamaica without a valid licence or permit.

The operation of equipment and the cutting or removal of forest produce will normally be prohibited in buffer zones adjacent to waterways, streams, rivers or wetlands.

The judiciary, the Jamaica Constabulary Force, other environmental enforcement and extension agencies, and the Local Forest Management Committees, as well as all Forestry Department personnel, must be kept well aware of the enforcement provisions of the Forest Act and pertaining regulations and policies. Co-ordination among enforcement agencies is essential.

#### *2.6 Promotion of Investment in Forestry*

Incentives will be provided to encourage investment in forestry development and conservation. These include:

- remission of property tax on private lands designated as protected areas or forest management areas declared as forest reserve;
- income tax exemption, duty concession on motor vehicle purchase, and waiver of the General Consumption Tax on capital goods, activities and supplies for qualifying commercial forestry operations prescribed under a forest management agreement and approved forest management plan; and
- long-term conditional leasing, at competitive rates of public land for reforestation, agroforestry and other purposes prescribed in the Forest Act and an approved Local Forest Management Plan, which permits investiture of full ownership of planted trees to the lessee.

In addition, the following incentives will be provided, subject to the availability of funding (see below):

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**Forest Policy 2001** (*Updated Forest Land Use Policy, 1996*)

- subsidised production of tree seedlings;
- grants for plantation establishment on suitable lands;
- direct acquisition or leasing of lands for maintenance as protection forest;
- annual grants to landowners for maintaining protection forests;
- grants for community forestry and forest-based recreational or eco-tourism ventures;
- maintenance of boundaries, trails and fire breaks; and
- surveying of suitable Crown lands for leasing to forestry or agroforestry uses.

All incentives will be subject to activities being prescribed in an approved Local Forest Management Plan and performance verification by the Forestry Department.

New funding mechanisms are needed to supplement the resources provided by Government. The Jamaica Forest Management and Conservation Fund (“Fund” or “Forest Fund”) will provide long-term funding for reforestation and forest conservation. The Fund will be used exclusively for implementation of activities and projects specified in a National Forest Management and Conservation Plan approved by the Government of Jamaica under the Forest Act. Contributions to the Fund will be sought from:

- bilateral and multilateral donors;
- debt reduction agreements;
- private sector sponsorship;
- Government grants; and
- income from forest products, fees and services.

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**Forest Policy 2001** (*Updated Forest Land Use Policy, 1996*)**2.7 Forestry Sector Training and Human Resources Development**

Education and training of personnel are essential in order to provide effective leadership and service at all levels in the Forestry Department, other government agencies and the private sector. The following strategies will be used to develop this capacity.

- Motivation, morale and performance of Forestry Department staff will be improved by recognition of excellence, improved working conditions, well-defined performance standards for customer service, and protocols for handling unsatisfactory behaviour and performance.
- Training needs assessments will be conducted periodically in the Forestry Department, and also undertaken for non-governmental and community-based partners.
- Based on the assessments, annual training plans will be prepared and implemented.
- A gender equity strategy will focus on expanding the role of women by increasing gender sensitivity and promoting the recruitment of women into professional and technical positions.

**2.8 Planning and Monitoring**

The Forest Act requires the Conservator of Forests to prepare and periodically revise a National Forest Management and Conservation Plan (“Forest Plan”) containing:

- a statement of the forest resource management and conservation policy;
- an inventory and description of forest lands;
- provision for the protection, conservation and production of forest resources;
- proposals for the protection of watersheds, soil, water, wildlife and other forest resources;
- an outline of the economic objectives for the sustainable development of wood-based industries in Jamaica;
- programmes for social forestry, community development and forest-related education; and
- proposals for implementation.

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**Forest Policy 2001** (*Updated Forest Land Use Policy, 1996*)

In preparing or revising the Forest Plan, the Conservator will consult with relevant government and non-governmental organisations, make the draft Forest Plan available for public comment and take into consideration any comments received from the general public.

The Forest Act also requires the preparation of Local Forest Management Plans for each forest reserve and forest management area. These will be developed on a prioritised schedule specified in the Forest Plan.

The Forest Plan will be reviewed and amended as necessary at intervals not exceeding five years. Performance will be monitored against the specific objectives stated in the Forest Plan, using measurable and verifiable indicators. This task will be conducted and reported to the Minister and the public by an independent Forestry Planning and Development Committee, with technical monitoring and evaluation support from the Forestry Department.

### **3. GOVERNMENT OF JAMAICA IMPLEMENTATION MANDATE**

The mandates and roles of the main Government authorities and agencies with responsibilities for forest land management are outlined below.

#### *3.1 Forestry Department*

The Forestry Department of the Ministry of Agriculture has the overall responsibility to directly manage Government-owned forest lands and to advise and assist private landowners on the management of private forest lands. It is mandated to conserve and enhance forests, water, soil and other forest-related natural resources on a sustainable basis by:

- sustainable management of forests in Crown lands or in forest reserves and the effective conservation of those forests;
- directing and controlling the exploitation, in a rational manner, of forest resources by the introduction of adequate systems for renewal of those resources;
- preparing and implementing a National Forest Management and Conservation Plan;
- promoting the development of forests on private lands
- promoting, establishing and maintaining a forest research programme;

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**Forest Policy 2001** (*Updated Forest Land Use Policy, 1996*)

- establishing and promoting public education programmes to improve understanding of the contribution of forests to national well-being and national development;
- establishing and maintaining recreational facilities in such forest conservation areas and forest management areas as may be designated for that purpose;
- promoting agroforestry and social forestry programmes for the benefit of farmers, schools and any other interested persons, or groups of persons;
- determining, with the approval of the Minister, fees for licences or permits granted under the Forest Act or any services rendered by the Department;
- preparation of forest inventories and the demarcation and maintenance of forest boundaries;
- control and supervision of the cutting, harvesting, milling and sale of timber and other forest produce;
- granting of licences and permits under the Forest Act;
- compiling information and statistics concerning the use of timber and other forest produce;
- protection and preservation of watersheds in forest reserves, protected areas and forest management areas;
- developing programmes for proper soil conservation; and
- taking steps to enforce compliance with the provisions of the Forest Act (for this purpose the Conservator and other forest officers have the powers of a Constable under the Constabulary Force Act).

### 3.2 *National Environmental Planning Agency*

The National Environmental Planning Agency will have overall responsibility for ensuring the conservation, protection and proper use of Jamaica's natural resources and securing a proper balance between competing demands for land. Elements of its mandate most relevant to the forest land use mandate include:

- promotion of public awareness of the ecological systems of Jamaica and their importance to the social and economic life of the country;
- management of national parks, marine parks, protected areas and public recreational facilities;

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- zoning of parks and protected areas for specified purposes and for the licensing of persons carrying on any trade or business therein;
- formulation of standards and codes of practice to be observed for the improvement and maintenance of the quality of the environment generally;
- authority to delegate functions such as the management of national parks;
- controlling the development of the land, including co-ordination of roads and public services, protecting and extending amenities, and conserving and developing resources; and
- the power to regulate land use for agricultural (including forestry) purposes, including declaration of land as idle (owners or occupants of idle land are liable to penalty, dispossession or forfeiture).

**3.3 Water Resources Authority**

The mandate of the Water Resources Authority is to regulate, allocate, conserve and otherwise manage the water resources of Jamaica. Its functions include:

- obtaining, compiling, storing and disseminating data concerning the water resources of Jamaica;
- water resources master planning and water quality control planning;
- allocation of water resources;
- control of the quality of water resources; and
- provision to any department or agency of Government, at its request, technical assistance in respect of any projects, programmes or activities which relate to the development, conservation and use of water resources.

**3.4 Rural Agricultural Development Authority**

The mandate of the Rural Agricultural Development Authority is to:

- provide an efficient agricultural extension service and participate in the formulation and implementation of appropriate rural development projects with a view to stimulating and facilitating the development of agriculture in Jamaica;
- encourage and secure the proper economic and efficient utilisation of all land in rural areas; and



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**Forest Policy 2001** (*Updated Forest Land Use Policy, 1996*)

- encourage and assist, or participate in, expedient improvement work by private enterprise in rural areas.

**3.5 Rural Physical Planning Unit**

The Rural Physical Planning Unit of the Ministry of Agriculture is responsible for making agricultural and rural development plans at the national, regional and farm levels in accordance with the Government's policy on land use development. It identifies and recommends the best uses of land, including providing advice on required watershed and environmental protection measures. It will collaborate with the Forestry Department in:

- identifying parcels or areas of land suitable for forestry use, and
- recommending against residential, commercial or industrial uses where these threaten the national interest because of damage to environmental, forest, or watershed values.

**3.6 Commissioner of Lands**

Under the Crown Property Vesting Act, the ownership of Crown lands, including Forest reserves, is vested in the Commissioner of Lands. The Commissioner will lease forest lands only on the recommendation, or with the agreement, of the National Environmental Planning Agency and the Conservator of Forests.

**3.7 Mines and Quarries Division**

The Mines and Quarries Division of the Ministry of Mining and Energy is responsible for administering the Mining Act and Regulations. The Mining Act requires that the directions of the Conservator of Forests must be obtained before any trees are cut or removed on lands leased for mining. The Mining Regulations require restoration of mined land to pre-disturbance productivity and use, and make specific provisions for afforestation.

**3.8 National Water Commission**

The National Water Commission provides, improves, maintains and operates water supply services throughout the country. For these purposes it may, among other things:

- purchase and sell water; and
- acquire and manage land and property.

The Commission and the Forestry Department will collaborate in the protection and restoration of tree cover on lands acquired and managed by the Commission.

# THE JAMAICA NATIONAL HERITAGE TRUST ACT,

1985

(Act 8 of 1985)

## ARRANGEMENT OF SECTIONS

### *Preliminary*

1. Short title and commencement.
2. Interpretation.

### *The Jamaica National Heritage Trust*

3. Establishment and constitution of Trust
4. Functions of Trust.
5. Funds of Trust.
6. Travelling expenses, etc.
7. Borrowing powers
8. Accounts and audit.
9. Annual report.
10. Appointment of officers and servants.
11. Protection of members of Trust.

### *Protection of national monuments and national heritage*

12. Duty of Trust to declare and publish list of monuments.
13. Designation of protected national heritage.

14. Compensation.
15. Protection from disrepair.
16. Owner of national monument or protected national heritage not to alter without approval.
17. Destroying monuments, mark, etc.

### ***Control and development of national monument and protected national heritage***

18. Gifts, devise or bequest of protected national heritage or national monument to Trust.
19. Preservation notice.
20. Effect of and compensation for preservation notices.

### ***Developments of national monuments and places designated to be protected national heritage***

21. Preservation schemes.
22. Trust may grant permission for development works.
23. Power of Trust to enter on lands.

### ***Miscellaneous***

24. Service of documents.
25. Exemption from stamp duties, taxes, etc.

26. Treatment of amount spent by owner of protected national heritage for purposes of income tax.

27. Capital allowances in respect of national monument.

28. Regulations.

29. Repeal and savings.

30. Amendment of Institute of Jamaica Act.

**SCHEDULES.**

NO. 8-1985

I assent,

F. A. GLASSPOLE,  
Governor-General.

28th day of May 1985.

AN ACT to Repeal and replace the Jamaica National Trust Act, to change the name of the Jamaica National Trust, and to make new provisions for the operation of the Trust and to provide for matters incidental thereto or connected therewith.

(The date notified by the Minister bringing the Act into operation)

BE IT ENACTED by The Queen's Most Excellent Majesty, by and with the advice and consent of the Senate and House of Representatives of Jamaica, and by the authority of the same, as follows:-

## *Preliminary*

1 - This Act may be cited as the Jamaica National Heritage Trust Act, 1985, and shall come into operation on a day to be appointed by the Minister by notice published in the *Gazette*.

2 - (1) In this Act unless the context otherwise requires-

"development" means -

- (a) the alteration, removal, repair, restoration or demolition of or addition to, any national monument; or
- (b) the carrying out of building, engineering or other operations in, on, over or under any national monument or the making of any material change in the structure, appearance or use of any such national monument;

"functions" includes powers and duties;

"local authority" means-

- (a) in relation to the parishes of Kingston and St. Andrew, the Council of the Kingston and St. Andrew Corporation; and
- (b) in relation to any other parish, the Parish Council of such parish;

"Maintenance" includes the fencing, repairing and covering of a national monument and the doing of any other act or thing which may be required, for the purpose of repairing the national monument or protecting it from decay or injury, and the expression "maintain" shall be construed accordingly;

"national monument" means -

- (a) any building, structure, object or, other " work of man or of nature or any part or remains thereof whether above or below the surface of the land or the floor of the sea within "the territorial waters of the Island or within an area declared in an order made, under subsection (2) to be within the maritime resource jurisdiction of the Island;
- (b) any site, cave or excavation, or any part or remains thereof,  
declared by the Trust to be a national monument "occupier" includes any person engaged in any development or maintenance works in, or, over or

under any national monument; "owner" means the person in whom is vested the freehold interest in the site of the protected national heritage;

"protected national heritage" means-

- (a) any place name;
  - (b) any species of animal or plant life;
  - (c) any place or object (not declared by the Trust to be a national monument), designated by the Trust to be a protected national heritage; "the Trust" means the Jamaica National Heritage Trust established under section 3.
- (2) Subject to any relevant international Convention to which Jamaica is a party the Minister may by order declare any area of the sea defined in the order, not being an area included in the territorial sea of Jamaica or its continental shelf, to be within the sovereign jurisdiction of Jamaica for the purposes of this Act.
- (3) Nothing in subsection (2) shall be construed as limiting in any way the sovereign rights of Jamaica under general international law including the United Nations Convention on the Law of the Sea.

### ***The Jamaica National Heritage Trust***

- 3--** (1) There shall be established a Trust to be known as the Jamaica National Heritage Trust which shall be a body corporate with perpetual succession and a common seal and with power to purchase, hold, deal with and dispose of land and other property whether real or personal: Provided that the Trust shall not transfer, mortgage charge or dispose of any land without the approval of the Minister.
- (2) The Trust shall consist of fifteen members of whom
- (a) three members shall be the Government Town Planner, the Commissioner of Lands and the Chief Executive Officer of the Trust who shall be *ex officio* members;
  - (b) one member shall be a representative of the Institute of Jamaica and shall be appointed by the Minister from a panel of three persons nominated by the Board of Governors of that Institute;

- (c) one member shall be a representative of the Jamaica Historical Society and shall be appointed by the Minister from a panel of three persons nominated by that Society;
  - (d) one member shall be a representative of the Jamaica Archaeological Society and shall be appointed by the Minister from a panel of three persons nominated by that Society;
  - (e) one member shall be a representative of the University of the West Indies and shall be appointed by the Minister from a panel of three persons nominated by that body;
  - (f) one member shall be a representative of the Jamaica Institute of Architect's and shall be appointed by the Minister from a panel of three persons nominated by that Institute; and
  - (g) seven members shall be appointed by the Minister from among persons appearing to the Minister to be suitably qualified for such appointment.
- (3) The appointment of every member of the Trust other than the *ex officio* members shall be evidenced by instrument in writing, and such instrument shall state the period of office of the member which shall not exceed three years.
  - (4) Every member of the Trust shall be eligible for reappointment.
  - (5) The Minister shall appoint one of the members of the Trust to be chairman, and in the case of the absence or inability to act of the chairman the Minister may appoint any other member to perform the function of the chairman.
  - (6) The seal of the Trust shall be authenticated by the signatures of the chairman and any other one member of the Trust authorized to act in that behalf and such seal shall be officially and judicially noticed.
  - (7) All documents, other than those required by law to be under seal, made by, and all decisions of, the Trust may be signified under the hand of the chairman or any other member of the Trust authorized in that behalf.
  - (8) The Trust may sue and be sued in its corporate name and may for all purposes be described by such name.
  - (9) No act or proceeding of the Trust shall be questioned on account of any vacancy in the membership there-of; and no defect in the appointment of

any member of the Trust shall vitiate any proceedings thereof.

- (10) The Trust shall have power to regulate its *own* proceedings.
- (11) The chairman shall preside at meetings of the Trust, and if the chairman and the person appointed to perform the function of chairman pursuant to subsection (5) are absent from a meeting the members of the Trust present shall elect one of their number to preside at the meeting.
- (12) The names of all members of the Trust as first constituted and every change in the membership thereof shall be published in the *Gazette*.

**4--** (1) The functions of the Trust shall be-

- (a) to promote the preservation of national monuments and anything designated as protected national heritage for the benefit of the Island;
- (b) to conduct such research as it thinks necessary or desirable for the purposes of the performance of its functions under this Act;
- (b) to carry *out* such development as it considers necessary for the preservation of any national monument or anything designated as protected national heritage;
- (d) to record any precious objects or works of art to be preserved and to identify and record any species of botanical or animal life to be protected.

(2) The Trust shall, for the purposes of the discharge of its functions under subsection (1) (d), keep a register which shall be open for inspection by the public upon payment of such *fee* as may be prescribed.

(3) For the purpose of the discharge of its functions under this Act the Trust may, subject to the provisions of this Act, do anything and enter into any transaction which, in the opinion of the Trust, is necessary to ensure the proper performance of its functions and, without prejudice to the generality of the foregoing, may make such grants or loans (whether with or without security) as the Trust considers necessary.

**5--** (1) The funds and resources of the Trust shall consist of---

- (a) such sums as may be provided annually for the purpose in the Estimates of Revenue and Expenditure of the Island;



- (b) all other sums or property which may in any manner become payable to or vested in the Trust in respect of any matter incidental to its powers and duties.
- (2) The expenses of the Trust (including any remuneration of the members and staff thereof) shall be paid out of the funds and resources of the Trust.
- 6--**
  - (1) Travelling expenses actually incurred by members of the Trust and a subsistence allowance when attending meetings of the Trust or when travelling on official tours of inspection approved by the Trust may be reimbursed from the funds of the Trust.
  - (2) The rates of travelling allowance and subsistence allowance shall be such rates as the Minister may approve.
  - (3) The Trust may with the approval of the Minister enter into arrangements with any member of the Trust for the payment of an allowance to such member for giving technical advice on or for supervising repairs to or preserving or treating national monuments or protected national heritage.
- 7--**
  - (1) Subject to the provisions of this section, the Trust may borrow sums required by it for meeting any of its obligations or discharging any of its functions.
  - (2) The power of the Trust to borrow shall be exercisable only with the approval of the Minister responsible for finance, as to the amount, as to the sources of the borrowing and as to the terms on which the borrowing may be effected, and an approval given in any respect for the purposes of this subsection may be either general or limited to a particular borrowing or otherwise, and may be either unconditional or subject to conditions.
- 8--**
  - (1) The Trust shall keep proper accounts and other records in relation to the business of the Trust and shall prepare annually a statement of accounts in a form satisfactory to the Minister, being a form which shall conform with best commercial standards.
  - (2) The accounts of the Trust shall be audited annually under such arrangements and in such manner as may be approved by the Auditor-General and the members, officers and servants of the Trust shall grant to the person conducting such audit access to all the books, documents, cash and securities of the Trust and shall give to him on request all such information as shall be within their knowledge in relation to the operation

of the Trust.

- (3) The auditor's fees and any expenses of the audit shall be paid by the Trust.
  - (4) Within three months after the expiration of each financial year or within such further time as may be allowed by the Minister, the Trust shall send the statement of its accounts referred to in subsection (1) to the Minister, together with a copy of any report made by the auditor on that statement and on the accounts of the Trust.
  - (5) The Auditor-General shall be entitled, on the direction of the Minister, at all reasonable times to examine the accounts and other records in relation to the business of the Trust.
- 9-** (1) The Trust shall, within three months after the expiration of each financial year or within such further time as may be allowed by the Minister, cause to be made and transmitted to the Minister a report dealing generally with the activities of the Trust during that financial year.
- (2) The Minister shall cause a copy of the report together with the annual statement of accounts and the auditor's report thereon and on the accounts to be laid on the Table of the House of Representatives and of the Senate.
- 10--** (1) The Trust may appoint and employ at such remuneration and on such terms and conditions as it thinks fit, a Chief Executive Officer, a Secretary and such officers, agents and servants as it deems necessary for the proper carrying out of the provisions of this Act:

Provided that-

- (a) no salary in excess of the prescribed rate per annum shall be assigned to any post without the prior approval of the Minister; and
  - (b) no appointment shall be made to any post to which a salary in excess of the prescribed rate is assigned without the prior approval of the Minister.
- (2) In subsection (1) the prescribed rate means a rate of fifteen thousand dollars per annum or such higher rate as the Minister may, by order, prescribe.
- (3) The Governor-General may, subject to such conditions as he may impose, approve the appointment of any officer in the service of the Government

to any office with the Trust and any officer so appointed shall, while so employed, in relation to any pension, gratuity or other allowance, and in relation to other rights as a public officer, be treated as continuing in the service of the Government.

- (4) It shall be lawful for the Trust, with the approval of the Minister-
- (a) to enter into arrangements respecting schemes whether by way of insurance policies or not;
  - (b) to make regulations, for pensions, gratuities and other retiring or disability or death benefits relating to members and employees of the Trust and such arrangements or regulations may include provisions for the grant of benefits to the dependants and the legal personal representatives of such members or employees.
- 11-- (1) No action, suit or other proceedings shall be brought or instituted personally against any member of the Trust in respect of any act done *bona fide in pursuance or* execution or intended execution of this Act.
- (2) Where any member of the Trust is exempt from liability by reason only of the provisions of this section the Trust shall be liable to the extent that they would be if the said member was a servant or agent of the Trust.

### ***Protection of national monuments and national heritage***

- 12- (1) The Trust may in accordance with the First Schedule from time to time declare to be a national monument any structure the preservation of which is, in the opinion of the Trust, a matter of public interest by reason of the historic, architectural, traditional, artistic, aesthetic, scientific or archaeological interest attaching thereto.
- (2) The Trust shall, in each year, cause to be published in the *Gazette* a list (hereinafter referred to as "the list") of all national monuments in the Island for the time being declared by the Trust pursuant to subsection (1).
- (3) The *Trust* shall cause to be placed on a conspicuous part of each national monument included in the list a mark identifying the monument.
- (4) Where any structure is declared a national monument the Trust shall notify the Registrar of Titles of any registered titles known to the Trust to be affected by the declaration and shall cause a copy of the declaration to be

served on the Registrar of Titles who shall forthwith note on those registered titles the fact of the declaration having been made.

- (5) The Trust shall notify the Deputy Keeper of the Records of any national monument the title to which is not under the Registration of Titles Act.
  - (6) In this section and in sections 19 and 20 structure includes any building, structure, object or other work of man or nature whether above or below the surface of the land or the floor of the sea within the territorial waters of the Island, or any area declared in any order made under section 2 (2) to be within the maritime resource jurisdiction, and any site, cave or excavation.
- 13--** (1) The Trust may, for the purposes of this Act, designate--
- (a) any place name, thing or any species of animal or plant life;  
or
  - (b) any place or object which has not been declared a national monument, to be a protected national heritage
- (2) The Trust shall, in relation to any thing which is designated protected national heritage pursuant to subsection (1)---
- (a) in the case of a species of animal or plant life, published annually in a daily newspaper published in the Island, a list of such animal or plant life;
  - (b) where appropriate in the case of a place or object, cause to be placed on a conspicuous part of the place or object a mark identifying the place or object as protected national heritage;
  - (c) in the case of any moveable objects-
    - (1) notify the owner thereof of the designation of the object as protected national heritage and the time and manner in which the owner may object to such designation;
    - (ii) publish annually in a daily newspaper published in the Island a list of such objects.
- (3) The provision of the first schedule shall *mutatis mutandis* apply to any objections made to the designation of any object referred to in subsection (2) (c).

- 14--** (1) Where the owner of -----
- (a) a national monument declared as such pursuant to section 12 (1);  
or
  - (b) a protected national heritage designated as such pursuant to section 13 (1), suffer, financial loss (whether actual or by diminution in value) as a result of such declaration or designation, such owner shall be entitled to receive such compensation as may be appropriate in the circumstance.
- (2) The provisions of subsection (3) of section 20 shall, *mutatis mutandis*, apply to compensation under this section.

**15-** Where the Trust is of the opinion that action should be taken to prevent a national monument or protected national heritage from falling into a state of disrepair, it shall be lawful for the Trust-

- (a) to notify the owner or person in possession that the protected national heritage or national monument is in need of repair;
- (b) to provide such assistance as may be necessary (whether financial or otherwise) to the owner or person in possession for the purpose of maintaining it; or
- (c) to maintain the protected national heritage or national monument.

**16--** (1) An owner or person in possession of-

- (a) a national monument shall not demolish, remove or alter any such monument or carry out any development thereof without the prior written approval of the Trust;
  - (b) a protected national heritage shall not demolish, remove or alter *it* without the prior written approval of the Trust.
- (2) Any owner of a national monument or protected national heritage who contravenes subsection (1) shall be guilty of an offence and shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding twenty thousand dollars or to imprisonment for a term not exceeding two years or to both such fine and imprisonment and in addition, the Court may order him to pay the costs of restoring such monument or protected national heritage and in default of payment of such costs, he may be imprisoned for a term not exceeding twelve months.

- 17- Every person who-
- (a) willfully defaces, damages or destroys any national monument or protected national heritage;
  - (b) willfully defaces, destroys, conceals or removes any mark or notice affixed thereto or connected there with;
  - (c) alters any national monument or mark without the written permission of the Trust;
  - (d) removes any national monument or protected national heritage to a place outside of Jamaica or causes it to be so removed, shall be guilty of an offence and on summary conviction before a Resident Magistrate be liable to a fine not exceeding forty thousand dollars or to imprisonment for a term not exceeding two years or to both such fine and imprisonment, and in addition, such person may be ordered to pay the cost of replacement of any such monument, mark or notice and in default of payment of such cost, to be imprisoned with hard labour for a further term not exceeding twelve months.

***Control and development of national monument and protected national heritage***

- 18- Any person may, by deed or will, give, devise, or bequeath to the Trust all such estate or interest in any protected national heritage or any national monument as he may be seized or possessed of, and the Trust may accept such gift, devise or bequest if it thinks it expedient to do so.
- 19- (1) Where the Minister is satisfied in relation to any structure-
- (a) that it is of such a nature that, although not declared a national monument the Trust has reasonable grounds for believing that it could be so declared; and
  - (b) that it is in danger of destruction or removal or damage from neglect of injudicious treatment, the Minister may, upon the advice of the Trust, serve a notice (in this Act referred to as a "preservation notice") on the owner and, if the owner is not the occupier, on the occupier of the structure, stating that it will be under the protection of the Minister under this Act while the notice

is in force.

- (2) Where the Minister serves a preservation notice he shall specify the period (not exceeding six months) during which the notice is to remain in force and shall cause a copy thereof to be fixed on some conspicuous part of the structure.
- (3) Where a notice is served under subsection (1), the Trust may, by written authorization signed on its behalf by a member of the Trust, authorize any person (including a member of the Trust) to inspect the structure, and any person so authorized may at reasonable time, on production by him of the authorization if so required, enter any premises for the purpose of inspecting the structure:

Provided that, unless the Trust considers that the inspection of the structure is a matter of urgent necessity, it shall give reasonable notice in writing of the proposed inspection to the occupier of the premises which are to be entered.

- (4) The Minister may revoke a preservation notice
  - (a) at any time by notice served on the owner and, if the owner is not the occupier, on the occupier of the structure to which the notice relates; or
  - (b) upon being satisfied on written representations made by the owner that such owner is likely to suffer financial loss if the notice is not revoked.

**20--** (1) While a preservation notice is in force with respect to any structure, that structure shall not be demolished or removed, nor shall any additions or alterations be made thereto or any work carried out in connection thereon with, except with the written consent of the Minister granted either unconditionally or subject to such conditions as the Minister may think fit.

(2) Where a person has an interest in the whole or a part of any structure and he suffers financial loss or incurs expenditure in respect of that interest in consequence of the refusal, or the granting subject to conditions, of any consent required under subsection (1), he shall be entitled to receive such compensation as may be appropriate in the circumstances.

(3) Any question as to a person's right to compensation under subsection (2), or as to the amount of any such compensation

which is appropriate in the circumstances shall in default of agreement be determined by the Resident Magistrate in the manner provided in the Lands Clauses Act for settling cases of disputed compensation, and in constructing that Act for the purpose of this Act, this Act shall be deemed to be the special Statute and the Trust shall be deemed to be the promoters of the undertaking.

- (4) Any person who contravenes the provisions of subsection (1) shall be guilty of an offence and shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding forty thousand dollars or *to* imprisonment for a term not exceeding two years or to both such fine and imprisonment and, in addition, may be ordered by the court by whom he is tried to pay such sum as the Court thinks just for the purpose of repairing or restoring the monument.
- (5) While a preservation notice is in force the Trust may with a view to the maintenance of the structure to which it relates, have access by itself, its inspectors, agents or workmen to such structure for the purpose of inspecting it and of bringing such materials and doing such acts and things as may be required for the maintenance thereof.

### ***Development of national monuments and places designated to be protected national heritage***

- 21--** (1) For the purpose of preserving the amenities of any national monument, or any place designated to be a protected national heritage, the Trust may, subject to the provisions of this section, prepare and confirm a scheme (hereafter in this Act referred to as a "preservation scheme") for any area comprising or adjacent to the site of the monument or the place aforesaid, being an area to which, in the opinion of the Trust, it is necessary or expedient for that purpose that the scheme should apply.
- (2) Every preservation scheme shall define by reference to a map annexed thereto the area to which the scheme is applicable (hereafter in this Act referred to as "the controlled area") and may provide for all or any of the following matters, that is to say-
- a. for prohibiting or restricting the construction, erection or execution of buildings, structures and other works above ground within the controlled area, or the alteration or extension of any such buildings, structures or works in such manner as materially to affect their external appearance;



- b. for prescribing the position, height, size, design, materials, colour and screening and otherwise regulating the external appearance, of buildings, structures and -other works above ground within the controlled area;
  - c. for prohibiting or restricting the felling of trees, quarrying and excavations within the controlled area;
  - d. for otherwise restricting the user of land within the controlled area to such extent as may appear to the Trust to be expedient for the purpose of preserving the amenities of the monument or place;
  - e. for such other matters as appear to the Trust to be incidental to or consequential on the foregoing provisions of this section or to be necessary for giving effect to those provisions.
- (3) The provisions of the Second Schedule shall have effect with respect to the confirmation, variation and revocation, of preservation schemes.
- (4) Nothing in any preservation schemes shall affect any building, structure or other works above ground or any alteration or extension thereof, if it was constructed, erected or executed before the date when the notice of intention to confirm the scheme was published in the *Gazette* under the Second Schedule, and for the purpose of this provision a building, structure or other work and any alteration or extension thereof shall be deemed to have been constructed, erected or executed before that date-
- (a) if its construction, erection or execution was begun before that date; or
  - (b) if and so far as its construction, erection or execution was necessary for the purpose of performing a contract made before that date.
- (5) Any person whose property is injuriously affected by the coming into force of a preservation scheme shall be entitled to obtain compensation in respect thereof from the Trust subject to the provisions of the Third Schedule.
- (6) If any person contravenes any provision of a preservation scheme for the time being in force, he shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars *for* every day on which the contravention occurs or continues.

- (7) If, after any person has been convicted of a contravention of a preservation scheme by reason that any building, structure or other work is not in conformity with the scheme, the contravention continues after the expiration of such period as the Court before whom he was convicted may determine, the Trust shall have power to do all such acts as, in its opinion, are necessary for removing so much of the building, structure or work as is not in conformity with the scheme, or for making it conform with the scheme, and any expenses incurred by the Trust in so doing shall be recoverable in a Resident Magistrate's Court as a civil debt from the person convicted.
- 22--** (1) The owner of any national monument who intends to carry out any development works in relation to that monument shall, before commencing such work, apply to the Trust for permission, giving details of the proposed works.
- (2) The Trust may, upon receipt of such application as aforesaid, grant permission for the works specified therein to be carried out under the supervision of the Trust.
- (3) For the purposes of this Act the expression "development works" includes the restoring, altering, repairing or excavating of a monument or demolishing of any part thereof and the doing of any act or thing which may be required for the purpose "of restoring, altering, repairing or excavating the monument.
- 23--** (1) Subject as hereinafter provided, any person specially authorized in writing in that behalf by the Trust, after giving reasonable notice in writing to the occupier of his intention so to do and on production of his authority if so required by or on behalf of the occupier, may enter for the purpose of investigation, inspection or maintenance, at all reasonable times upon any land or building-
- (a) which is a national monument or contains a protected national heritage; or
- (c) for the purpose of determining whether it should be declared a national monument.
- (2) Where any person enters any land or building for the purpose of investigation, inspection or maintenance in accordance with subsection (1) he shall have power to do all such things as he considers necessary for the purpose of such investigation, inspection or maintenance, and, without prejudice to the generality of the foregoing, may make excavations on the land.

- (3) Where any excavation is made on land pursuant to this section the Trust shall, within a reasonable time after the completion of such excavation take such steps as may be necessary to restore the land to the condition which existed immediately before the excavation was made, unless-
  - (a) the land is declared pursuant to this Act to be a national monument; and
  - (b) the Trust is satisfied that the excavation forms part of the national monument.
- (4) If any person wilfully obstructs or hinders any person duly authorized by the Trust in the exercise of the powers conferred by this section, he shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars.

### *Miscellaneous*

- 24-- (1) Every document required or authorized to be served under this Act upon the owner or occupier of a national monument may be served either by delivering it or leaving it at the usual or last-known place of abode of the person on whom it is to be served, or by sending it by post as a registered letter addressed to him at his last-known place of abode or, if that cannot, be found, by fixing *it* on some conspicuous part of the monument.
  - (2) Any such document may, as the case requires, be addressed to the "owner" or "occupier" of the monument (describing it) without further name or description.
- 25-- Notwithstanding anything contained in any other enactment-
- (a) any instrument necessary for transferring or vesting any land to or in the Trust upon which or in respect of which stamp duties, registration or recording fees are payable, shall be exempt from the payment of such stamp duties, registration or recording fees;
  - (b) the Trust shall, in relation to all property whatsoever held or dealt with by them for the purpose of this Act, be exempt from the payment of property tax and income tax.
- 26-- (1) For the purposes of section 13 of the Income Tax Act, any amount expended by the owner of a national monument or protected national heritage for the maintenance or development thereof and certified by the Trust as required for the preservation of

the monument or protected national heritage shall be treated as expenses wholly and exclusively incurred in acquiring income.

- 27-- (1) Notwithstanding anything to the contrary, where the owner of a national monument incurs capital expenditure in developing that monument, an allowance (in this section referred to as an "investment allowance") equal to seventy-five *per centum* of such capital expenditure shall, in lieu of an initial allowance or any other similar allowance under the Income Tax Act, be made to that owner for the year of assessment in the basis period for which such expenditure is incurred.
- (2) Subject to the provisions of this Act, where an investment allowance is made under this section in respect of national monuments the provisions of the First Schedule to the Income Tax Act, or any other provisions of that Act applicable to initial allowances granted pursuant to paragraph 1 of Part I of that Schedule shall apply, with the necessary adaptations to the investment allowance made under this Act as they apply to initial allowances aforesaid except that-
- (a) the amount of an investment allowance shall not be treated as written off by virtue of sub-paragraph (2) of paragraph 4 of Part I of that Schedule; and
  - (b) the amount of an investment allowance shall not be written off in ascertaining the written down value of the national monument or taken into account for the purposes of sub-paragraph (4) of paragraph 3 of Part I of that Schedule.
- (4) Notwithstanding anything to the contrary, an owner of a national monument shall, in respect of any capital expenditure, be entitled to claim, as such owner thinks fit, the amount of any investment allowance or annual allowance in the year of assessment in which the expenditure is incurred or, in so far as not previously claimed, in any sub-subsequent year of assessment:

Provided that where income is derived from a national monument in any year, the investment allowance or annual allowance shall be claimed against that income in priority to any other income of the owner, and accordingly, the owner shall adopt such accounting procedures as are appropriate to identify the amount of investment allowance remaining to be written off.

- (4) Subject to the provisions of this Act, where an investment allowance is made under this section in respect of machinery, the provisions of the First Schedule aforesaid or any other provisions of the Income Tax Act

applicable to initial allowances granted pursuant to paragraph 1 of Part III of that Schedule shall apply with the necessary adaptations to the investment allowance made under this section as they apply to initial allowances aforesaid except that the amount of an investment allowance shall not be written off in ascertaining the written down value of the machinery or taken into account for the purposes of paragraph 3, paragraph 4 or paragraph 5 of Part III of that Schedule.

- (5) Notwithstanding the provisions of paragraph 6 of Part I of the Schedule aforesaid, the making of an investment allowance pursuant to this section in respect of any expenditure shall not preclude the grant of annual allowances or balancing allowances in respect of that expenditure in accordance with the provisions of Part I of the Schedule aforesaid.
- (6) In this section capital expenditure incurred in the development of a national monument means-
  - (a) sums expended on the purchase, construction, excavation, major repair or alteration of the monument; and includes, where relevant, sums expended on labour, architectural and other engineering services; and
  - (b) sums expended for materials, equipment, machinery, plans and other items used in the development of the national monument.

**28--** The Minister may make such regulations, as may be necessary or expedient-

- (a) for securing the full and effectual performance of any duty imposed land the exercise of any power conferred upon the Trust by or under this Act;
- (b) for regulating the hours during which, the means whereby, the purposes for which and the conditions subject to which members of the public may have access to any national monument or protected national heritage vested in the Trust;
- (c) for regulating inquiries under the First or Second Schedule;
- (d) for prescribing anything required to be prescribed under this Act.

**29--** (1) The Jamaica National Trust Act is hereby repealed and is hereinafter referred to as "the repealed Act":

- (2) Notwithstanding such repeal, any property-
  - (a) purchased by, belonging to or vested in the Jamaica National Trust Commission established by the repealed Act;
  - (b) which is subject to a preservation notice or preservation order made under the repealed Act;
  - (c) in relation to which the Jamaica National Trust Commission were constituted guardian pursuant to the replaced Act, and all interests, rights and easements into or out of the said property which belong to or are vested in the said Commission shall, without any conveyance, assignment or transfer, belong to and be vested in the Trust established under this Act, subject to all and any trusts and to all debts, liabilities and obligations affecting the same and of all enactments, or rules made under this Act or any enactment, regulating the management, maintenance, control, supervision and dealing with such property.

**30--** The Institute of Jamaica Act is hereby amended-

- (a) by deleting from section 2 the definition of "monument and "national monument"; and
- (b) by deleting paragraph (b) of subsection (I) of section 4.

## FIRST SCHEDULE (Section 12)

### *Procedure for declaration of National Monument*

1. Before declaring any monument to be a national monument, the Trust shall-
  - (a) cause a draft of the proposed declaration to be published in the *Gazette*;
  - (b) send a copy of the draft to each local authority in whose area the monument is;
  - (c) publish once in a daily newspaper published in Kingston a notice stating that the declaration is proposed to be made and the effect of the declaration and specifying the time (not being less than (twenty-eight days from the first publication of the notice in such a newspaper) within which and the manner in which objections to the proposed declaration can be made;
  - (d) serve on the owner of the national monument and (if the owner is not occupier) on the occupier a copy of the draft of the proposed declaration, together with a notice stating the effect thereof and specifying the time (not being less than twenty-eight days from the service of the notice) within which and the manner in which objections to the proposed declaration can be made;
  - (e) cause a copy of the draft of the proposed declaration to be fixed on some conspicuous part of the national monument,
2. -- (1) The Trust, after considering any representation and objections duly made to the declaration by the owner or occupier of the monument or by any person appearing to the Trust to have an interest in the national monument, may make the declaration either in terms of the draft or with modifications thereof:

Provided that where an objection has been duly made as aforesaid and has been withdrawn, the Trust, unless it considers the objection to be frivolous or has modified the declaration as required by the objection, shall, before making the declaration, direct a public inquiry to be held as hereinafter provided and consider the report of the persons who held the enquiry.
- (2) An inquiry under this Schedule shall be held in accordance with

regulations made by the Minister for the purpose, and such regulations may contain provisions as to the cost of the inquiry.

3. -- (1) A copy of the report of the person who held the inquiry referred to in paragraph 2 shall be sent to any person who made an objection.
  - (2) Any person, being a person who has made an objection pursuant to paragraph 1 (d), who is aggrieved by the report referred to in subparagraph (1) or by the failure of the Trust to direct an inquiry to be held in accordance with paragraph 2 may, within (thirty) days after the date on which the objection was made or within (thirty) days after the receipt by him of a copy of the report as aforesaid, appeal to the Minister.
    - (e) On the determination of an appeal by him the Minister may make such order as he thinks fit.
- 
4. -- (1) As soon as may be after the declaration has been made, the Trust shall publish in the Gazette and in a daily newspaper published in Kingston a notice stating that the declaration has been made and the effect thereof, and shall serve a like notice and a copy of the declaration on every person on whom a copy of the draft declaration was required to be served under paragraph 1 and on any other person appearing to the Trust to have an interest in the national monument who duly made an objection which has not been withdrawn, and the declaration shall come into operation on the date on which the notice is published as aforesaid in the Gazette.
  - (2) The Trust shall also, as soon as may be after the declaration has been made, cause a copy of the declaration to be fixed on some conspicuous part of the national monument.



## SECOND SCHEDULE (Section 21 (3))

### *Provisions as to confirmation, Variation and Revocation of Preservation Schemes*

1. Before confirming a preservation scheme (hereinafter in this Schedule referred to as a "scheme") the Trust shall cause to be published in the Gazette, and in such other manner as it thinks best for informing persons affected, notice of its intention to confirm the scheme, of the place where copies thereof may be inspected, and of the time (which shall not be less than three months) within which and the manner in which representations with respect to the scheme may be made, and shall cause such notice as aforesaid to be given to every local authority in whose area any part of the controlled area is comprised.
2. Any person affected by the scheme may, within the time appointed under paragraph 1 for making representations, send to the Trust written objection to the scheme stating the specific grounds of objection and the specific modifications required.
3. The Trust, after considering any representation and objections duly made with respect to a scheme, may, by order, confirm the scheme either with or without modifications: Provided that -
  - (a) Where an objection has been duly made to the scheme by any person affected thereby and has not been withdrawn, the Trust, unless it considers the objection to be frivolous or has modified the scheme, as required by the objection shall, before confirming the scheme, direct a public inquiry to the person who held the inquiry; and
  - (b) a scheme as so confirmed shall not apply to any area to which it would not have applied if it had been confirmed without modification.
4. An inquiry under this Schedule shall be held in accordance with regulations made by the Minister for the purpose, and such regulations may contain provisions as to the cost of the inquiry.
5. A scheme when confirmed shall come into force on such date as may be specified in the order confirming it.
6. As soon as may be after the making of an order under this Schedule, the order shall be published in the Gazette, and in such other manner as the Trust thinks best for informing persons affected, and a copy of the order be sent to every local authority in whose area any part of the controlled area comprised.

## **THIRD SCHEDULE (Section 21 (5))**

### **Provisions as to Compensation**

1. A person shall not be entitled to compensation by reason of the fact that any act or thing done or caused to be done by him has been rendered abortive by a preservation scheme, if or so far as the act or thing done after the date on which the Trust published in the Gazette notice of its intention to confirm the scheme, or by reason of the fact that the performance of any contract made by him after that date is prohibited by the scheme.
2. Where any provision of a preservation scheme was, immediately before the scheme came into force, already in force by virtue of this or any other enactment, no compensation shall be payable by reason of any financial loss (whether actual or by diminution in value) suffered as a result of that provision of the preservation scheme if compensation has been paid, or could have been claimed, or was not payable, by reason of the financial loss (whether actual or by diminution in value) having been suffered as a result of the provision already in force.
3. Where any provision of a preservation scheme could, immediately before the scheme came into force, have been validly included in a scheme, order, regulation by law by virtue of any other enactment, then---
  - (a) if no compensation would have been payable by reason of the inclusion of that provision in that scheme, order, regulation or by law, no compensation shall be payable in respect of that provision of the preservation scheme; and
  - (b) if compensation would have been payable, the compensation payable in respect of that provision of the preservation scheme shall not be greater than the compensation which would have been payable.
4. Any dispute as to whether any person suffered financial loss (whether actual or by diminution in value) as a result of a preservation scheme, or as to the amount of the sum which is to be paid as compensation in respect of such scheme, shall be determined by the Resident Magistrate in the manner provided in the Lands Clauses Act for settling cases of disputed compensation, and in construing that the Act for the purposes of this Act, this Act shall be deemed to be the special statute and the Trust shall be deemed to be the promoters of the undertaking.

The Cultural and Natural Heritage  
of the  
**Blue and John Crow  
Mountains**

**Preservation  
Scheme**

JAMAICA  
NATIONAL  
HERITAGE TRUST



79 DUKE STREET  
KINGSTON

# DRAFT PRESERVATION SCHEME

## JAMAICA NATIONAL HERITAGE TRUST ACT

### BLUE & JOHN CROW MOUNTAIN CULTURAL HERITAGE SITE

#### (PROTECTED NATIONAL HERITAGE)

In exercise of the powers conferred upon the Jamaica National Heritage Trust by section 21 of the Jamaica National Heritage Trust Act, the following Preservation Scheme is hereby made:-

#### *Preliminary*

1. This Preservation Scheme may be cited as the Blue and John Crow Mountain Cultural Heritage Site Preservation Scheme, 2014.

#### **Interpretation**

- 2 (1) In this Preservation Scheme unless the context otherwise requires:-

“authority” means the co-management government agencies under whose Acts designate the site a Protected Area and as such have authority to issue permits relating to the site

“authorized officer” means a person designated as such by the Authority, any member or officer of the Jamaica National Heritage Trust, the Jamaica Constabulary Force, a person appointed a forest officer under the Forest Act, any person appointed a park manager or designated a national park ranger,

“controlled area” means the property described in the Schedule, Parts I and II, and any additions thereto made under the provisions of this scheme,

#### **Schedule**

“development “ means :-

- (a) the alteration , removal , repair, restoration or demolition of or addition to, anything or place designated protected national heritage; or

(b) the carrying out of building, engineering or other operations in, on, over, or under any protected national heritage or the making of any material change in the structure, appearance or use of any such protected national heritage.

“endangered species” means any animal or plant species threatened with extinction which are or likely to be affected by trade or whose survival is likely if any factor which threatens its extinction continues to operate

“Park” means the Blue and John Crow Mountains National Park, the boundaries of which are set out in the Natural Resources Conservation (Blue and John Crow Mountains National Park) (Declaration ) Order, 1993.

“protected national heritage” means:-

- (a) any place name;
- (b) any species of animal or plant life;
- (c) any place or object (not declared by the Trust to be a national monument), designated by the Trust to be a protected national heritage;

“the Trust” means the Jamaica National Heritage Trust established by section 3 of the Jamaica National Heritage Trust Act, 1985;

(2) Any reference in this Scheme to Core and Buffer shall be construed as reference to the inner and outer zones within the Controlled Area, respectively, and is so designed for improving efficient Management Plan implementation and monitoring

Controlled  
Area

3. The area set out in Part 1 of the Schedule hereto, which is delineated on the map set out in Part II thereof, being designated Protected National Heritage under the Jamaica National Heritage Trust Act (the Controlled Area) is regulated by this Scheme.
4. The provisions of this scheme shall be in addition to, and not in derogation of, or in substitution for –
  - (a) the Forest Act and regulations;
  - (b) the Natural Resource Conservation Act;
  - (c) the Natural Resources (National Parks) Regulations, 1993

Archaeological  
Works

5. (1) A person shall not, except with the written permission or permit of the Authority, in the Controlled Area:-

- (a) Excavate and uncover any archaeological feature
- (b) remove and transport any surficial or excavated artefacts or ecofacts
- (c) conduct extrusive or intrusive archaeological survey or study
- (d) camp on any archaeological site

(2) A person shall not deface any rock art, burial cave, or any natural feature associated with a significant historical event or personality.

(3) A person shall not receive, sell, or otherwise dispose of any artefacts or ecofacts knowing it to have been unlawfully removed from the Controlled Area.

(4) Any person who contravenes paragraphs (1) , (2) and (3) commits an offence and is liable to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues.

6. (1) The removal of fauna, flora and any other natural resources from the *Core* of the Controlled Area without a permit from the authority is prohibited

Removal of flora  
and Fauna

(2) The authority may grant a permit for the collection of natural objects or species of animal or plant from the Controlled Area for:-

- (a) the implementation of the Management Plan
- (b) Environmental purposes,
- (c) educational or scientific pursuits

7. (1) The authority may, on such terms as it thinks fit, grant a permit for the carrying out of research in the Controlled Area.

Research

(2) The authority shall not grant a permit under paragraph (1) where the research is likely to damage the biosphere or interfere with the management of the fauna and flora.

(3) A person who carries out any form of research in the Controlled Area without a permit issued by the authority contravenes paragraph (1), and is liable on summary conviction before a Resident Magistrate to a fine not

exceeding five hundred dollars for every day on which the contravention occurs or continues.

**8.** (1) A person shall not fish in any water body located within the *Core* of the Controlled Area, except in accordance with the implementation of aspects of the management Plan.

Fishing

(2) The authority may grant permission to fish in waters in the Buffer Zone; subject to conditions related to the kind of fish or other aquatic organisms which may be caught.

(3) A person shall not use any poisonous substance, electrical charge, explosive or any similar device for the catching or killing fish, crawfish, janga, busu and other aquatic creatures.

(4) A person who contravenes paragraphs (1), (2) or (3) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues.

**9.** (1) Except with the written permission or permit of the Authority, a person shall not:-

Hunting

(a) catch, collect, hunt, shoot or kill any bird or other wild life or

(b) carry or transport any weapons in the core of the Controlled Area .

(2) Any person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues.

**10.** (1) A person shall not, except with the written permission or permit of the Authority, dig and remove any sand , gravel, rock, stone or mineral from the Controlled Area.

Quarry and  
Mining

(2) The Authority shall not grant a permit for quarrying or mining in the buffer of the Controlled Area where such activity is likely to damage the biosphere or interfere with the management of cultural heritage of the site.

(3) If any person contravenes paragraph (1) he shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues

Forest Fires

- 11.** (1) A person shall not light or make use of any open fire or charcoal kiln in the Core or area designated under the Forestry Act and the NRCA Act, except in compliance with a burning permit issued by the Authority.
- (2) Paragraph (1) shall not apply anywhere in the Controlled Area where the fire is being used:-
- (a) for the purpose of cooking in accordance with standards established by the Authority, or
  - (b) by an authorized person for the purpose of suppressing or controlling fire.
- (3) Except for the purpose of starting a fire in accordance with this Preservation Scheme or the Management Plan, a person shall not:-
- (a) drop a burning substance in an area designated by the Forestry Act and the NRCA Act.
  - (b) in the area designated by the Forestry Act and the NRCA Act, smoke a lighted cigarette, cigar, pipe or any other matter used for smoking.
- (4) A person who contravenes paragraph (1) and (3) shall take all reasonable steps to extinguish the burning substance. Failure to carry out necessary corrective measures, the person shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues

Signs

- 12.** (1) A person shall not, except with the written permission of the Authority, erect, exhibit, display or cause to be erected, exhibited or displayed in the Controlled Area any notice, sign, slogan or other device containing any advertising or other kind of message.
- (2) A person shall not, except with the written permission of the Authority, remove, damage, obscure or otherwise interfere with a notice, sign, slogan or other device, erected by the Authority in the Controlled Area.
- (3) The Authority may authorize the erecting, placing or displaying of signs for the purpose of :-
- (a) regulating, prohibiting or restricting the stopping or parking of vehicles, or defining the manner in which vehicles may be parked.



- (b) designating a part of the Controlled Area as an area within which the parking of vehicles are permitted.
  - (c) designating a part of the Controlled Area as an area within which camping is permitted.
- (4) A sign erected for the purpose of designating a part of the Controlled Area as an area within which the parking of vehicles is permitted shall bear the words “PARKING AREA”
- (5) A sign erected for the purpose of designating a part of the Controlled Area as an area within which camping is permitted shall bear the words “BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK DESIGNATED CAMP SITE”
- (6) A person who contravenes paragraph (1) or (2), or willfully defaces, destroys, damages, obliterates, pulls up, removes, obscures or otherwise interferes with any signs erected, placed or displayed pursuant to paragraph (3) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding forty thousand dollars or to imprisonment, and in addition, such person may be ordered to pay the cost of replacement of any such signs, mark or notice and in default of payment of such cost, to be imprisoned with hard labour for a further term not exceeding 12 months.
- 13.** (1) A person shall not, in the core of the Controlled Area:-
- (a) deposit or leave any litter, broken glass, plastic article, rubbish or other waste material, except in an area or a receptacle provided for that purpose.
  - (b) deposit or discharge any noxious, offensive or polluting substance, matter or thing
  - (c) Deposit or dumping of garbage
- (2) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or
- 14.** (1) An authorized officer of the Trust, after giving reasonable notice in writing to the occupier of his intension so to do and production of his authority if so required by or on behalf of the occupier, may enter for

the purpose of investigation, inspection or maintenance, at all reasonable times upon any land or building which is a national monument or contains a protected national heritage.

- (2) Where any person enters any land or building for the purpose of investigation, inspection or maintenance in accordance with paragraph (1) he shall have the power to do all such things as he considers necessary for the purpose of such investigation, inspection or maintenance, and, without prejudice to the generality of the foregoing, may make excavation on the land.
- (3) Where any excavation is made on land pursuant to paragraph (2) the Trust Shall, within a reasonable time after the completion of such excavation take such steps as may be necessary to restore the land to the condition which existed immediately before the excavation was made, unless the Trust is satisfied that the excavation forms part of the national monument.
- (4) If any person willfully obstruct or hinders any person duly authorized by the Trust in the exercise of the power conferred by section 23 of JNHT Act, he shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars.

# SCHEDULE

## PART 1.

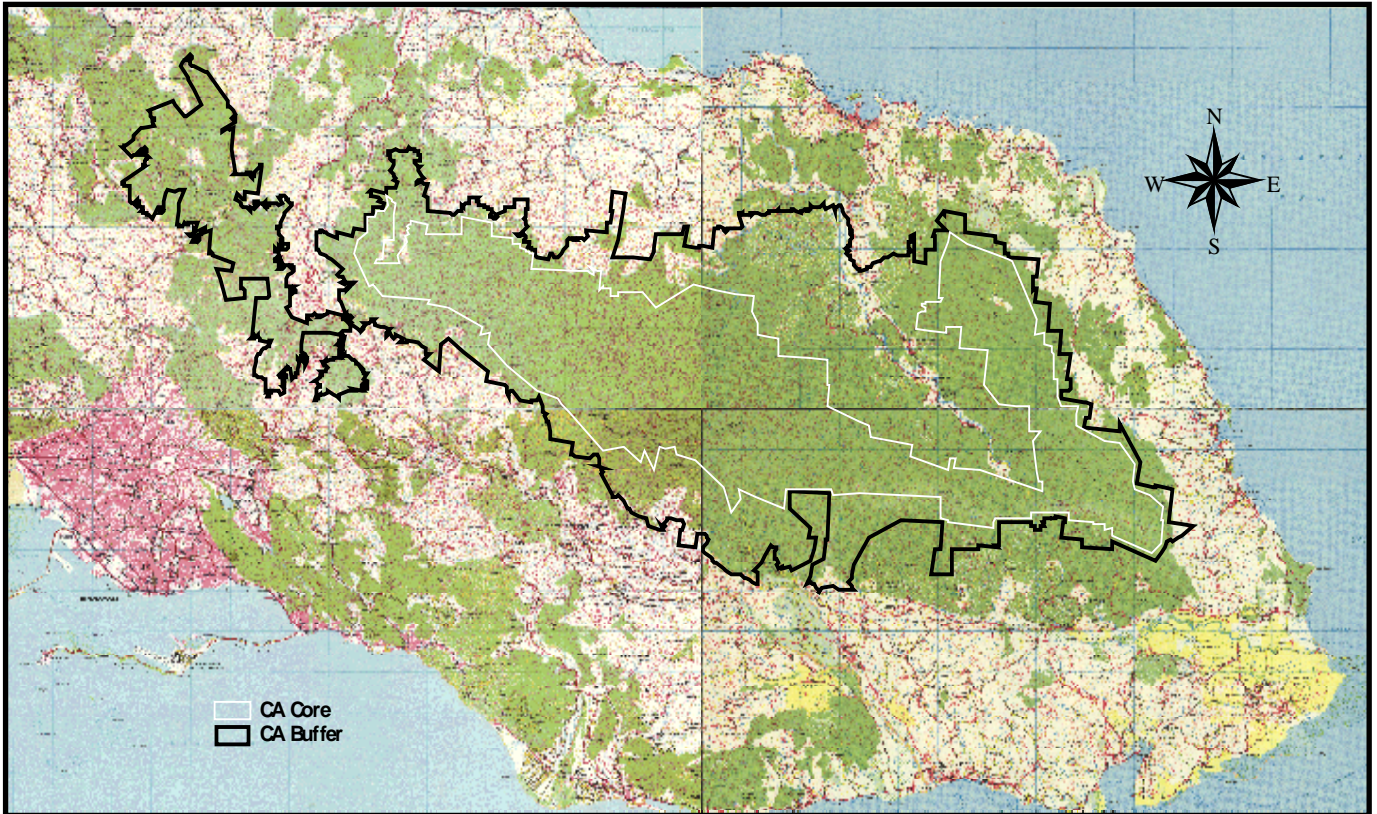
### *Blue and John Crow Mountain Cultural Heritage Site (Controlled Area)*

All that parcel of land known as the Blue and John Crow Mountains National Park and the Rio Grande Valley and located in parts of the parishes of St. Andrew, St. Thomas, Portland and south-east St. Mary; the boundary begins at Warminster District on the Parish border of Portland and St. Mary where it travels northward along the Warminster to Belmont main road, then turns northwest through Robertsons Run, then turns south to Dumfries. At Dumfries it assumes a southwest trajectory passing north of Hermitage and Leith Hall where it continues south, then southwest along Brandon Hill to Mount Prospect main road. At Mount Prospect, it veers off the road alignment passing between Mount Crissy and Mount Airy, then proceeding in a generally southerndirection where it passes through Dick Pond, Woodford and Craigton before turning north through Redlight and then circumventing New Castle, traversing lands east of Settlement ,north of Sugar Loaf Trail and west of St. Peters, looping south of Silver Hill Gap and continuing on an eastward trajectory. It then passes south of Chestervale, circumventing Strawberry Hill to the north before passing Abbey Green, Radnor, Eccleston, and Arntully to the northeast where it traverses Neurington, Newsfield, and Shirley Castle and continues on a southeast trajectory along the Morant River (Blue Mountain Valley) to Hillside. The boundary then arches the districts of Cave Bottom and Craighead to the north and proceeds to House Hill, passing north of Mount Donald and traversing Cedar Grove Where it swings north to Big Level just north of Johnson Mountain. At this point it travels in a generally northwesterly direction through Rose Garden Mountain to Cambridge Backland then west to Windsor and north along the Rio Grande west bank to Fellowship where it travels in a westerly direction along Cooper's Hill to Durham main road. Just south of Burton Hall the boundary continues in a generally westerly direction to Trafalgar Plantation where it diverts northwards to the Cottage and Berwick Spring then turns south through Leighfield and passes east of Spring Hill, Wakefield and (Cedar Valley before swinging north again through Green Hill, Biramwood Retreat, Dry River and back to Warminster.

# SCHEDULE cont.

## PART 11.

### *Blue and John Crow Mountain Cultural Heritage Site (Controlled Area)*



# **Blue and John Crow Mountains National Park**



**REPORT ON IMPLEMENTATION OF 2005 WORKPLAN  
(based on BJCMNP Management Plan 2005 – 2010)  
by the Jamaica Conservation and Development Trust (JCDC)  
- NRCA delegated Park Manager**

# BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

## Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

### **INTRODUCTION**

The Blue and John Crow Mountains National Park (BJCMNP) was gazetted under the Natural Resources Conservation Authority (NRCA) Act in 1993, on the boundary of the Forest Reserve of the same name. The Jamaica Conservation and Development Trust (JCDT) is an environmental, non-government organization and registered charity. The JCDT was heavily involved in the establishment of the BJCMNP (and Jamaica's protected area system) and manages the national park under delegation from the NRCA through the National Environment and Planning Agency (NEPA) and a collaborative management agreement with both NEPA and the Forestry Department.

A major activity during 2005 was the review, editing and publishing of the 2005 – 2010 Blue and John Crow Mountains National Park Management Plan prepared during 2004 using a participatory planning process led by JCDT and a Steering Committee composed of the BJCMNP Co-Management Committee (NEPA, FD and JCDT) UWI and TNC. The Draft Management Plan, reviewed at a workshop in December, 2004, was used to prepare a workplan for 2005, thus whilst layout, review and editing were done, the implementation of the new Plan started formally in 2005. Although the Launch of the Plan was postponed until January 19th, 2006, 2005 was the first year of implementation by the JCDT, of the new plans developed through the management planning process, and this report indicates a successful year in terms of implementation of activities, achieving targets, and making strides towards meeting the objectives and goals set for the 6 year period of the Plan.

### **HIGHLIGHTS**

#### **Enforcement and Compliance Programme**

- With the employment of a Chief of Corps in August, to supervise the Ranger Corps, the number of both regular and joint patrols increased by over 70%, and monthly programme reports are sent to NEPA and the Forestry Department indicating areas patrolled, incidents and actions taken, and requesting assistance.

#### **Conservation Programme**

- Invasive species control pilot projects were initiated in Mt. Horeb, for wild ginger, and the Blue Mountain Peak Trail, dealing with wild coffee.
- Funding obtained from FAO for a project to examine feasibility of a Blue Mountain Conservation Coffee Programme aimed at reducing the impact of farming on the forest.

#### **Education and Public Involvement Programme**

- Bowden Pen Farmers' Association in Millbank was assisted in their development of an Action Plan for their involvement in national park management.
- Construction of the Kids Discovery Zone – an interpretive play centre for children, at Holywell, with sponsorship from the Jamaica International Insurance Company.

#### **Recreation and Tourism Programme**

- Holywell was awarded Green Globe certification in July.
- Funding sourced from the IDB MIF and the EU funded Private Sector Development Programme for product development in 2006/7.

#### **Monitoring and Evaluation Programme**

- Bird monitoring under updated system completed for Blue Mountain Peak area and started in Millbank area.
- A digital photography and GIS-based Park threats and impacts monitoring system was established, to be implemented by the Park Rangers.

#### **Governance and Administration Programme**

- Over \$23 million raised in 2005 through eight projects approved out of fifteen proposals, with approval anticipated for two in early 2006, and two awaiting response.
- The National Heritage Trust approved the inclusion of the Park on Jamaica's Tentative List for World Heritage Site Nominations

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

ENFORCEMENT AND COMPLIANCE PROGRAMME – 5 YR. GOAL: To stop encroachment of Park boundary and destruction of the forest and wildlife within.

Main Funding: Environmental Foundation of Jamaica (EFJ) - BJCMNP Support Project to April '05 and the Enforcement & Compliance Prog. Support Project from May, '05  
The Nature Conservancy (TNC) – Bird Conservation in the BJCMNP

Planned Tasks/Activities	Target/ Proposed Output	ACHIEVEMENTS	RESULTS (based on targets set)	COMMENTS AND PLANS FOR 2006
1. Continue to employ Park Rangers	4	1. Achieved with funding from EFJ and TNC	1. 100%	1. Funds assured only to July '06
2. Obtain funds to employ Chief of Corps (C/Corps)	1 (by June)	2. EFJ funding approved May. C/Corps started work in August.	2. 100%	2. Funds assured only to July '06
3. Employ at least 2 new Park Rangers	2 (by July)	3. Only 1 employed in December.	3. 50%	3. Funding constraints led to decision to employ only 1 person
4. Repair/upgrade all Ranger Stations	All 3 (by Sept)	4. Quotes on labour and materials for all three stations finally obtained in December	4. About 10%	4. Limited skilled labour force, difficult access to sites, bad weather delayed quotes
5. Organise Joint Agency Patrols	2/mth	5. Jan – July – Avg. 21% Target; Aug – Dec – Avg. 80% Target (C/Corps started work August)	5. 80%	5. Agency personnel not always available, mainly ISCF involved through NEPA.
6. Organise/Implement Systematic Patrols	8/mth	6. Jan – July – Avg. 19% Target; Aug – Dec – Avg. 67% Target (C/C started work)	6. 67%	6. Bad weather & roads often made patrols or access impossible. Dirt bikes through EFJ not yet received.
7. Develop Monitoring System	By May	7. GIS-based System to monitor Park threats and impacts developed based on information gathered by Rangers on patrol using digital cameras and GPS units (design & training by Conservation Science Officer with assistance from Director - Dr. Parris Lyew-Ayee Jr.).	7. About 95%	7. Delays in EFJ project approval resulted in delays in obtaining cameras & GPS units. Proposed permanent photo-monitoring sites identified but not established due to time, weather and road constraints.
8. Implement Monitoring System	By July	8. General components of System in use i.e. photos taken on patrol and sites visited are geo-referenced, but the Targeted Permanent Photo-Monitoring Sites have to be established.	8. About 40%	8. Establishing Permanent Photo-Monitoring Sites delayed by bad weather, roads and other patrols.

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDDT – NRCA delegated Park Manager

Planned Tasks/Activities	Target/ Proposed Output	ACHIEVEMENTS	RESULTS (based on targets set)	COMMENTS AND PLANS FOR 2006
9. Take Enforcement Action on ID of breaches	Action as appropriate	9. Action included verbal and written warnings, involvement of ISCF, and reports on incidents sent to NEPA and FD for further investigation and action. A Policy & Procedures document prepared re: dealing with farming in the Park.	9. Difficult to assess Preliminary assessment of Procedures re: farming suggest it is working, but need info re: land tenure	9. Farming in the Park is illegal but some farms have leases dated prior to Park gazetting & new Forest Act. New procedure involves farmers in planting/maintaining trees.
10. Organise Regular Joint Agency Meetings	Quarterly	10. No Joint Agency Enforcement Meetings held, however C/C involved in Co-management Meetings and also meets as need with relevant FD or NEPA personnel.	10. Not achieved	10. Concern was expressed re: holding too many meetings.
11. Training in Puerto Rico - US Forest Service	By March	11. 3 Park Rangers and Asst. Education Officer spent 8 days in Puerto Rico hosted by the US Forest Service with funding from TNC/EFJ.	11. 100%	11/12. Regular training days are to be scheduled in 2006 based on Needs Assessment and Training Plan. Other staff members were involved in Ranger training as appropriate.
12. Conduct In-house/Inter-Agency Training	On-going	12. Training conducted for Rangers:- i) GPS/GIS – (3 dys) – FD & Dr. P. Lyew-Ayee Jr. ii) Plant Identification – (1/2 dy) – UWI Herbarium iii) Customer Service – (1/2 dy) – In-house iv) Interpretation – (1/2 dy) – In-house	12. Very successful	
13. Work with FD to re-establish & mark boundaries	On-going	13. Discussions on-going, some work to be done through FAO project.	13. No major action	13. Significant funding required – need to prepare a joint project proposal with FD.
14. Resolve resource use conflicts on a case by case basis	As appropriate	14. Coffee was selected as a relevant conflict during the Management Planning meetings in 2004 and a proposal to the FAO Forest Facility was approved for a Conservation Coffee Feasibility Project. This project was launched in June and a	14. Important resource-use conflict identified and being addressed. Has met with interest from farmers.	14. This project has been delayed by the July hurricanes, subsequent bad weather and difficulty in identifying suitable consultants.



BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

Planned Tasks/Activities	Target/ Proposed Output	ACHIEVEMENTS	RESULTS (based on targets set)	COMMENTS AND PLANS FOR 2006
<p>15. Develop programme to raise awareness re: legislation</p> <p>16. Increase community involvement through Education &amp; Public Involvement Programme</p> <p>17. Involve community members in NEPA/MIND E&amp;C Training</p>	<p>By Sept.</p> <p>On-going</p> <p>As possible</p>	<p>meeting held with Coffee Industry Board, FD and JCDT, and one community meeting in Woodford.</p> <p>15. No action except to design and make business cards for the BJCMNP for all Enforcement Officers.</p> <p>16. - Worked with Bowden Pen Farmers Association in Millbank to prepare an Action Plan detailing their proposed involvement and committing to signing an MOU regarding this. - Involvement of community members through education and communications (media coverage) of river poisoning for crayfish resulted in the arrest of the main offender. He was sentenced to community service in P/Antonio. - Involved community groups in Cascade, Woodford/Freetown, Redlight/IrishTown and Mavis Bank in tree-planting and in further work with the Park.</p> <p>17. Neither community members nor Rangers participated.</p>	<p>15. Not done for several reasons.</p> <p>16. Very successful</p> <p>17. Not done.</p>	<p>15. This activity was suggested during the Management Planning process, but was not considered a major priority for the year, particularly due to NEPA/R2RW Project posters.</p> <p>16. Care must be taken regarding the involvement of community members in enforcement, as their safety may be at risk.</p> <p>17. The schedule for courses (dates &amp; location) developed by MIND did not allow for our involvement.</p>

## BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDDT – NRCA delegated Park Manager



BJCMNP Park Rangers with ISCF officers on Joint Patrol in Portland, seizing illegally cut lumber



Coffee Farm observed within BJCMNP/Forest Reserve Boundary – Procedure on such observation, JCDDT sends a report to the Forestry Dept. identifying the location, and requesting information on the land tenure status, as some farmers have leases through the Commissioner of Lands.

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

CONSERVATION PROGRAMME – 5 YR GOAL: To maintain and enhance the remaining area of closed broadleaf forest and component species of plants and animals. The main strategies are forest rehabilitation including reforestation, invasive species control, promotion of relevant research.

Main funding from The Nature Conservancy and a Rufford Small Grant.

Planned Tasks/Activities	Target/ Proposed Output	ACHIEVEMENTS	RESULTS (based on targets set)	COMMENTS AND PLANS FOR 2006
<p>1. Control of invasive species from pilot areas :- (a) at Mt. Horeb &amp; Holywell (b) Blue Mtn. Peak Trail area – obtain funding</p>	<p>At least 8 acres:- (a) 2 acres (b) 6 acres</p>	<p>1a) Mt. Horeb/Holywell –2 ½ acres under control (i) Holywell - ½ acre cleared of net fern (<i>Gleichenia</i> sp.) (ii) Mt. Horeb – Fairy Glade Trail – 2 acres cleared of wild ginger (<i>Hedychium</i> sp.). 1b) Funding obtained from Rufford Foundation for a Blue Mtn. Peak Trail Project focusing on <i>Pittosporum undulatum</i> (mock orange/wild coffee) Arrangements made with FD to provide assistance with pre- and post-control density estimates. 13 plots (25m x 20m) established along 2km of Trail and 50 mature <i>P. undulatum</i> trees treated with – glyphosate “Round-up”, by injection. This is approximately 12 ½ acres.</p>	<p>1a) Mt. Horeb/Holywell 125% of area targeted under some control. If ginger cover was about 90 - 95% it is now only 50 – 60%  1b) Blue Mtn. Peak Trail:- - Obtain funding – 100% - Target Area – 200% - About 40% work completed</p>	<p>1a) Funds for community labour obtained from an existing EFJ Park support project to end April. Wild ginger grows back easily due to rhizomes. Volunteers from UTECH are helping to remove new growth.  Areas of wild ginger need to be cleared more intensively in smaller sections in order to remove all rhizomes.  Strawberry Hills started a programme to collect donations for Fairy Glade project – JA\$30,000 donated.</p>
<p>2. Propagation of 4,000 seedlings of 2 – 3 native and other tree species for use in reforestation and forest rehabilitation</p>	<p>4,000 seedlings  2 – 3 native or endemic species</p>	<p>2a. About 1,400 seedlings of various species grown and about 1,000 of those planted out, mainly Blue Mahoe, Cupressus and Mahogany. 2b. Holywell nursery now one of the few (possibly only) plant nursery where seedlings of native and even endemic tree species like the following can be obtained:- Dovewood, Milkwood, Soapwood, Mountains Yacca.</p>	<p>2a) 35% target met for number seedlings  2b) 166% target met for number of native or endemic species (5 species with over 20 healthy seedlings)</p>	<p>2. Initially there was a relatively high mortality rate of endemics – by adjusting nursery methods and increasing care of seedlings as we learn, we have been decreasing the mortality rate.</p>

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

Planned Tasks/Activities	Target/ Proposed Output	ACHIEVEMENTS	RESULTS (based on targets set)	COMMENTS AND PLANS FOR 2006
<p>3. Complete Research Prospectus (in Management Plan); place on website and link to universities</p> <p>4. Scientific and Technical Advisory Committee meets 3 times per year</p>	<p>As indicated</p>	<p>3. - Research Prospectus completed as part of Management Planning process. The Prospectus will be sent to a variety of universities in early 2006, and research in the Park promoted.</p> <p>- Conservation Science Officer responded to 6 research applications sent through NEPA, and created a data-base for tracking research.</p> <p>4. Individual researchers and organizations have been met with, and collaboration organised e.g. UWI, IOJ, Humboldt University.</p> <p>5. OTHER:- (a) Funding obtained in May from FAO Forest Facility Programme for a Conservation Coffee Project to investigate the feasibility of a Blue Mountain Conservation Coffee Programme to reduce the impact of coffee farming on the biodiversity and ecosystem integrity of the Park. The Project was launched in June and a partnership negotiated with the Coffee Industry Board and the Humboldt University. See Enforcement and Compliance Programme.</p>	<p>3. About 80% target achieved – need only to place on website and link to universities.</p>	<p>4. Based on the experience of 2004/5 with respect to committee meetings, the plan will be to have this committee meet at least once a year, and for the Conservation Science Officer and other Programme Managers to participate in the relevant national and other committees.</p>

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

Photographs showing Rufford-funded Blue Mountain Peak Trail Montane Rainforest Rehabilitation Project



Alli Morgan. FD helping with vegetation mapping



*Pittosporum undulatum* – Wild Coffee. marked for treatment.



Mature *Pittosporum* dying back weeks after treatment



2 seedlings *Alchornea latifolia* – Dovewood planted near each treated *P. undulatum*

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

MONITORING AND EVALUATION PROGRAMME - 5 YR GOAL: To track and record both the threats and the changes to ecosystem health so that it is possible to assess whether or not the Park is achieving its over-arching conservation goal. Main funding is from The Nature Conservancy.

Planned Tasks/Activities	Target/ Proposed Output	ACHIEVEMENTS	RESULTS (based on targets set)	COMMENTS AND PLANS FOR 2006
1. Develop and establish a monitoring programme to track changes in threats and impacts on the Park, using geo-referenced monitoring points & digital photography in a GIS.	1a. Develop Programme by July 1b. Start Implementing by end of year	1. Conservation Science Officer – Shauna-Lee Chai developed the Programme with assistance from JCDT Director - Dr. Parris Lyew-Ayee Jr.. GPS units and digital cameras purchased and training conducted by Dr. Lyew-Ayee Jr. - Programme is being piloted with use of system but not for permanent points.	1a) Programme Developed – 100%  1b) Implementation being piloted.	1a. Will continue to refine Programme.  1b. Difficulty in accessing proposed permanent photo-monitoring points – transportation, bad weather, bad roads, overgrown trails. Will be done in first three months of 2006.
2. Investigate aerial photography for monitoring forest cover.	2. Information	2. Discussions held with relevant professionals and FD. The process is very expensive and will require major project in collaboration with FD.	2. Investigation completed.	2. Will require sourcing of funding for a major project in collaboration with FD possibly related to boundary re-identification and marking.
3. Implement revised Bird Monitoring Programme in the Blue Mountain Peak Trail area and begin work in a second site.	3. - Complete winter season 04/05 - Implement breeding season 05 - Start winter season 05/06	3. - Winter 04/05 completed - Breeding Season 05 implemented - Analysis and Report on 04/05 done - Upper Rio Grande Valley selected for Yr 2 and 80/120 points established – winter season counting not started.	3a) 100% for 04/05  3b) 30% for 05/06	3. The Bird Monitoring Programme fell behind in Winter season 05/06 due to bad weather and change in approach from last year – this is being revised back to last year’s approach.
4. Implement revised FW Macro-invertebrate Monitoring Programme.	4. 12 FW stations monitored	4. - Equipment purchased and training conducted - 04/05 Dry season completed for 12 sites - 05 wet season monitoring started – 4/12	4a) 100% for dry season 04/05 4b) 33 1/3% for wet season 05/06	4. Delays due to sourcing equipment and other time constraints.
5. Evaluate results from Monitoring Programme.	5. Report	5. Not enough data yet.	5. Not done	

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager



BJCMNP Rangers conducting bird monitoring in good quality montane rainforest



BJCMNP Park Ranger shows children from a nearby community the tiny creatures (macro-invertebrates) he uses to monitor stream quality

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

BJCMNP EDUCATION AND PUBLIC INVOLVEMENT PROGRAMME – 5 YR. GOAL: To raise public support and improve natural resource management, particularly in the buffer zone. Main Funding: Environmental Foundation of Jamaica (EFJ) - BJCMNP EE Project to Aug '05 and The Nature Conservancy (TNC) – Bird Conservation in the BJCMNP to Dec. '05. Funding sought for two years in EFJ's July Call 2005 – Project Committee deliberating funding asked Board to make decision after meeting with JCDT.

Planned Tasks/Activities	Target/ Proposed Output	ACHIEVEMENTS	RESULTS (based on targets set)	COMMENTS AND PLANS FOR 2006
1. Involve community members in Park management	1. As possible	1. - 1 Ranger employed from Buffer Zone – Lyndon Johnson from Irish Town - 2 youth formally involved in activities e.g. Visitor Management, Tour Guiding – Gregory Christie – Redlight, Shauna Ennis – Irish Town and several others involved in training. - about 12 community members employed part-time or services used - Action Plan developed with Bowden Pen Farmers' Association (BPFA)	1. Successful	1. Continue (see below)
2. Facilitate Sustainable Livelihoods Training for community members	2. As possible	2. (a) Through UNESCO Youth PATH over 12 youth (plus staff) participated in training on:- - Horticulture (orchids) (2 dys) - HIV/STDs (1 dy) - Customer Service (1/2 dy) - Interpretation (1 dy) (b) BPFA had a Small Business Training Workshop	2. Successful	2. Continue



BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

Planned Tasks/Activities	Target/ Proposed Output	ACHIEVEMENTS	RESULTS (based on targets set)	COMMENTS AND PLANS FOR 2006
3. Liaise with 2 – 3 Community groups to plan & implement natural resource management and sustainable livelihoods activities.	3. Max: 3 communities	3. Worked with 5 communities but 3 had more intensive work than the others:- 1. Millbank (Bowden Pen Farmers' Association - BPFA) - Action Plan for Park mgmt involvement - Joint proposal to GEF SGP 2. Cascade - youth involved in training - about 160 trees planted on Earth/Labour Days 3. Woodford/Freetown - about 125 trees planted in projects - met re: farming issues for Coffee Project 4. Irish Town - about 100 trees planted on private land 5. Mavis Bank - About 100 trees planted but disappeared	3. 250% - In terms of number of communities (5); 150% - In terms of achievements with 3 of the communities	3. Greater achievement with the communities where work was most intensive. Obtained “buy-in” for a watershed management project to include tree-planting and other activities – this resulted in seeking funds for a 2-year Community Education – Watershed Management for Disaster Mitigation, from EFJ and GEF SGP (1 yr) for 2006.  Focus on 4 communities with intensive approach, and 1 additional as a “control”. Work with schools there. - Millbank (BPFA) - Cascade (CUYA & Citizens' Assocn) - Woodford/Freetown - Irish Town/Redlight - Hayfield – “control”
4. Park School visits with AV presentations	4. 25 schools	4. 25 schools visited within Buffer Zone in 2005 - Presentation was “Flying in the Mist – Birds of the BJCMNP” - Poster Competition – 36 posters from 32 schools	4. 100%	4./5. Revised approach developed based on experiences in '05. 5 schools will be worked with intensively in the 4 targeted communities, building synergies with community grps. Other schools will receive a presentation.
5. Environmental Stewardship Programme in schools around Park	5. 12 schools	5. - 3 of 15 schools dropped out early in year and less than - - 50% were entered in SEP judging. - Teachers from 13 schools participated in a one day workshop at Holywell	5. # schools – 100% Estimate about 65% success in terms of impact on schools. Teacher training raised knowledge by 20 – 40%.	
6. Seek funds to prepare BJCMNP EE Manual for schools	6. Funding	6. No fundraising, but some discussion with EEO, who has also raised the subject at the NEEC and with UNESCO.	6. No major action.	6. Will begin to work on materials and seek funds.

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager



Chief of Corps and group from Bowden Pen Farmers' Association work to develop their Action Plan for their involvement in Park management



Interpretation and Customer Service Training for community youth and Park Rangers



Chevaughn Mais of Woodford All Age accepts his prize for winning the BJCMNP Poster Competition.

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

BJCMNP EDUCATION AND PUBLIC INVOLVEMENT PROGRAMME – 5 YR. GOAL: To raise public support and improve natural resource management, particularly in the buffer zone. These activities were mainly implemented by Education Officers, Executive Director and other staff.

Planned Tasks/Activities	Target/ Proposed Outputs	ACHIEVEMENTS	RESULTS (based on targets set)	Comments and Plans for 2006
1. Develop and Implement Publicity/Communications Campaign on the BJCMNP, particularly related to legislation e.g. media releases, discussion with CARIMAC re: possible assistance	1. On-going Letter and Meeting with CARIMAC	1a. Numerous media releases sent out & media taken to sites; - Only 4 articles in press including Letter of the Day & 3 from journalists taken to sites. - Radio interviews in July/August re: disaster mitigation 1b. Sent letter to CARIMAC and followed up, but no response, obtained intern but not successful 1c. Website updated and improved through Interline but still have problems re: address – this is being dealt with but is taking much longer than anticipated	1. Limited success	1a. Media - Efforts will continue to be made, with a focus on taking media to sites, sending information in the form of captioned photographs 1b. Follow up again with CARIMAC 1c. Finalise website, including new address if necessary. Conduct training and establish in-house updating system
2. Seek funds for Communications and Holywell Signage Programme	2. Funds to make 12 signs & design 12 more	2. No major action taken	2. None	2. This was not considered a priority in light of other funding needs and opportunities, as well as internal capacity to seek funds. Seek funds, possibly through USAID – through Recreation and Tourism Programme.
3. Improve Interpretation in all Recreation Areas, particularly Holywell	3. As per Holywell Plan	3. Kids Discovery Zone – with funding from Jamaica International Insurance Company (about \$600,000) the KDZ was designed and constructed. Funding from the EFJ supported the production of a brochure, and from a new UNESCO small grant allowed for training local guides, and further interpretation. Significant volunteer assistance from Edna Manley Art School students and others made the interpretive artwork possible.	3. Very successful – a major component of Holywell Development Plan implemented.	3a. Continue Training of selected community youth as interpreters. 3b. Market KDZ – send letters with brochures to schools.

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager



Kids Discovery Zone, Holywell - designed and constructed with funding from Jamaica International Insurance Company. This is the first development based on the Holywell Ecotourism Development and Management Plan developed in 2004.



JCDT Chairman, Robert Stephens and local school children observe while Education Officer explains one of the games in the Kids Discovery Zone.

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDDT – NRCA delegated Park Manager

BJCMNP RECREATION AND TOURISM PROGRAMME – 5 YR. GOAL: To provide recreational opportunities for local and international visitors, using ecotourism principles, in order to generate income and support for the park. This Programme had no external funding and there is no Recreation Programme Officer. The activities were implemented by the Executive Director, Administrative Manager, Receptionist/Bookings Clerk, Conservation Science Officer, Park Rangers and other staff.

Planned Tasks/Activities	Target/ Proposed Output	ACHIEVEMENTS	RESULTS (based on targets set)	COMMENTS AND PLANS FOR 2006
1. Holywell Ecotourism Development and Management Plan – complete and begin implementation 2. Employ Prog. Officer 3. Improve – Marketing, Sales, Business Management, Hospitality 4. Holywell Interpretive Programme 5. Trail Repairs – Peak Trail etc. – seek funding 6. Facilitate community tourism around Park 7. Develop EMS & Visitor Management Systems 8. Green Globe Certification at Holywell	1. Plan published and disseminated 2. Prog. Officer 3. Training and marketing conducted 4. Source funds for Signage 5. Source funds 6. On-going activities e.g. training 7. EMS and Visitor Mgmt Systems 8. Certification	1. Plan completed in July and implementation started e.g. KDZ 2. Funds for Prog. Officer sourced for 2006 3. Funds approved for 2006 from the IDB and the EU funded Private Sector Development Programme through JAMPRO 4. Kids Discovery Zone - KDZ (see Education Prog) 5. Sent concept paper to Japanese Embassy, interest in a proposal for 2006. Some Hurricane Repairs done 6. Training and discussions held (see Education Programme). Funds approved for 2006, as above. 7. Environmental Management System for Holywell developed and implementation started under supervision by Conservation Science Officer and Holywell Station Chief, and help from the EAST Project 8. Green Globe certification obtained in July.	1. 100% 2. Target not achieved for 2005, but funds sourced for 2006 3. Some success e.g. Training conducted (See Education Prog.), Some marketing through Unique Jamaica Programme 4. Target not achieved but success with KDZ 5. Target not achieved 6. Very successful, particularly with respect to funding sourced for 2006 7. 100% 8. 100%	Due to lack of funding and resources for this Programme (all income from the Park’s Recreation Areas goes to basic operating costs e.g. casual labour, fuel and maintenance of bush-whackers) the focus was mainly on seeking funds for a Programme Officer who could implement the Programme. Funding has been sourced as indicated – both projects require a Project Coordinator who will be shared as the projects dove-tail. The focus will continue to be on product development – tangible and intangible assets and services including hospitality and tour guiding, as these will help to increase income. The World Heritage Site nomination process and achievement will assist in promoting the Park internationally. Green Globe certification was a major achievement.

In addition, significant repairs and refurbishing done at Holywell and Portland Gap using funds from EFJ, USAID EAST/PA Consulting and CTO through the Ministry of Industry and Tourism. These will continue into early 2006.

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager



Visitors from a University in the US doing a course at UWI



Community youth being trained in plant identification and ecology under Youth PATH project.

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

BJCMNP GOVERNANCE AND ADMINISTRATION PROGRAMME – 5 YR. GOAL: To provide efficient, effective and sustainable management that will allow the park to meet its overarching and other goals. This Programme is funded from project administration fees/overheads, JNPTF etc. and the activities were implemented mainly by the Executive Director and Administrative Manager with the assistance of administrative and accounting staff.

Planned Tasks/Activities	Target/ Proposed Output	ACHIEVEMENTS	RESULTS (based on targets set)	COMMENTS AND PLANS FOR 2006
1. Publish & Launch new Park Plan with NEPA's approval	1. Document	1. BJCMNP Management Plan 2005 – 2010 final draft sent to NEPA in mid-July, 2005. Following receipt of comments, revision almost completed at the end of the year. Plans for the Launch made. Power-point presentations on the Plan made to various groups e.g. NEPA and MLE managers.	1. BJCMNP Management Plan almost finalized. About 95% target achieved.	1. Following first set of comments received in November, additional comments received in December, thus final adjustments completed early January.
2. Establish Advisory Committees as per Management Plan	2. Park Advisory & 1 Local Committee	2. No major action, discussions held with potential Committee members.	2. No major action	The Plan was formally launched on January 19 <sup>th</sup> , 2006 at the Hilton, with endorsement from both NEPA and Forestry Dept. The publication has a foreword signed by James Rawle, Chairman, Natural Resources Conservation Authority. By mid-February all electronic and hard-copies will be disseminated.
3. Continue/Expand Co-Management Committee	3. 4 mtgs/yr	3. Two Co-management meetings held. The focus was on comments for the Management Plan. Discussions with BPPFA re: involvement as co-managers. Our Education Officer worked with them to develop an action plan, and they implemented several activities.	3. 50%	
4. Project Development and Management	4. On-going	4. Project development and management was on-going (see attached)	4. About 10 projects implemented in order to implement Park management.	

BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

Planned Tasks/Activities	Target/ Proposed Output	ACHIEVEMENTS	RESULTS (based on targets set)	COMMENTS AND PLANS FOR 2006
5. Seek World Heritage Site status for BJCMNP	5. Global status raised	5. - March – letter to UNESCO and JNHT, with NEPA/FD endorsement - April – National WHS Committee launched and JCDT is an active member - June - Took Head LA WHS Unit to visit Park – got offer of funding for nomination dossier - Nov – received funding (US\$13,000) - Dec – prepared document & made presentation to JNHT Board who gave approval for Tentative Site List i.e. 1 <sup>st</sup> step to nomination.	5. Very successful	5a. Implement UNESCO funded draft nomination dossier project – deliver draft to UNESCO by end July, and follow-up with respect to formal nomination request. 5b. Continue to participate in National WHS Committee
6. Fundraising	6. JA\$25 million	6. Significant fundraising conducted – 15 proposals requesting over JA\$47 million sent out and 8 approved, 2 being re-written, 2 for which funding is anticipated in early 2006 – about \$8 million from EFJ and GEF SGP and 2 for which responses are not anticipated until after March, 2006. Funds for 2005/6 from EFJ, TNC, FAO, IDB-MIF, EU PSDP, UNESCO, Rufford Trust. Funds for 2004/5 from EFJ, TNC, CANARI-Hivos, UNESCO and JNPTF.	6. Just over 92% if Hurricane Ivan Recovery Funds not included, with this 112%.	6. Efforts will be made to secure long term funding through JCDT e.g. business ventures, endowment fund and approach to GOJ.
7. Networking and Collaboration	7. On-going	7a. JCDT – Executive Director, Conservation Science Officer and Chief of Corps participated in Protected Area System Plan Project – strategic planning and focus group consultations. 7b. JCDT staff participate in several national committees e.g. National Environmental Education Committee, National Integrated Watershed Management Council, National Land Degradation Committee, Alien Invasives Working Group 7c. Indiana University and Humboldt University	7. Some success	7c. Indiana University sent a group of about 7 students and 2 lecturers on a study tour to the BJCMNP, and plan to return in 2006. Humboldt University conducting study of the impact of birds as consumers of coffee pests. Will work with us on our Conservation Coffee Project and training Rangers in bird identification and monitoring



## BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK

Report on Implementation of Workplan for 2005 by JCDT – NRCA delegated Park Manager

### **Staff Complement – 2005**

Executive Director – Susan Otuokon  
Administrative Manager – Donna Fray  
Administrative Officer – Brandelline Moncrieffe – resigned in November  
Receptionist/Bookings Clerk – Nickesha Porter  
Accountant (part-time) – Howard Irons  
Office Attendant – Mavis Powell

#### BJCMNP Ranger Corps:

Chief of Corps – Samuel Johnson – joined staff in August  
Station Chief, Holywell – Herma Nathan  
Station Chief, Portland Gap – Rudolph Poyser  
Ranger – Ryan Love  
Ranger – Roger Thompson  
Ranger – Lyndon Johnson – joined staff in December

#### Programmes

Conservation Science Officer – Shauna-Lee Chai  
Environmental Education Officer – Marolyn Lucy Gentles – joined staff in February  
Assistant Education Officer – Wellington Taylor

N.B. This does not include casual labour employed part-time at Recreation Areas/Ranger Stations – Holywell, Portland Gap and Millbank.

# **JAMAICA CONSERVATION AND DEVELOPMENT TRUST**

## **REPORT ON 2006 WORK PLAN**

**“Promoting environmental conservation and sustainable development,  
with particular emphasis on the Blue and John Crow Mountains National Park,  
for the benefit of Jamaica and our people.”**



## **INTRODUCTION**

The Jamaica Conservation and Development Trust (JCDT) is an environmental, non-government organization, and registered charity, founded in 1987 and incorporated in 1988. Its mission is to promote environmental conservation and sustainable development, with particular emphasis on the Blue and John Crow Mountains National Park, for the benefit of Jamaica and our people. 2006 was the second year of implementation of the JCDT Strategic Plan 2005 – 2009, and has seen the organization moving towards meeting the objectives set in this Plan, and meeting most of the targets set in the 2006 Work Plan. A staff retreat was held on 7<sup>th</sup> December, 2006 following a period of performance evaluations and discussions with Programme Managers concerning achievement of targets for 2006 and setting of targets for 2007. The focus of the JCDT continued to be almost 100% on the Blue and John Crow Mountains National Park, and hence this year, a separate report on JCDT's management of the National Park has not been prepared.

## **HIGHLIGHTS**

### **Blue and John Crow Mountains National Park (BJCMNP)**

Following the formal launch of the BJCMNP Management Plan for 2005 – 2010 in January, 2006, the JCDT continued to work on achieving the objectives and goals of the National Park, and to make improvements in the management of the National Park, as lessons were learned from implementation.

#### Enforcement Programme

- Average number of routine patrols moved from 67% of targeted 8/mth in 2005 to 93% in 2006 with a total of 89 routine & joint patrols plus 6 days assisting NEPA/ISCF.
- All patrol locations were logged with GPS and photographs taken. This will assist in monitoring threats.
- As per Policy on Farming in the Park, mapping of farms in order to monitor encroachment (initiated under the Conservation Coffee Project) continued on Greenwich Trail.

#### Conservation Programme

- Significant success with control of invasive species, particularly Wild Coffee (*Pittosporum undulatum*) and Wild Ginger (*Hedychium sp.*)
- New Plant Nursery at Holywell produced 2,618 tree seedlings for forest rehabilitation and still had over 4,000 seedlings of more than 6 native species at end of November.
- Over 25 acres of degraded or deforested land within the Park was rehabilitated, these areas must be maintained in order to be truly successful.

#### Monitoring and Evaluation Programme

- Bird monitoring of new area in Bowden Pen was completed. Monitoring was started in another new location in Clifton Hill.
- Rangers receive significant on-the-job training in bird monitoring.

#### Education and Public Involvement

- Community work including tree-planting initiated in four communities
- Teacher training workshop held with 42 teachers from Buffer Zone schools

#### Recreation and Tourism Programme

- Work on the Holywell Ecotourism Development Plan continued with work started on the new Ticket Booth and Entry Portal
- Revenue increased by 59% over 2005 at Holywell and by 41% at Portland Gap. Misty Bliss made a profit.

Governance and Administration Programme

- BJCMNP 2005 – 2010 Management Plan launched in January, along with report on work implemented for 2005. The document was distributed to over 30 organisations.
- Draft nomination dossier sent to UNESCO’s World Heritage Centre, and useful recommendations made for improvement
- Co-management agreement signed with Bowden Pen Farmers’ Association, and plan for approach to involving community members established.

**Education and Communications**

- Most achievements were related to BJCMNP (see above).

**Advocacy**

- Executive Director and Conservation Science Officer played a significant role in Jamaica’s Protected Area Master Plan Project

**Organisational and Financial Sustainability**

- Fundraising targets achieved.

**CHALLENGES**

Challenges continue to be mainly related to limited resources, particularly human and vehicles. Despite best efforts at efficiency and a very hard-working staff, limited number of personnel affects timelines and achievement of targets.

**Staff Complement - 2006**

Executive Director (ED)	- Susan Otuokon		Ranger Corps
Administrative Manager (AM)	- Donna Fray	Chief of Corps (C/Corps)	- Samuel Johnson
Conservation Science Officer (CSO)	- Shauna-Lee Chai	Station Chief, Holywell	- Herma Nathan
Environmental Education Officer (EEO)	- Marolyn Lucia Gentles	Station Chief, Portland Gap	- Rudolph Poyser
Assistant Education Officer (AEO)	- Wellington Taylor	Ranger	- Ryan Love
Administrative Assistant	- Nickesha Porter	Ranger	- Roger Thompson
Accountant	- Howard Irons (part-time)	Ranger	- Lyndon Johnson
Accounts Clerk	- Katherina Flemmings		
Office Attendant	- Valma “Mavis” Powell		

**PROGRAMME AREA 1: BJCMNP Co-management**

**GOAL 1: Protect and Conserve the natural and cultural heritage resources of the BJCMNP**

This JCDT Programme Area and its goal relate to the Enforcement and Compliance, Conservation, and Monitoring & Evaluation Programmes of the BJCMNP

**BJCMNP Enforcement and Compliance Programme – 5 Year Goal:** To stop encroachment of the Park boundary and destruction of the forest and wildlife within.

Main Funding (2006): Environmental Foundation of Jamaica (EFJ) BJCMNP Enforcement & Compliance Programme Support Projects (#1 and #2) and NEPA Subvention (from April, 2006)

Person Responsible: Chief of Corps – Samuel Johnson

Planned Tasks/Activities	Targets/Proposed Output	Achievements	Results	Comments/Plans for 2007
1. Repair Ranger Stations	1. All 3	1. Holywell and Portland Gap repairs/refurbishing completed but Millbank repairs very expensive – had to seek additional funding – now in place	1. 70%	1. Major repairs to Millbank
2. Routine Patrols	2. At least 8/mth	2. Seven months had 8 - 10 patrols (exclusive of joint patrols) and four months (March – June) had 4 – 5 patrols. August was a record month with a total of 11 patrols (10 - regular and 1 - joint with the ISCF). 2005 had an average of 67%.	2. 93% of target for year (89 incl. joint)	2. Target affected as follows:- March - May – Rangers working on nursery construction at Holywell in addition to bird and FW monitoring June – torrential rainfall
3. Organise Joint Agency Patrols	3. 2/mth	3. Despite inviting other agencies, very few joint patrols (4) materialized plus 6 days on which a Park Ranger joined bird-shooting patrols organized by NEPA/ISCF in September.	3. 17% for year	3. NEPA indicated their involvement not possible due to limited staff, and recommended involving ISCF, but eventually this became too expensive to continue on a regular basis. The decision was taken to call on the relevant agencies only if their involvement is essential, but to send the Enforcement monthly report and roster for information.
4. Implement Threats/Impacts Monitoring System	4. See M & E Prog.	4/5. 100% except for establishment of Permanent Photo-Monitoring points for Impacts Monitoring	4/5. 100% for Threats Monitoring and Monthly Reports	4/5. It was agreed that plans would remain similar for 2007
5. Record incidents and observations on patrol	5. Monthly reports		40% for Impacts Monitoring	

JCDT Report on 2006 Work Plan

Planned Tasks/Activities	Targets/Proposed Output	Achievements	Results	Comments/Plans for 2007
<p>6. Take action on ID of breaches</p> <p>7. Prepare Training Plan</p> <p>8. Conduct in-house training</p>	<p>6. As appropriate</p> <p>7. Training Plan</p> <p>8. At least 8 sessions</p>	<p>6a. Monthly reports sent to FD and NEPA. Special reports or letters sent to FD and/or NEPA if urgent action required.</p> <p>6b. Verbal warnings given and community members seen in area spoken to (interpretive enforcement). Written warnings given (about 12 for year). 1 person taken to court but said to be of “unsound mind”.</p> <p>6c. About 12 farmers in the Greenwich Trail and Farm Hill area given warning letters and/or farms mapped to reduce likelihood of encroachment, and reforestation and trail maintenance conducted.</p> <p>6d. Special patrols conducted re: crayfish poisoning, Giant Swallowtail Butterfly catching and bird shooting season.</p> <p>7. Needs Assessment conducted during performance evaluation and other meetings, and discussions between ED, C/Corps, CSO held to gather information, but no written Plan yet, though plans made, and some training held</p> <p>8a. BJCMNP Management Plan &amp; Programmes – Four ½ day sessions conducted in-house to raise familiarity with the Plan.</p> <p>8b. Newest Rangers (2) participated in Youth PATH BJCMNP Orientation Training Day</p> <p>8c. Rangers participate in Basic Spanish Training (3 days)</p> <p>8d. C/Corps introduced Rangers to In-house Manuals prepared on Emergency Mgmt &amp; Disaster Preparedness, Fire Mgmt Procedures and Policy &amp; Procedure re: Farming in the Park</p> <p>8e. Bird Identification and Monitoring training organized by CSO &amp; conducted with researchers from Humboldt University and UWI Ph.D. researcher contracted for the purpose</p> <p>8f. GPS and Photo-monitoring training (2 dys) with Dr. Parris Lyew-Ayee (JCDT Director) and CSO.</p> <p>8g. Jamaican Boa training (2dys) with NEPA/Hope Zoo</p> <p>8h. Map reading (4 figure Grid Reference) by C/Corps</p>	<p>6. Successful</p> <p>7. Training Plan – about 40% complete</p> <p>8. 100%</p>	<p>6. Community members have noted the increased presence of uniformed Park Rangers. Maintaining a presence to act as a deterrent was a key strategy and it seems to be working e.g. it has been observed that farms within the Park are being abandoned and less expansion is occurring. There also appears to a reduction in the number of illegal activities.</p> <p>7. To be completed by March, 2007.</p> <p>8. Training for Rangers to be based on Needs Assessment. Currently the need for report writing, conflict resolution, legislation and a variety of field training have been identified.</p>

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Planned Tasks/Activities	Targets/Proposed Output	Achievements	Results	Comments/Plans for 2007
9. Develop procedures with FD to identify land tenure of farms observed in Park	9. Feasible procedure	9. Policy and procedure developed and shared with Rangers after it was sent to FD and NEPA for comments which were positive.	9. 100%	9/10. The Conservation Coffee Feasibility Project initiated the mapping of farms on the Park boundary or within the Park. This was also conducted along the Greenwich Trail. The focus is on moving farmers and involving them in reforestation, trail maintenance etc.  12. Discussions to continue with USAID REACT Project re: possible follow on project.  13. Organise training with Cmmdr. Rodriguez
10. Implement above procedure	10. Procedure working	10. Procedure being implemented and appears to be working.	10. 100%	
11. Develop a land tenure/boundary mapping and marking project with FD, and seek funding	11. Project proposal prepared; Funds sought	11. Discussions held with USAID/USFS and FD.	11. About 40%	
12. Address coffee farming conflicts issue through Conservation Coffee Project (see Conservation Programme)	12. Conservation Coffee Programme Plan	12. CSO implemented Conservation Coffee Feasibility Project funded by FAO. Included mapping of farms by FD, supported by C/Corps, farmers survey & meetings. Discussion with USAID REACT re: follow-on based on recommendations.	12. 100%	
13. Complete Disaster/Emergency Preparation & Management Plan	13. Plan	13. Plan prepared and sent to NEPA, FD and Cmmdr. Michael Rodriguez for comments. Plan shared with Rangers.	13. 100%	



**Discharge of effluent in river from a Coffee Factory**



**Illegal coffee farm at Catherine's Peak**





**Durham – logging of mahogany trees**



**River poisoning in Bucket river**

**PROGRAMME AREA 1: BJCMNP Co-management**

**GOAL 1: Protect and Conserve the natural and cultural heritage resources of the BJCMNP**

This JCDT Programme Area and its goal relate to the Enforcement and Compliance, Conservation, and Monitoring & Evaluation Programmes of the BJCMNP

**BJCMNP Conservation Programme – 5 Year Goal:** To maintain and enhance the remaining area of closed broadleaf forest and component species of plants and animals.

Main Funding (2006): The Nature Conservancy (TNC) (to June, 2006) and Neotropical Migratory Bird Conservation Act (from July, 2006) FAO, Luis Kennedy and Rufford Foundations

Person Responsible: Conservation Science Officer (CSO) – Shauna Lee Chai

Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
<p>1. Control of Invasive Species to encourage natural regeneration of the forest</p> <p>(a) Mt. Horeb/Fairy Glade – increase area under control, and biodiversity level</p> <p>(b) Blue Mtn. Peak Trail – decrease number of <i>Pittosporum</i> and increase biodiversity level</p>	<p>1a. From 0.5 to 2.0 acres</p> <p>1b. Within 12 acre pilot plot</p>	<p>1a. Wild Ginger in 2.5 acres under control and site has increased biodiversity due to regeneration of forest trees.</p> <p>1b. <i>Pittosporum</i> controlled in 12 acres along Peak Trail plus trees at Holywell</p> <p>1c. Plus, 1¾ acres of other invasives - <i>Gleichenia sp.</i> (Net Fern) &amp; <i>Melinus minutiflora</i> (Wynne grass) controlled on the Peak Trail.</p>	<p>1a. 125%</p> <p>1b/c. 114%</p>	<p>1a. Maintenance</p> <p>1b. Maintenance</p>
<p>2. Reduce threat of coffee to forests by investigating feasibility of a Blue Mountain Conservation Coffee Programme</p>	<p>2. Conduct analyses and work with farmers to design Programme</p>	<p>2. Conservation Coffee Feasibility Project funded by FAO Forest Facility completed. Resulted in exposure of over 20 farmers to conservation issues relating to the Park, and possible solutions were discussed.</p>	<p>2. 100% in terms of completion of project; 80% with respect to designing a programme.</p>	<p>2. Feasibility of formal Blue Mtn Conservation Coffee not very high (due to existing premium) but farmers are concerned and interested in improved environmental management. Follow up with farmers to be continued if possible through USAID REACT Project.</p>
<p>3. Improve propagation of native, broadleaf species at Holywell nursery</p>	<p>3. 4,000 seedlings of at least 4 selected species</p>	<p>3a. Stock @ end Nov: 4,078 tree seedlings of 9 native species, 6 with over 100 seedlings, plus flowers &amp; herbs e.g. mint</p> <p>3b. 2,618 seedlings delivered to rehabilitation projects.</p> <p>3c. Full-time nursery worker employed from community.</p>	<p>3. 167%</p>	<p>3. Maintain nursery and work on sustainability components.</p>
<p>4. Reforestation &amp; Forest Rehabilitation in Recovery Zone, especially Priority Sites, working with Buffer Zone communities, and including areas of invasive species control</p>	<p>4. At least 15 ha (30 acres) rehabilitated</p>	<p>4a. A total of 25.25 acres (11 ha) rehabilitated as follows:- Catherine’s Peak - 7 acres, Peak Trail - 13.75 acres, Mt. Horeb – 2.5 acres and Farm Hill – 2 acres.</p> <p>4b. Community tree-planting projects in buffer zone and planting of trees on farms – over 1,000 fruit trees distributed and over 5 acres planted in Millbank, Woodford &amp; Cascade.</p>	<p>4. 100%</p>	<p>4a. Nursery construction and employment of nursery worker started late, therefore needed time for seedlings to be ready.</p> <p>4b. Communities need greater level of supervision in field.</p>

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Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
<p>5. Protection of the Giant Swallowtail Butterfly through (a) propagation and planting of water mahoe, and (b) investigation of GSB farming and possible attraction for income-generation – implemented through the Bowden Pen Farmers’ Association (BPFA).</p>	<p>5a. At least 100 trees propagated and growing 5b. Report &amp; Proposal</p>	<p>5a. BPFA growing &amp; planting water mahoe seedlings. 5b. Not started but will happen under Recreation &amp; Tourism Programme IDB funded project</p>	<p>5a. 100% 5b. 0</p>	<p>5. Rangers helped BPFA source seedlings from field and with nursery. Butterfly patrols suggested to help monitor numbers.</p>
<p>6. Promotion &amp; Facilitation of Research (a) Send Research Prospectus/Management Plan to universities and seek their partnership (b) Place Research Prospectus on JCDT website and link to UWI etc. (c) Maintain Research Data-base, liaise with researchers and obtain assistance e.g. training (d) Participate in relevant national committees (e) Share information with academia</p>	<p>6a. Information to at least 3 institutions 6b. Prospectus available and accessible on-line 6c. Up-to-date Database and assistance to Park 6d. As appropriate 6e. 1 Workshop or Paper as appropriate</p>	<p>6a. In addition to distribution of Management Plan to over 26 institutions including the National Library of Jamaica, Parish Libraries in eastern Jamaica and the UWI, the Research Prospectus was sent to the University of Michigan and discussions held with Dr. Kevin Hill to promote research 6b. Research prospectus available on JCDT website, and linked to UWI and IOJ. 6c. CSO responds to NEPA requests for comments/approval of research within the BJCMNP, maintains a data-base of research projects and visits with researchers as possible. 6d. CSO participates in Invasive Alien Working Group, NEPA and Ecological Working Group for Protected Areas Master Plan Project. 6e. In addition to the launch of the Management Plan (and report on 2005) JCDT staff presented 2 papers: at a UWI Geology/Geography workshop and a NEPA/IOJ Invasive Aliens workshop</p>	<p>6a. 100%  6b. 100% 6c. 100% 6d. 100% 6e. 300%</p>	<p>6. Ongoing</p>



**Ranger Johnson injecting a giant invasive alien *Pittosporum* tree along the Peak trail under the Luis Kennedy project.**



**Ranger Thompson mapping a burnt-out area along the Peak Trail with GPS**



**Holywell nursery well-stocked with native fast-growing forest trees species**



**Dovewood seedlings planted out 3 months prior growing well along the Peak trail**



**Hundreds of *Sapium jamaicensis* (milkwood) seedlings on Mt. Horeb - a good sign that the forest is benefiting from the control of invasive wild ginger in this area.**

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**BJCMNP Monitoring and Evaluation Programme** – 5 Year Goal: To track and record both the threats and the changes to ecosystem health, so that it is possible to assess whether or not the Park is achieving its over-arching conservation goal.

Main Funding (2006): The Nature Conservancy (TNC) (to June, 2006) and Neotropical Migratory Bird Conservation Act (from July, 2006)

Person Responsible: Conservation Science Officer (CSO) – Shauna Lee Chai

Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
1. Threats and Impacts Monitoring (GIS) (a) Establish Proposed Permanent Photo-Monitoring Points (b) Collect & Enter Information from Patrols	1a. 10 1b. From every patrol	1a. 4 points established 1b. Patrol locations mapped and photos and other information filed.	1a. 40% 1b. 100%	1a. Had to completely revise plans as sites from REA were all in one area and inaccessible, hence late start and then rain and resource limitations (personnel, vehicles) delayed achievement. 1b. In 2007, the CSO hopes to explore use of GIS for manipulating and possibly analysing the information collected.
2. Forest Area Monitoring (a) Develop Programme in association with FD (b) Seek funding	2a. Document 2b. Proposal	2a/b. Met with USAID and FD, but no “concrete” plans or proposal though indicated to USAID/USFS that funds/technical assistance were needed for this.	2. About 10% ?	
3. FW Macro-invertebrate Monitoring (a) Sample sites in both dry and wet seasons (b) Analyse data and Prepare Report	3a. 12 sites twice 3b. Report	3a. All 12 sites monitored in both dry and wet seasons. 3b. Data analysed and Report done and sent to TNC.	3a. 100% 3b. 100%	3. Continue.
4. Bird Monitoring (a) Complete Establishment of Points and Monitoring for Winter Season – Cunha Cunha (b) Monitor all Points for Breeding Season (c) Analyse 2005/6 data and Prepare Report (d) Select new Monitoring Area, Establish all Points and begin Monitoring for Winter Season	4a. 120 points established & monitored b. 120 points monitored c. Report d. 120 points established for new Area	4a. 120 points established and monitored for winter season 4b. 111 points monitored for breeding season 4c. Data analysed, Report done and sent to TNC 4di. New area selected – Clifton Hill – Vinegar Hill Trail. 4dii. Ph.D. researcher contracted to conduct in-depth training with two (2) Rangers, conduct monitoring and prepare report. 4diii. 96 points established and 66 counted for winter season	4a. 100% 4b. 92% 4c. 100% 4d. 100%	4. Rain affected meeting of targets. Although only 80% of target points established for new site, considering 55% of counts conducted for winter season, the results were estimated at 100%. However, the activity is not actually complete.
5. Identify other possible approaches to monitoring, particularly for key threatened species	5. Report	5. At Staff Retreat, the following were discussed:- (a) Giant Swallowtail Butterfly and possible regular patrols and involvement of community in conducting counts (b) Yellow-billed Parrot – follow up with patrols and investigation re: capture of these birds.	5. 30%	5. Explore further and consider additional promotion through research prospectus.



**Mt Horeb photomonitoring (lat.18.08309569 long.-76.72458527) of invasive wild ginger pilot control plot over a 7 month period. Control method looks promising as ginger re-growth is minimal and native seedlings are in proliferation.**







**Bird Monitoring winter season counts in progress – Vinegar Hill**



**Ranger Ryan Love conducting chemical testing of headwater streams**

**AREA 2: Education and Communications**

**GOAL 2: Practice of sustainable livelihoods, particularly around the BJCMNP**

This JCDT Programme Area and its goal relate mainly to the Education and Public Involvement Programme of the BJCMNP, but also the Recreation & Tourism Programme.

**BJCMNP Education and Public Involvement Programme** – 5 Year Goal: To raise public support and improve natural resource management, particularly in the Park’s community buffer zone.

Main Funding (2006): Environmental Foundation of Jamaica (EFJ) (from March, 2006) and GEF Small Grants Programme (from April, 2006), UNESCO Youth PATH and EU PSDP.

Person Responsible: Environmental Education Officer (EEO) – Marolyn Lucy Gentles

Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
<p>1. Facilitate capacity building of community members in Park’s buffer zone, for sustainable livelihoods &amp; natural resources management</p> <p>(a) Work with communities to build their capacity &amp; implement relevant activities</p> <p>(b) Training of community members especially youth/young adults &amp; women, in sustainable livelihoods</p> <p>(c) Involve c/members in Park management activities</p>	<p>1a. 6 CBOs in 4 communities, with plans &amp; implemented activities/projects</p> <p>1b. 20 youth &amp; 20 women (may overlap)</p> <p>1c. 15</p>	<p>1a. 4 communities and over 6 CBOs being worked with:-</p> <p>(i) Millbank (and environs of Upper Rio Grande Valley) – Bowden Pen Farmers Association (BPFA), Moore Town Maroons, Comfort Castle community</p> <p>(ii) Woodford – Woodford Citizens Association and Anglican Church</p> <p>(iii) Cascade – Cascade Action Group</p> <p>(iv) Irish Town – Irish Town, Redlight, Middleton Citizens Association</p> <p>– all have projects being implemented – mainly tree planting but also looking at potential for community tourism.</p> <p>1b. at least 30 women and 20 youth involved in training through UNESCO Youth PATH, GEF SGP, World Heritage Site. Youth PATH training for year involved:- BJCMNP Orientation (1dy), Spanish (3dy), Arts (1dy).</p> <p>1c. 13 community members employed part-time and over 10 worked on short-term contracts for tree-planting etc. BPFA signed co-management agreement and are involved voluntarily in helping with Park management e.g. Cunha Cunha Pass Trail maintenance, enforcement, education.</p>	<p>1a. 90%</p> <p>1b. 100%</p> <p>1c. 100%</p>	<p>1. Ms. Gentles left the organization in December, 2007, and a replacement will be sought during January, 2007. There is a need for improved action planning and record keeping for the community work.</p>
<p>2. Target buffer zone schools to engender care of the Park, in collaboration with communities, particularly in 4 targeted communities.</p>	<p>2a. Intensive work with 5 schools in 4 communities</p> <p>2b. Visits to at least 30 buffer zone schools</p> <p>2c. Buffer Zone teacher training workshop (1)</p>	<p>2a. 4 schools:- Comfort Castle Primary &amp; Junior High, Woodford All Age, Cascade All Age and Craighton Primary &amp; Junior High receive special attention – working on projects.</p> <p>2b. 21 schools visited with special audio-visual presentation and invited to participate in mini-exposition at Holywell</p> <p>2c. 42 teachers from 25 schools attended teacher training workshop at Holywell</p>	<p>2a. 80%</p> <p>2b. 70%</p> <p>2c. 100%</p>	<p>2. Continue work with schools, especially through use of culture and action-oriented projects. Evidence from community shows that school-leavers remember the lessons learned at school.</p>

**PROGRAMME AREA 2: Education and Communications**

**GOAL 2: Jamaicans recognize importance of BJCMNP as a national asset**

This JCDT Programme Area and its goal relate mainly to the Education & Public Involvement and Recreation & Tourism Programmes of the BJCMNP, and other public education activities.

**BJCMNP Education and Public Involvement Programme** – 5 Year Goal: To raise public support and improve natural resource management, particularly in the Park’s community buffer zone.

Main Funding (2006): Environmental Foundation of Jamaica (EFJ) (from March, 2006) and GEF Small Grants Programme (from April, 2006), UNESCO Youth PATH and EU PSDP.

Person Responsible: Environmental Education Officer (EEO) – Marolyn Lucy Gentles

Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
3. Increase public awareness about the Park through Communications (a) Media Releases/Info sent out and follow up for response e.g. site visits (b) Website up, in-use & being up-dated (c) Follow-up with CARIMAC for assistance	3a. 12 out; 6 covered 3b. Web-site up-to-date and hits (over 200) 3c. Letter/meeting & possible project	3a. 5 print articles to date – however most not from our media releases. In addition, several radio interviews e.g. Management Plan and World Heritage Site application. 3b. Conservation, Monitoring & Evaluation Programmes completely updated and other sections partially updated. 3c. No action – main contact (L. White) moved on.	3a. 100% 3b. 75% up-to-date; # hits uncertain. 3c. 0	3a. The 100% does not accurately reflect what is still a lack of media coverage of the Blue and John Crow Mountains National Park. A more targeted approach to the media is necessary. 3b. Complete update by 31 <sup>st</sup> January, 2007
4. Increase public awareness/support for the Park through Interpretation at Recreation Areas (a) Operate Kids Discovery Zone (b) School visits to Holywell (c) Seek funds for Interpretive Sign Prog. (d) Improve Interpretation at other Recreation Areas/Ranger Stations (e) Work on materials for the BJCMNP EE Manual, and seek funding	4a. At least 10 schools 4b. At least 15 schools 4c. Obtain funds 4d. Visibly improved 4e. Some materials produced & funding obtained	4a. 7 school groups (over 500 students) for KDZ package 4b. 17 schools (including 3 Teacher Training Colleges) visited, some for general education and some for curricula-related activities. 4c. Had discussions and sent proposal to USAID REACT Project, with a fairly positive outlook. 4d. No action as focused on repair work, some still to be done. 4e. Preliminary work through Teacher Training workshop and activities with 4 targeted schools. Discussions re: funding with UNESCO and GEF/SGP showed significant interest.	4a. 70% 4b. 113% 4c. 0% in terms of funding, but 100% in terms of efforts 4d. 0 4e. About 15%	4. Whilst the targeted number of schools for the KDZ was not met, the number of students exceeds what would have been expected from 10 schools. Schools came mainly in April for the KDZ and in November for other educational activities.
5. Volunteer Programme – Build programme in collaboration with educational institutions and companies.	5. - 3 Universities - 3 Companies	5a. UTECH, Indiana University and Humboldt University provided assistance – mainly physical work at Holywell. 5b. Red Stripe and KOOL FM assisted.	5a. 100% 5b. 67%	
6a. Implement UNESCO funded draft nomination dossier project – deliver draft to UNESCO by end July, and follow-up with respect to formal nomination request. 6b. Continue to participate in National WHS Committee	6a. Draft nomination dossier sent to UNESCO 6b. BJCMNP in formal nomination process	6a. Sent draft dossier and comments received. As more work needed, we will miss February, 2007 deadline to send in formal nomination request, so it won’t be considered until 2008. Public meetings held and publicity generated. 6b. BJCMNP placed on World Heritage Site Tentative List	6a. 100% 6b. 100%	6. This project was the responsibility of the Conservation Science Officer and the Executive Director.

**PROGRAMME AREA 2: Education and Communications**

**GOAL 2: Jamaicans recognize importance of BJCMNP as a national asset**

This JCDT Programme Area and its goal relate mainly to the Education & Public Involvement and Recreation & Tourism Programmes of the BJCMNP, and other public education activities.

**Non-BJCMNP Activities**

There is no specific funding for these activities. Mr. Wellington Taylor, Assistant Education Officer manages the library.

Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
7. Resource Library (a) Continue to Obtain new material (b) Make plans for interim housing and use	7a. System for logging prior to final data-base 7b. Plan	7a. Continue to receive and catalogue material. No action re: data-base due to time-constraints. 7b. No need to make plans for interim housing yet.	7a. 0 7b. 0	7. The Library is an invaluable resource for staff and the few persons who use it.
8. Green Expo Make Plan for a new Programme, based on discussions with other organisations	8. Plan (based on input from other groups)	8. Sent new Plan to EFJ and raised for discussion at various membership meetings but no official response. Initiated discussions with Well Fest which is set for April, 2007.	8. 0	8. Under new Committees, with greater NGO influence, EFJ may renew interest, but JCDT now strapped for time, with increased focus on BJCMNP.



**Ms Marolyn Lucy Gentles (Env. Ed. Officer)**  
**Explaining the concept of the SHED programme**  
**to a group of teachers at the Teacher Training Workshop**  
**held at Holywell.**



**Ms Erma Hutton (Senior Curriculum Officer) from the**  
**Ministry of Education and Youth addressing teachers on**  
**curriculum infusion.**



**Ms. Mirjam Kuzee (Programme Specialist**  
**Science) from UNESCO assisting teachers with**  
**their presentation.**



**Ms. Marolyn Lucy Gentles, Env. Education Officer meeting with farmers of the Bowden Pen Farmers Association at Mill Bank.**



**Ms. Marolyn Gentles conducting site visit at Settlement**



**Mr. Wellington Taylor (Asst. Ev. Ed. Officer) issuing plants to farmers at Hayfield.**



**YouthPATH – Orientation**



**YouthPATH – Craft Training**



**YouthPATH - Spanish Training**



**Kids Discovery Zone**



**Tower Hill Primary - School presentation**



**Bath Primary - School Presentation**



**PROGRAMME AREA 3: Advocacy**

**GOAL 4: Influence Government agencies to adopt/implement policies that enhance Protected Area management**

Main Funding (2006): This programme is mainly implemented on the time of JCDT personnel, particularly the Executive Director and Board members. There is no specific funding.

Person Responsible: Executive Director (ED) – Susan Otuokon

Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
<p><b>Programme Area 3: Advocacy</b></p> <p>1. Continue to participate in Protected Area System Planning Process</p> <p>2. Continue to network with other organizations involved in protected area management e.g. JPAN</p> <p>3. Participate in all relevant policy, strategy and action planning and consultative groups and committees</p> <p>4. Nominate representatives to Boards etc.</p>	<p>1. As possible, depending on next steps in process</p> <p>2. As possible</p> <p>3. As possible</p> <p>4. As possible</p>	<p>1. Executive Director and Conservation Science Officer participated in workshops and working group sessions.</p> <p>2. Liaised with JPAN members during Protected Area System Planning (Master Plan) Process, including organized a special meeting to address capacity building needs for incorporation into Plan.</p> <p>3. Executive Director and Programme Managers participated in numerous meetings and committees.</p> <p>4. No nominations, but voted at EFJ AGM</p>	<p>1. 100%</p> <p>2. 100%</p> <p>3. 100%</p> <p>4. 100%</p>	

**PROGRAMME AREA 4: Organisational and Financial Sustainability**

**GOAL 5: Improve & maintain an efficiently & effectively managed organization**

**GOAL 6: Become financially sustainable within five years**

The issue of financial sustainability for the JCDT and its management of the BJCMNP dovetails with the Park’s Recreation and Tourism Programme.

**BJCMNP Recreation and Tourism Programme – 5 Year Goal:** To provide recreational opportunities for local and international visitors, using ecotourism principles, to generate income and support for the Park. The basic operations of the Park’s Recreation Areas run mainly on income they generate, but their management and supervision is subsidized by JCDT through implementation of the necessary activities by the Executive Director (marketing), Administrative Manager (sales and logistics), Administrative Officer (bookings and sales), Park Rangers – particularly Station Chiefs. In May, 2006, funding was obtained through the European Union’s Private Sector Development Project (through JAMPRO) for enhancement of Holywell as per the Development Plan amongst other activities, and a Project Manager was contracted.

Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
1. Employ Programme Manager	1. Position filled	1. Part-time Projects Manager contracted through EU PSDP and IDB Projects	1. About 75%	1. Need a full-time Business Development Officer and a Site Supervisor for Holywell.
2. Product Development at Holywell: (a) Entry Portal (b) Ticket Booth (c) Enhance “Tuck-Shop” to Café and Gift Shop	2. Development as per Holywell Ecotourism Dev. & Mgmt Plan	2a. Entry Portal – basic design complete and some materials purchased. Dawn Scott to design fretwork. 2b. Ticket Booth – construction almost complete. 2c. As funding from EU PSDP didn’t seem enough for “Tuck Shop”, funding sought from USAID REACT Project, but definite response was not obtained, though looks positive.	2a. 20% 2b. 75% 2c. 5%	2. Achieved more than targeted, as also made verandahs for 2 cabins.
3. Product Development Plans for rest of Park and communities - Holywell & Upper Rio Grande	3. Plan	3. Awaiting approval of signed contract with Heritage Design, through IDB Project. Preliminary site assessments done.	3. 0% as project delayed by red tape.	3. Plans to be developed in 2007
4. Seek funds for Blue Mountain Peak Trail Improvement and do some repairs if possible	4. Funds sourced and some repairs done.	4. Only clean-up and painting of building, as not enough funds raised. Had positive meeting with Ministry of Tourism, Entertainment and Culture and Tourism Enhancement Fund and a proposal is to be prepared.	4. 60% in terms of seeking of funds and work done.	4. Action in 2007
5. Holywell Interpretive Programme – source funds to implement existing Signage Plan	5. Funds sourced	5. Funds sought from USAID REACT Project and Tourism Enhancement Fund, but not yet confirmed.	5. 0% as funding not obtained though major efforts at sourcing (100%)	5. Follow up with USAID REACT Project and Tourism Enhancement Fund.
6. Develop BJCMNP & Buffer Zone Recreation & Tourism Marketing Plan and Promotional Materials & Increase Marketing over 2005	6a. Plan 6b. Materials 6c. Increased Marketing	6a. Research conducted & Plan drafted for Holywell, but not for wider area due to delays in IDB funding. 6b/c. Kingston Guide Advertisement & Advertorial, articles in Sunday Gleaner Outlook magazine and events planning.	6. 0% for wider area but about 90% for H/well	6. Major implementation of marketing of Holywell to start in 2007. Planning for wider area (around Holywell and Upper Rio Grande Valley) set for 2007.

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Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
7. Increase revenue from H/well	7. By 15% over '05	7. Revenue increased over '05 by 59% (over '04 by 64%). 45% of income from Cabins, 8% from KDZ, 12% from camping fees & special packages. Visitation increased by 58%.	7. 400%	7. '03 – '04 increase in revenue = 7% '04 – '05% increase in revenue = 3% (Hurricane Ivan) N.B.: At Portland Gap, revenue increased by 41% and visitation by 9% over 2005 figures.
8. Design and Begin Implementation of BJCMNP Craft Line	8. Craft Line being produced & sold	8. Craft Line designed by JBDC & training postponed until January.	8. 50%	8. Delays in funding slowed the Craft Project.
9. Conduct Training for Community Members in relevant skills e.g. Hospitality, Interpretation	9. 20 Training Days	9. Only 6 training days conducted – 5 for Youth PATH, as above and 1 session on the BJCMNP as a possible World Heritage Site.	9. 30%	9. Funding delays with EU PSDP and IDB significantly reduced training days possible, as Youth PATH funds very limited.
10. Maintain EMS and Retain Green Globe certification	10. Certificate	10. EMS continues, Green Globe benchmarking obtained but not certification due to delay in funding from REACT.	10. About 40%	10. Follow up
11. Seek funds for more of Holywell Plan	11. Funds approved	11. Sought funds from USAID REACT Project and the Tourism Enhancement Fund, but not yet approved	11. About 75%	11. Follow up

**PROGRAMME AREA 4: Organisational and Financial Sustainability**

**GOAL 5: Improve & maintain an efficiently & effectively managed organization**

**GOAL 6: Become financially sustainable within five years**

The issue of organizational and financial sustainability for the JCDT and its management of the BJCMNP dovetails with the Park's Governance and Administration Programme.

**BJCMNP Administration and Governance Programme – 5 Year Goal:** To provide efficient, effective and sustainable management that will allow the Park to meet its over-arching and other goals. This Programme is funded from project administration fees/overheads, JNPTF etc. and the activities were implemented mainly by the Executive Director and Administrative Manager with the assistance of the administrative and accounting staff.

Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
1. Launch and Distribute Copies of Mgmt Plan	1. Event & 30 copies	1. Launch of Plan and Report on 2005 held, and over 60 copies (electronic and hard) distributed to 26 organisations immediately following the event, with more distributed electronically since.	1. 100% plus	1. Share achievements/lessons learned for 2006 e.g. at JCDT AGM.
2. Establish Local Committees	2. As needed	2. Strengthened and established relationships with CBOs in 7 communities (Millbank, Moore Town, Charles Town, Woodford, Irish Town/Red Light, Cascade/Section and Penlyne Castle/Hagley Gap).	2. 100%	2. Decision taken to avoid forming too many unnecessary committees, and to liaise instead with existing CBOs.
3. Continue/Expand Co-Management Committee	3. 4 mtgs/yr; Add BPFA	3. 3 Co-management meetings held (Feb, April and Nov). Co-management Agreement signed with BPFA.	3. 80%	
4. Project Development and Management	4. Projects as necessary to implement Plan	4. Fourteen projects under implementation, with 3 finishing and 7 starting during the year.	4. 100%	
5. Human Resource Development and Management	5. As per #1 – 4 Org. Strengthen'g	5. See Organisational Strengthening and Sustainability for more information	5. see below	
6. World Heritage Site Nomination Process	6. Draft Dossier sent	6. See BJCMNP Education & Public Involvement Programme (JCDT Programme Area #2) above for more information.	6. see above	
7. Fundraising	7a. \$25 million	7. See Financial Sustainability	7. see below	
(a) Project funding & Sponsorship	7b. as per plans developed			
(b) Funds for long-term				
8. Networking and Collaboration	8a. Continue as per '05	8a. Executive Director and Conservation Science Officer participate	8a. 100%	
(a) National Protected Area Groups & Planning	8b. Increase over '05	8b. Added University of Michigan and UWI to groups with greater involvement, plus those coming through NEPA	8b. 100%	
(b) Universities for research & study tours	8c. As possible	8c. No new partnerships formed	8c. 0	
(c) Others				

**PROGRAMME AREA 4: Organisational and Financial Sustainability**

**GOAL 5: Improve & maintain an efficiently & effectively managed organization**

**GOAL 6: Become financially sustainable within five years**

There was no specific funding source for core aspects of this programme, funding was obtained from Project Administration Fees/Overheads, JNPTF, Savings/Interest, Donations, Sponsorship and Fundraisers.

Person Responsible: Executive Director (ED) – Susan Otuokon

Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
<b>Organisational Strengthening and Sustainability</b>				
1. Training Needs Assessment	1. Report	1. Started but not complete	1. 40%	1. Complete QTR 1 '07
2. Staff Training	2. 20 Training days	2. 8 dys – Rangers, 1 dy AM (Training Needs Assessment), 2 dys Proposal Writing – CSO & EEO , 2 dys Website management – CSO & AEO, AO starts administrative certificate course.	2. 75%	2. Continue as per plan and opportunities
3. Employee Performance Review	3. Reports	3. Started late, only administrative staff remain.	3. 75%	3. Complete QTR 1 '07
4. Develop Plan for Staff Welfare & Implement	4. Plan & some implementation	4. Started e.g. Birthday Club and Staff Welfare Fund	4. 60%	4. Christmas Bonus
5. Filing System	5. Filing System	5. No action as no office move	5. 0	
6. 2003/4 Accounts audited & organize AGM	6a. Audited F/Statements 6b. AGM	6a. 2003 and 2004 approved by Finance Committee and 2005 almost ready 6b. AGM likely February 2007	6a. 50% 6b. 10%	
7. 2005 Project & Internal Reports	7. Reports on time	7. Reporting has improved but audits have delayed process	7. About 60%	
8. Finalise agreement with NPF and refurbish property as per Phase 1 Plans	8. Agreement & occupy Phase 1 office space	8. No change in status. NPF indicated preferring a joint venture agreement instead of a sub-lease that had been agreed and discussed earlier, and for which JCDT had prepared a draft. NPF agreed to prepare a draft agreement but haven't provided anything to date, and finally before Christmas suggested JCDT prepare the joint venture agreement ourselves, however our Secretary & Atty-at-Law does not think that a joint venture is secure enough for the cost entailed.	8. 0	8. JCDT to investigate other options as well as follow up with NPF.

JCDT Report on 2006 Work Plan

Planned Tasks/Activities	Target/Proposed Output	Achievements	Results	Comments/Plans for 2007
<p><b>Financial Sustainability</b></p> <p>1. Fundraising                      (a) for BJCMNP – proposals etc.                      (b) for admin/core e.g. Admin Fees                      (c) Plan and begin Implementation for Endowment Fund                      (d) Events e.g. Misty Bliss (Plan &amp; Implement)</p> <p>2. Increase revenue from Holywell</p> <p>3. Establish business – BJCMNP Craft Line</p> <p>4. Continue to improve financial management</p>	<p>1a. \$20 million                      1b. \$5 million                      1c. - Plan                      - US\$250,000                      1d. M/Bliss makes profit</p> <p>2. By 15% over 2005</p> <p>3. Line being sold</p> <p>4. Increase over 2005</p>	<p>1a. Achieved – over \$36 million of project grant funding approved in 2006                      1b. Achieved – 15% (average admin. fee) is over \$5million                      1c. Started e.g. booth at Diaspora Conference, meeting with Dulcie de Montagnac and proposal to EFJ. The latter received a positive but not totally favourable response and a letter was sent asking EFJ to reconsider several issues, which they replied they would do by January, 2007.                      1d. Misty Bliss held and a profit made.</p> <p>2. 59% over 2005 (but still not enough to run the site fully)</p> <p>3. Started (see above under Recreation and Tourism)</p> <p>4. Improved, despite cash flow difficulties, due to late disbursement of funds or requirements to spend first and then be reimbursed e.g. EU PSDP</p>	<p>1a. 180%                      1b. 100%                      1c. 40%                      1d. 100%</p> <p>2. 400%</p> <p>3. About 40%</p> <p>4. Improved</p>	<p>1. Of proposals prepared in 2006, 66% of target for 2006 approved and another 80% anticipated in early 2007.</p> <p>2. Increased revenue at Portland Gap (actually increased by 41% in 2006)</p>

# **JAMAICA CONSERVATION AND DEVELOPMENT TRUST**

## **REPORT ON 2007 WORKPLAN**

**“Promoting environmental conservation and sustainable development,  
with particular emphasis on the Blue and John Crow Mountains National Park,  
for the benefit of Jamaica and our people.”**



## **INTRODUCTION**

The Jamaica Conservation and Development Trust (JCDT) is an environmental, non-government organization, and registered charity, founded in 1987 and incorporated in 1988. Its mission is to promote environmental conservation and sustainable development, with particular emphasis on the Blue and John Crow Mountains National Park, for the benefit of Jamaica and our people. 2007 was the third year of implementation of the JCDT Strategic Plan 2005 – 2009, and has seen the organization moving towards meeting the objectives set in this Plan, and meeting most of the targets set in the 2007 Work Plan. JCDT's Strategic Plan and Annual Work Plan dovetail with the BJCMNP Management Plan 2005 – 2010. A staff retreat was held on 7<sup>th</sup> December, 2007 following a period of performance evaluations and discussions with Programme Managers concerning achievement of targets for 2007 and setting of targets for 2008. The documents were reviewed by Programme Managers and the Board of Directors before this final report was completed.

## **HIGHLIGHTS**

### **Blue and John Crow Mountains National Park (BJCMNP)**

JCDT continued to work on achieving the objectives and goals of the National Park, and to make improvements in the management of the National Park, as lessons were learned from implementation. A breakfast meeting was held in February, 2007 to share with stakeholders and interested persons re: achievements for 2006.

#### Enforcement Programme

- Average number of routine patrols moved from 93% in 2006 to 125% in 2007 with a total of 120 routine & joint patrols plus additional e.g. during bird monitoring.
- Some patrols were specific to an issue under investigation e.g. reports of Jamaican Boa sightings, and these led to organisation of town square community meetings.

#### Conservation Programme

- Funding sourced from USAID/USFS PARE and Forest Conservation Fund for major reforestation and forest rehabilitation to start in 2008
- Significant increase in interaction with the University of the West Indies and other tertiary institutions to encourage research in the Blue & John Crow Mountains.
- Funds sourced at end of year from UNESCO World Heritage Fund, to complete BJCMNP nomination dossier & Roderick Ebanks & Thera Edwards contracted.

#### Monitoring and Evaluation Programme

- Bird monitoring of new area on Vinegar Hill Trail, Clifton Hill area was completed. Monitoring was started in another new location in Sherwood Forest.
- Funds approved from USAID/USFS PARE for purchase of satellite imagery to assist with assessing forest cover change.

#### Education and Public Involvement

- Community outreach for sustainable livelihoods, to 8 groups in 7 communities e.g. preparation of community tourism product development plans
- Teacher training workshop on Climate Change had 42 teachers from 30 Buffer Zone schools. Ministry of Education assisted with infusion of content.

#### Recreation and Tourism Programme

- Work on the Holywell Ecotourism Development Plan continued with work completed on the new Ticket Booth and Entry Portal. Submission to Tourism Enhancement Fund awaiting Bill of Quantities being prepared by TPDCo.
- Major work on Blue Mountains Sustainable Tourism Product including community tourism product development plans and several stakeholder meetings.



Governance and Administration Programme

- Liaison with buffer zone communities and wider stakeholders, for sustainable development of Blue Mountains region, through Recreation & Tourism Programme
- Facilitated a meeting with National Land Agency/Commissioner of Lands involving Forestry Dept. and NEPA to raise awareness of the importance of the BJCMNP/Forest Reserve and the need to work closely with Forestry Department regarding leases, especially for World Heritage Site status.

**Education and Communications**

- Most achievements were related to BJCMNP (see above).

**Advocacy**

- Executive Director and Conservation Science Officer continue to play a significant role in Jamaica’s Protected Area Master Plan Project

**Organisational and Financial Sustainability**

- Fundraising targets achieved.
- Funding support received from the Environmental Foundation of Jamaica

**CHALLENGES**

Challenges continue to be related mainly to limited resources, particularly financial, human and vehicles. Despite our best efforts at efficiency and a very hard-working staff, the limited number of personnel, motor-bikes and other functioning vehicles affects time-lines and achievement of targets. In addition, the continuity of the organisation’s work is impacted if new project funding is not found to maintain programmes, as activities wind down when projects come to an end.

**Staff Complement - 2007**

Executive Director (ED)	- Susan Otuokon		Ranger Corps
Administrative Manager (AM)	- Donna Fray	Chief of Corps (C/Corps)	- Samuel Johnson
Conservation Science Officer (CSO)	- Shauna-Lee Chai/Marlon Beale	Station Chief, Holywell	- Herma Nathan
Environmental Education Officer (EEO)	- Courtland Grant	Station Chief, Portland Gap	- Rudolph Poyser
Assistant Education Officer (AEO)	- Wellington Taylor	Ranger	- Ryan Love
Recreation & Tourism Officer (RTO)	- Shae Stewart	Ranger	- Roger Thompson
Administrative Assistant	- Nickesha Porter	Ranger	- Lyndon Johnson
Accountant	- Howard Irons (part-time)		
Accounts Clerk	- Katherina Flemmings		
Office Attendant	- Valma “Mavis” Powell		

**PROGRAMME AREA 1: BJCMNP Co-management**

**GOAL 1: Protect and Conserve the natural and cultural heritage resources of the BJCMNP**

This JCDT Programme Area and its goal relate to the Enforcement & Compliance, Conservation and Monitoring & Evaluation Programmes of the BJCMNP

**BJCMNP Enforcement and Compliance Programme – 5 Year Goal:** To stop encroachment of the Park boundary and destruction of the forest and wildlife within.

Main Funding (2007): Environmental Foundation of Jamaica (EFJ) BJCMNP Enforcement & Compliance Programme Support Project (to Sept. 2007), Neotropical Migratory Bird Conservation Act (NMBCA) Bird Conservation Project and NEPA Subventions (2006/7 and 2007/8)

Person Responsible: Chief of Corps – Samuel Johnson

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008																												
<p>1. Repair Millbank Ranger Station</p> <p>2. Routine Patrols</p> <p>3. Organise Joint Agency Patrols</p>	<p>1. All repairs complete by July 31</p> <p>2. At least 8/mth</p> <p>3. As needed</p>	<p>1. Major termite extermination conducted and repairs to Millbank Ranger Station contracted to Bowden Pen Farmers' Association 80% complete. The work was delayed and then the collapse of the bridge to Millbank in November stopped work, as additional materials had been required.</p> <p>2. Average of 10 patrols/mth for 2007 (Total: 120)</p> <table border="1"> <thead> <tr> <th>Month</th> <th># Patrols</th> <th>Month</th> <th># Patrols</th> </tr> </thead> <tbody> <tr> <td>January</td> <td>14</td> <td>July</td> <td>11</td> </tr> <tr> <td>February</td> <td>8</td> <td>August</td> <td>7</td> </tr> <tr> <td>March</td> <td>11</td> <td>September</td> <td>10</td> </tr> <tr> <td>April</td> <td>9</td> <td>October</td> <td>9</td> </tr> <tr> <td>May</td> <td>10</td> <td>November</td> <td>11</td> </tr> <tr> <td>June</td> <td>12</td> <td>December</td> <td>8</td> </tr> </tbody> </table> <p>3. Few (3) joint patrols as NEPA cannot participate, FD not available and ISCF arrangements need to be formalised.                      - February – 20<sup>th</sup> – Mt Airy to Lancaster Trail with FD personnel from Mt. Airy nursery.                      - April, November &amp; December – No joint patrols, but carried out investigations on request of FD                      - May – 22<sup>nd</sup> &amp; 24<sup>th</sup> – East &amp; West Arms Morant River with Fisheries Officer Stitchell.                      - Bird Shooting Season – Ranger Poyser assigned to assist NEPA with patrols in east of island.</p>	Month	# Patrols	Month	# Patrols	January	14	July	11	February	8	August	7	March	11	September	10	April	9	October	9	May	10	November	11	June	12	December	8	<p>1. Target about 70% achieved</p> <p>2. Target exceeded by 25%</p> <p>3. Target exceeded</p>	<p>Delays in disbursement of funding from NEPA, followed by heavy rain &amp; hardware store not being able to provide all materials in a timely fashion slowed work.</p> <p>Misty Bliss preparations in February, Hurricane Dean in August &amp; rains from October – November reduced number of patrols. In November &amp; December, Rangers on bird monitoring conducted several patrols not included in count.</p> <p>3. Attempts to meet with ISCF to work out detailed arrangements for joint patrols have been unsuccessful so far. Despite not being able to get NEPA and FD in the field with Rangers, they have sought assistance from us to follow up on reports of illegal activities or for specific issues.</p>
Month	# Patrols	Month	# Patrols																													
January	14	July	11																													
February	8	August	7																													
March	11	September	10																													
April	9	October	9																													
May	10	November	11																													
June	12	December	8																													

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
4. Implement Threats/Impacts Monitoring System	4. See M & E Prog.	4. See below under Monitoring & Evaluation Programme	4. See below	
5. Record incidents and observations on patrol	5. Monthly reports	5. All patrols recorded information – digital photos and GPS locations, and these were input on to GIS and Report prepared.	5. Target achieved	As per 2006, a detailed report will be prepared.
6. Take action on ID of breaches	6. As appropriate	6ai. Information/Reports passed on to FD, NEPA and JCF. 6aii. Numerous verbal warnings. 6aiii. 2 written warnings served to Greenwich Trail farmers 6aiv. Man of unsound mind removing tree ferns etc. reported to psychiatrist in area for attention	6. Target achieved	6. Action is often not possible due to uncertainty regarding the boundary in some places. This is being addressed by FD.
7. Prepare Training Plan	7. Training Plan by April 30	7. A formal plan was not prepared but discussions between ED, C/Corps and Rangers guided training provided. In addition, several of the Rangers participated in training organised by the Education Programme. At the end of the year, a list of training needs was developed by the ED and C/Corps to guide 2008.	7. Target partially achieved	
8. Conduct in-house & external training	8. At least 8 sessions	8. 5 sessions attended by R/Corps & 8 by individuals 8a. All Rangers & C/Corps certified & re-certified in First Aid & CPR - HEART Foundation - Jan 18 – 19 8b. C/Corps attended 6 week GIS course at Mona Informatix (Jan/Feb) & TNC CTW Project Mgmt 8c. Rangers Thompson & Johnson 5dy FW Bio-monitoring training & intensive Bird Monitoring 8d. All Rangers attended ½ day Conflict Resolution Training with Dispute Resolution Fdn – April 17 8e. All Rangers attended training organized by Education Prog. for UNESCO Youth PATH:- 31 <sup>st</sup> May - Oral Communications Skills - HEART/NTA 21 <sup>st</sup> June – BJCMNP Flora & Fauna - S. Chai, CSO - Interpretation with S. Otuokon, ED	8. Target exceeded	Rangers received training and certification in relevant areas.

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
9. Map and monitor illegal farms and take action as appropriate	9. At least 10 farms by April 30	<p>8f. C/Corps attended OAS/CDERA Emergency/Disaster Preparedness 1 dy workshop and a USFS Train the Trainer Fire Prevention workshop</p> <p>8g. 2 Rangers attended TPDCo. TEAM JAMAICA and Tour Guide training and were certified.</p> <p>9. Map of farms near Park boundary along Greenwich Trail prepared with assistance from Dr. Lyew-Ayee. 2 additional farmers given warning letters. No expansion observed and monitoring of area conducted at least bi-monthly. Some farmers have abandoned the site, also in Mt Oatley &amp; Farm Hill areas. Some were involved in trail clearing and reforestation.</p>	9. Only 2 farms mapped in 2007 remainder were in 2006. But over 20 farmers addressed re: proximity to Park	Lack of clarity of boundary in some areas is still an issue which has been discussed with FD and is being addressed
10. Conduct specific patrols e.g. river poisoning, GSB monitoring	10. At least 1/qtr	<p>10a. Giant Swallowtail patrol - January - Johnson Mtn. re: reports of sightings – not seen, but reports confirmed.</p> <p>10b. Yellow billed Parrot hunting investigated in January</p> <p>10c. Jamaican Kite Butterfly patrols – January, May, July &amp; November, with sightings in May only</p> <p>10d. River poisoning patrols in April and May</p> <p>10e. Reports of the Jamaican Boa investigated in Ness Castle and Rural Hill from June to August resulted in community meetings in September and October</p> <p>10df. Reports of the Jamaican Coney rearing investigated in July and hunting in October and November.</p>	10. Target exceeded	<p>Sighting of the Jamaican Kite Butterfly confirms its existence in the Blue Mountains and not just Cockpit Country. Information sent to the Institute of Jamaica, Natural History Division.</p> <p>Ranger Corps report specific issues to Education Dept. for attention e.g. community meeting</p>
11. Rangers assist with other Programmes as required	11. As required	<p>11. Rangers played major role in other Programmes:-</p> <ul style="list-style-type: none"> <li>- Conservation – supervision &amp; implementation of invasive sp. eradication, reforestation, wilding &amp; seedlings collection.</li> <li>- Monitoring &amp; Evaluation – bird and fresh water monitoring</li> <li>- Education &amp; Public Involvement – interpretive enforcement &amp; organising community meetings re: Jamaican Boa etc.</li> <li>- Recreation &amp; Tourism – weekend visitor management; preparation for Misty Bliss</li> </ul>	11. Target achieved	<p>Limited number of Rangers and vehicles impacts ability to assist other Programmes; and implementation of Enforcement duties.</p> <p>Rangers also assisted Bowden Pen Farmers Association to map reforested area for GEF project</p>



Tree Ferns Confiscated near Greenwich, St. Andrew



Park Rangers on patrol near Berwick Spring, Portland



Park Ranger interacts with farmer near Newington, St. Thomas



Park Ranger & Fisheries Officer investigate river poisoning in the Morant River, Mullet Hall, St. Thomas

**PROGRAMME AREA 1: BJCMNP Co-management**

**GOAL 1: Protect and Conserve the natural and cultural heritage resources of the BJCMNP**

This JCDT Programme Area and its goal relate to the Enforcement & Compliance, Conservation and Monitoring & Evaluation Programmes of the BJCMNP

**BJCMNP Conservation Programme – 5 Year Goal:** To maintain and enhance the remaining area of closed broadleaf forest and component species of plants and animals.  
 Main Funding (2007): Neotropical Migratory Bird Conservation Act (NMBCA) Bird Conservation Project, USAID PARE from October and Forest Conservation Fund from November (4 yr reforestation project in upper Yallahs watershed). Luis F. Kennedy Reforestation Project to Apr '07 and funds remain in this and Rufford Forest Rehab'n for maintenance.  
 Person responsible: Conservation Science Officer – Shauna-Lee Chai (to August) and Marlon Beale (from September)

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
<p>1. Invasive Species Control</p> <p>1a. Mt Horeb/Fairy Glade - Increase area of <i>Hedygium</i> (wild ginger) under control</p> <p>1b. Peak Trail and Holywell - Maintain 12 acres on Trail &amp; H/well free of adult <i>Pittosporum</i> (Wild Coffee).</p> <p>2. Holywell Nursery</p> <p>2a. Propagate seedlings:- (i) native trees of at least 4 species</p> <p>(ii) threatened species</p> <p>2b. Propagate commercial species to sustain the nursery</p> <p>3. Forest Rehabilitation/Reforestation</p> <p>3a. Rehabilitate 12 acres on Peak Trail by removing <i>Pittosporum</i> if ID funds</p>	<p>1a. From 2.5 to 5 acres i.e. add 1 ha</p> <p>1b. Sites free of adult trees</p> <p>2a. Seedlings:- (i) 10,000</p> <p>(ii) 50</p> <p>2b. 2,000</p> <p>3a. 12 acres (5 ha)</p>	<p>1a. Mt. Horeb - ½ acre cleared of wild ginger, bringing total from 2.5 to 3 acres (0.2 ha)</p> <p>1b. - Peak Trail – 2 of 12 acres maintained                      - Holywell – free of adult Wild Coffee (eradication of over 80 <i>Pittosporum</i> trees &amp; saplings                      Also, at H/well - 2 acres cleared of wild ginger &amp; grass, trees planted and maintained (L/Kennedy Project &amp; EFJ/Kiwanis)</p> <p>2a (i) Stock at Aug 2 (before Hurricane Dean) – 4,522 native seedlings; Stock at Nov 22 – 3,095 and total of 1,251 seedlings sent out for reforestation &amp; maintenance &amp; 48 sold. Species included :-Soapwood, Dovewood, Mtn. Yacca, Milkwood &amp; Xmas Trees                      2a (ii) No threatened species propagated</p> <p>2b. Stock at Dec 28 - 135 flowers and herbs with 94 plants sold mainly at Misty Bliss and Devon House Craft Fair earning \$10,650                      Nursery survival – 80% for most forest trees</p> <p>3a. Funding from USAID PARE approved October &amp; received November. Information submitted re: use of chemicals to obtain approval of use in project.</p>	<p>1a. Only 0.2 ha added (20%)</p> <p>1b. 17% on Peak Trail and 100% at Holywell</p> <p>2a(i) Before Hurricane - 4,522 native tree s/ings &gt; 5 sp. (45% target)                      After Hurricane - 3,543 native tree s/ings &gt; 5 sp. (35% target)                      2a(ii) Not achieved                      2b. 229 (11% )</p> <p>3a. Funds identified but methodology requires approval</p>	<p>1. Low achievement due to limited resources, particularly vehicle and Ranger- time for maintenance.</p> <p>However, 2 acres (0.8ha) at Holywell would bring target achieved to 100%.</p> <p>2a(i) Low achievement due to reduced performance of Nursery worker who abandoned job in November, Hurricane Dean damage and funds for reforestation not received until October/November                      2a(ii) Funding &amp; so technical assistance not obtained until November – will pursue in 2008                      2b. CSO to work with other Officers to market plants and boost production for sustainability.</p> <p>3a. Length of time for project approval impacted achievement of targets.</p>

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
<p>3b. Complete and maintain 20 acres from Luis Kennedy Project (LKP) 3c. Identify and rehabilitate at least 10 acres in the Yallahs watershed priority intervention area</p> <p>4. Promote &amp; Facilitate Research 4a. Contact established &amp; prospectus sent to 10 research institutions</p> <p>4b. All research applications from NEPA responded to</p> <p>4c. Maintain &amp; promote Researcher's data-base (from NEPA research permit applications)</p> <p>4d. Accompany at least 25% of researchers into field at least once</p> <p>4e. Obtain reports from at least 25% of researchers from previous year for use</p>	<p>3b. Complete 6 acres for LKP 3c. 10 acres (4 ha)</p> <p>4a. 10 institutions</p> <p>4b. 100% of research requests examined and responded to 4c. 100% of researchers applying entered into database &amp; d/base promoted 4d. At least 25% of researchers in Park accompanied in the field at least once 4e. Obtain reports from at least 25% of</p>	<p>3b. Under LKP funding, 6 acres reforested (2 at C/Peak, 3 at Farm Hill &amp; 1 at Holywell) and all 20 acres maintained 3c. Proposal to EFJ declined. Submitted proposal to FCF at end May &amp; project approved November. Support proposal to USAID PARE approved October. Mobilisation initiated</p> <p>4. Research 4a. Partnership with research institutions:- (i) University of Michigan – facilitated 5 M.Sc. students' - research "Conservation &amp; Community in Jamaica's BJCM" – 8wks – May/June. Received draft report. (ii) UWI – Assistance to Marlon Beale re: PhD research on birds; Dr. Cohen re: orchid research student; Dr. Wilson re: info. &amp; possible research; Dr. Lyew-Ayee re: trails &amp; Dr. Ganapathy re: Geography final yr students – Fairy Glade Trail &amp; M.Phil FW student in Rio Grande Valley – Z. Oliphant (iii) Mr. Beale, CSO made a presentation on the BJCMNP and research opportunities at a UWI Dept of Life Sciences Post-graduate Seminar in November, which was well received. (iv) Mrs. Otuokon made presentation to Social Sciences group at Holywell</p> <p>4b. Responded to the 1 research request received from NEPA re: fresh-water species research in Rio Grande Valley (through TNC/JCDT &amp; BPFA Anti-River Poisoning Project).</p> <p>4c. Data-base maintained</p> <p>4d. Rangers accompanied researchers Marlon Beale, UWI (birds) and Zahra Oliphant, UWI (FW macro-invertebrates) into the field.</p> <p>4e. Received draft report from U/Michigan &amp; attended Humboldt University seminar &amp; obtained brochures which</p>	<p>3b. 100%</p> <p>3c. Funds and potential sites identified &amp; mobilisation started</p> <p>4a. 3/10 institutions but 1 institution (UWI) included 6 different lecturers. Significant improvement in outreach and interest</p> <p>4b. Target achieved</p> <p>4c. Target achieved</p> <p>4d. Target achieved</p> <p>4e. Target achieved</p>	<p>3b. Project successfully completed and report submitted. 3c. Hurricane damage to nursery &amp; departure of nursery worker delayed project start-up. New worker hired December 19, 2007.</p> <p>4a. Continue to increase liaison with UWI</p> <p>4b. Decline in research permits applications sent to NEPA</p>

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
<p>in media and Park management</p> <p>4f. Participate in national committees as appropriate</p> <p>4g. At least one paper published in a journal</p> <p>5. Conservation Targets – record all sightings etc. from patrols, communities on GIS</p> <p>6. World Heritage Site Nomination</p> <p>6a. Access funds to complete nomination dossier (\$800,000)</p> <p>6b. Complete dossier as per WHC recommendations</p> <p>6c. Send dossier to WHC through official channels by Dec. 15</p>	<p>2006. Use info.</p> <p>4f. Participate as appropriate</p> <p>4g. At least 1 publication on Park</p> <p>5. Conservation Targets - Maps and data on species</p> <p>6. WHS Nomination</p> <p>6a. Funds (about \$800,000) by April</p> <p>6b. Document (with revisions &amp; attachments as per recommendations) by October</p> <p>6c. Nomination received by WHC by Dec 15</p>	<p>will be distributed to coffee farmers around Park.</p> <p>4f. CSO participates in Invasive Alien Working Group &amp; Protected Area Master Plan Ecological Working Group. Visit by IAWG to Holywell re: JCDT’s Invasive Sp. Control work.</p> <p>4g. S. Otuokon &amp; S. Chai conducted major edit on paper submitted to Geography Dept. re: Adapting to Climate Change – BJCMNP Case Study, for Book to be published in 2008.</p> <p>Conservation Targets</p> <p>5a. GSB – all Ranger sightings recorded</p> <p>5b. Ja Kite Swallowtail – Ranger’s conducted special patrols in Rozelle and sighted several but only in May.</p> <p>5c. Jamaican Boa – community reports followed up in 2 sites</p> <p>5d. Several sites ID for forest rehabilitation</p> <p>5e. Several community reports and observation of Coney activity</p> <p>6. World Heritage Site Nomination</p> <p>6a. Request prepared April, signed and sent in June. Funding of US\$10,450 approved from UNESCO World Heritage Centre (October) and US\$5,200 in technical assistance from USAID REACT for preparation of final nomination dossier and public awareness raising.</p> <p>6b. Several meetings held including with Commissioner of Lands and consultants. Delays in receiving funds (not received as at December 31) resulted in delay in contracting consultant. Document expected by March, 2008.</p> <p>6c. Unable to send nomination – initially aimed for it to be ready by January 11 for signing at January 16 Media Conference and sending off for February 1 deadline, however production was postponed due to delays in funding etc.</p>	<p>4f. Target achieved</p> <p>4g. Target will be achieved in 2008</p> <p>5. Target achieved</p> <p>6. Target only partially achieved and eventually postponed to 2008 to ensure good product.</p>	<p>4g. Awaiting publication. Next year will include presentations at conferences etc.</p> <p>5. Information sent to Institute of Jamaica e.g. on Ja. Kite Swallowtail.</p> <p>6. Signing of the nomination dossier must be done by the State Party representative. Due to the change in government in September, this is now Minister of Culture (Hon. Olivia Grange). Information has been sent to the Minister, including an invitation to be the Guest Speaker at a Media Conference on January 16 and to sign the nomination dossier but attempts to meet with her have not been successful. Several other components e.g. letters of support are not within the direct control of the JCDT.</p>





Mt.Horeb/Fairy Glade Trail – Overgrown by Wild Ginger (an alien invasive species) which decreases bio-diversity



Mt. Horeb/Fairy Glade Trail – When Wild Ginger is controlled, native species seedlings spring back



Park Ranger supervises maintenance of native tree seedlings planted months ago at Farm Hill

**PROGRAMME AREA 1: BJCMNP Co-management**

**GOAL 1: Protect and Conserve the natural and cultural heritage resources of the BJCMNP**

This JCDT Programme Area and its goal relate to the Enforcement & Compliance, Conservation and Monitoring & Evaluation Programmes of the BJCMNP

**BJCMNP Monitoring and Evaluation Programme – 5 Year Goal:** To track and record both the threats and the changes to ecosystem health, so that it is possible to assess whether or not the Park is achieving its over-arching conservation goal.

Main Funding (2007): Neotropical Migratory Bird Conservation Act (NMBCA) Bird Conservation Project (to June, 2008)

Person responsible: Conservation Science Officer – Shauna-Lee Chai (to August) and Marlon Beale (from September)

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
1. Threats and Impacts Monitoring (GIS) 1a. Collect & Enter Information from Patrols  1b. Establish Proposed Permanent Photo-Monitoring Points  2. Forest Area Monitoring Continue dialogue with FD  3. FW Macro-invertebrate Monitoring 3a. Sample sites in both dry and wet seasons  3b. Analyse data and Prepare Report  4. Bird Monitoring 4a. Organise training with ornithologist	1a. Record data (photo, location) from every patrol where a threat/impact was observed  1b. Total of 10 points established (including 4 from 06)  2. Documented Plan for Approach  3a. 12 sites twice  3b. Report  4a. Training conducted with at least 2 additional Rangers able to	1. Threats and Impacts Monitoring (GIS) 1a. Threats monitoring data from Ranger patrols for January to December entered into GIS, and maps prepared for monthly reports. 1aii. Information from 2006 patrols collated with the help of Dr. Parris Lyew-Ayee and analysis initiated. Presentation made at JCDT AGM in April. 1b. 4 of remaining 6 points established and 2 points had 1 yr anniversary photographs taken.  2. Forestry requested assistance with purchase of satellite imagery for assessing forest cover change and personnel for “re-opening” of boundary. A request to the USAID PARE Project was approved and so work will begin in 2008.  3a. Dry & wet season monitoring 2007 completed for all 12 and 10 sites respectively, 2 sites were abandoned for wet season as road was impassable. 3b. Report for 2006/7 prepared  4a. Training with ornithologist Marlon Beale started 2006 completed – field and classroom, mainly with two Rangers but four involved at different stages. 3 Rangers can now conduct bird monitoring on their own.	1a. Target achieved  1b. Target 67% achieved  2. Target exceeded  3a. Target 92% achieved  3b. Target achieved  4a. Target achieved	1a. Information for 2007 will be collated, analysis conducted & a report prepared in early 2008.  1b. 10 points were established but 2 were somewhat similar & new sites were to be identified. Lack of vehicle & limited Ranger time impacted point establishment.  2. Not only was a planned approach documented but in addition funds sourced for action in 2008.  4. NMBCA funding was indispensable for this training.

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
4b. Establishment of Points and Monitoring for Winter Season – Vinegar Hill Trail	4b. 120 points established & monitored	4b. Monitoring completed for 2006/7 – Vinegar Hill Trail	4b. Target achieved	
4c. Monitor all Points for Breeding Season	4c. 120 points monitored	4c. Monitoring completed for 2006/7 – Vinegar Hill Trail	4c. Target achieved	
4d. Analyse 2006/7 data and Prepare Report	4d. Report	4d. Analysis conducted and Report for 2006/7 prepared and sent to NMBCA.	4d. Target achieved	
4e. Select new Monitoring Area, Begin point establishment and monitoring for Winter Season	4e. At least 60 points established and counted for new Area	4e. New site selected for monitoring in 2007/8 – Sherwood Forest, Portland – John Crow Mountains. 90 points established and counted.	4e. Target exceeded by 50%	



Park Rangers and Conservation Science Officer on a bird monitoring exercise



Park Rangers on stream biological monitoring exercise

**PROGRAMME AREA 2: Education and Communications**

**GOAL 2: Practice of sustainable livelihoods, particularly around the BJCMNP**

This JCDT Programme Area and its goal relate to the Education and Public Involvement Programme of the BJCMNP, but also the Recreation and Tourism Programme.

**BJCMNP Education and Public Involvement Programme – 5 Year Goal:** To raise public support and improve natural resource management, particularly in the Park’s community buffer zone.

Main Funding (2007): Environmental Foundation of Jamaica (EFJ) BJCMNP Community Education Project, UNESCO Youth PATH and EU PSDP

Person Responsible: Education and Community Outreach Officer (Courtland Grant) since February, 2007 and Assistant Education Officer (Wellington Taylor)

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
<p>1. Facilitate capacity building of community members in Park’s buffer zone, for sustainable livelihoods &amp; natural resources management</p> <p>1a. Work with communities to build their capacity &amp; implement relevant activities</p> <p>1b. Training of community members especially youth/young adults &amp; women, in sustainable livelihoods</p>	<p>1. By December 31:-</p> <p>1a. 6 CBOs in 4 communities, with plans &amp; implemented activities/projects</p> <p>1b. Total of 60 persons incl. 20 youth &amp; 20 women participate &amp; at least 6 training sessions</p>	<p>1a. Including work through Recreation &amp; Tourism Programme, worked with 8 groups in 7 communities resulting in 6 groups with plans at different stages and 2 with reforestation projects:-</p> <p>1ai. Bowden Pen Farmers Association (BPFA):-</p> <ul style="list-style-type: none"> <li>- successful GEF SGP reforestation project (proposal preparation JCDT) – 5 ha reforested in BJCMNP Community Buffer Zone</li> <li>- additional 0.8 ha (2acres) with JCDT through EFJ</li> <li>- joint Anti-River Poisoning project with TNC and JCDT</li> </ul> <p>1a.ii. Woodford/Freetown:-</p> <ul style="list-style-type: none"> <li>- Woodford All Age/Anglican Church - 0.4 ha (1 acre) agro-forestry</li> <li>- Woodford Citizen’s Action Group – several project concepts</li> </ul> <p>1a.iii. Irish Town/Red Light &amp; Middleton:- limited activity</p> <p>1a.iv. Cascade/Section - waterfall attraction plans (youth)</p> <p>1a.v. Charles Town Maroons (tourism product development plans)</p> <p>1a.vi. Moore Town Maroons (tourism product development plans)</p> <p>1a.vii. Mavis Bank Citizens’ Association – plans for a Blue Mountains Visitors Centre.</p> <p>1b. Average of 17 persons involved in most training:- 12 community youth (3 male/9 female) and 5 Park Rangers (3 live within community buffer zone). Total of 9 sessions – 2 were 5dys and over</p> <p>1bi. First Aid/CPR training w/ HEART Foundation – 8 youth – Jan 18 - 19</p> <p>1bii. Team Building with C. Grant, ECOO and Substance Abuse Prevention with NCDA – 11 youth - April 30</p> <p>1biii. Basic Computer Use with HEART/NTA – 12 youth – May 29 – 30</p> <p>1biv. Oral Communications Skills w/ HEART/NTA – 12 youth – May 31</p>	<p>1a. Target achieved in terms of numbers and plans but not active projects</p> <p>1b. Target not achieved re: numbers of persons (28%) but exceeded re: number of sessions (150%)</p>	<p>1. Change in Education Officer and limited human, vehicle &amp; financial resources impacted activities</p> <p>1a. Except for Bowden Pen Farmers’ Association there is very low social capital in the communities which results in the need for major, long-term interventions. Most groups focused on specific plans rather than more general action plans. Heavy rains and economic concerns including poor roads also overwhelmed communities.</p> <p>1bi. # of training participants was not constant</p> <p>1bii. Planned community training through IDB project postponed until Jan/Feb, 2008 – reducing person numbers target.</p>

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
<p>1c. Involve c/members in Park management activities</p> <p>2. Target buffer zone schools to engender care of the Park, in collaboration with communities, particularly in the 4 targeted communities.</p>	<p>1c. 20 (incl. Park staff)</p> <p>2a. Intensive work with 5 schools in 4 communities</p> <p>2b. Visits to at least 30 buffer zone schools</p> <p>2c. Buffer Zone teacher training workshop (1)</p> <p>2d. Schools event at Holywell</p>	<p>1bv. BJCMNP Flora &amp; Fauna with S. Chai, CSO and Interpretation with S. Otuokon, ED – 12 youth participated - June 21</p> <p>1bvi. TEAM JAMAICA -TPDCo. – 7 youth, 2 Rangers – 8dys Aug - Sept</p> <p>1bvii. Tour Guiding - TPDCo. – 7 youth, 2 Rangers – 5dys - Sept</p> <p>1bii. Intensive Craft Training with JBDC – 3 weeks focused on making BJCMNP craft line - 4 community youth – 3 women, 1 man participated and internship process implemented with the 3 young women. Market being found for products.</p> <p>1ci. Most Rangers (3) &amp; all Recreation Area &amp; Nursery personnel are from Park buffer communities (13).</p> <p>1cii. BPFa contracted to repair Millbank Ranger Station</p> <p>1ciii. Tree planting with 2 community groups (0.8 ha – see above)</p> <p>1civ Youth PATH involved in Ranger activities, manning exhibits e.g. Wellfest, tour guiding etc.</p> <p>1cv. Community members contracted for reforestation projects</p> <p>2a. 4/5 schools in 4 communities: Comfort Castle PJH, Craighton AA, Woodford AA &amp; Cascade PJH have plans but only Woodford has a project as tree planting and nurseries discussed in 2006 for implementation in 2007 not feasible due to water supply and/or land space challenges</p> <p>2b. During 2007, 18 schools were visited:-                      - 12 for 2006/7 school year, with a presentation on Watershed Management, including 6 schools near Park never visited before. Total 2006/7 – 33.                      - 6 for 2007/8 school year with a presentation on Climate Change.</p> <p>2c. Teacher training workshop on November 15 involved 45 teachers from 30 buffer zone schools. The theme was “Climate Change” and content information was provided by JCDT with curriculum infusion workshop facilitated by Ministry of Education.</p> <p>2d. Event postponed twice and eventually cancelled due to high cost and limited benefit in comparison to high cost.</p>	<p>1c. Target exceeded</p> <p>2a. Target not quite achieved (80%)</p> <p>2b. Target 60% achieved for 2007</p> <p>2c. Target achieved</p> <p>2d. Target not achieved</p>	<p>2a. Plans to provide more assistance to the schools in early 2008.</p> <p>2b. Target for 2006/7 exceeded by 10%. Hurricane Dean, elections, rain &amp; malfunctioning equipment delayed start of school visits for 2007/8 school year.</p> <p>2d. Seeking funds to host community schools</p>



Agro-forestry at Woodford All Age School and Anglican Church lands



Students from Woodford All Age School assist with weeding seedlings



Teacher training workshop on Climate Change – 45 teachers from 30 schools



Town Square meeting re: sighting of Jamaican Boar/Yellow Snake

**PROGRAMME AREA 2: Education and Communications**

**GOAL 3: Jamaicans recognise importance of the BJCMNP as a national asset**

This JCDT Programme Area and its goal relate to the Education and Public Involvement Programme of the BJCMNP, but also the Recreation and Tourism Programme.

**BJCMNP Education and Public Involvement Programme – 5 Year Goal:** To raise public support and improve natural resource management, particularly in the Park’s community buffer zone.

Main Funding (2007): Environmental Foundation of Jamaica (EFJ) BJCMNP Community Education Project, UNESCO Youth PATH and EU PSDP

Person Responsible: Education and Community Outreach Officer (Courtland Grant) since February, 2007 and Assistant Education Officer (Wellington Taylor)

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
<p><b>Education and Public Involvement Programme</b></p> <p>3. Increase public awareness about the Park through Communications</p> <p>3a. Media Releases/Info sent out and follow up for response e.g. site visits</p> <p>3b. Website up, in-use &amp; being up-dated</p> <p>3c. Meetings/Visits - particularly in buffer communities e.g. in response to enforcement concerns</p> <p>4. Increase public awareness/support for the Park through Interpretation at Recreation Areas</p> <p>(a) Operate Kids Discovery Zone</p> <p>(b) School visits to Holywell</p> <p>(c) Implement Interpretive Signage Phase 1 at H/well</p> <p>(d) Improve Interpretation at other Recreation Areas/Ranger Stations</p> <p>(e) Seek funds for BJCMNP EE Manual Project</p>	<p>3a. Coverage – 8 times in print or electronic</p> <p>3b. Web-site up-to-date, maintained and with hits (over 200)</p> <p>3c. At least 10 communities</p> <p>4a/b. Provide content &amp; materials, training and personnel for visits</p> <p>4c. Phase 1 (see Plan)</p> <p>4d. Visibly improved</p> <p>4e. Source funding</p>	<p>3a. Media coverage 11 times:- 6 print articles e.g. World Heritage Site Nomination - Sunday Herald &amp; Conservation Science Officer gets Gates Scholarship – Sunday Observer; 4 radio interviews, and 1 paid advertorial.</p> <p>3b. Web-site up-to-date &amp; hits estimated at 150/mth. One Tody Newsletter produced and posted on website – some information was used in an IUCN newsletter.</p> <p>3c. 3 community meetings re: issues Rangers raised:- - Yellow Snake – Ness Castle (40) and Rural Hill (22) - Fires - Bethel Gap (27)</p> <p>4a/b. Funds from Jamaica Energy Partners provided for an Intern from Edna Manley Art College, but unfortunately she was not able to complete all initiatives started. Despite this, some new materials prepared and training conducted.</p> <p>4c. Funds approved in July (USAID REACT) and 3 estimates obtained.</p> <p>4d. No action, awaiting completion of repairs, then Hurricane Dean struck.</p> <p>4e. No action.</p>	<p>3a. Target exceeded</p> <p>3b. Target achieved</p> <p>3c. Target not achieved (30%)</p> <p>4a/b. Target partially achieved</p> <p>4c. Target not yet achieved</p> <p>4d. Target not achieved</p> <p>4e. Target not achieved</p>	<p>3a. Still need more coverage.</p> <p>3b. Access to information on # of hits only obtained in December, thus estimate made for year.</p> <p>3c. Two meetings attempted unsuccessfully in Mt. Lebanon re: fires. Other training activities and limited human resources meant these “town square” meetings were only scheduled near end of year, but they were found to be very effective in raising awareness amongst person who would not normally attend meetings.</p> <p>There were many other priorities.</p>

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
5. Volunteer Programme – Assist Executive Director to build a programme in collaboration with educational institutions, companies & individuals	5. 5 organisations and 10 persons actively involved in assisting the JCDT e.g. fundraising, marketing etc.	5a. Organisations (2) : UTECH continued programme & Carreras involved 2 persons on International Biodiversity Day 5b. Individuals (25): - - Footprints – Holywell Hike - 25 - Misty Bliss – 15 - Exhibitions - 5	1. Target exceeded for individuals but not achieved for organisations	5. Little emphasis placed on organisations
6. Continue to maintain Special Library	6. Catalogue documents received & assist persons with documents	6. About 60 major documents e.g. books, journals received About 15 persons used Library in addition to staff	6. Target achieved	6. Make improvements to recording system.
7. Participate in exhibits/expos etc. as possible to raise awareness about JCDT and the BJCMNP	7. By December 31:- a. Obtain new set exhibits b. Participate in at least 2 events	7a. Prepared proposal including seeking funds for new set of travelling exhibits. New set of 6 poster exhibits – one on each Park Management Programme & 2 small brochure stands 7b. Participated in 5 events:- April - JET Bird Fest and Well Fest at Hope Gardens (3dy) June – NEPA World Environment Day at Hope Zoo November – Forestry Dept Exhibition at Forestry Dept. December – Kumba Mi Yabba – Devon House Craft Fair (3dy)	7a. Target not yet achieved  7b. Target exceeded	7. Despite the cost of exhibitions in terms of staff and volunteer time (community volunteers receive a lunch and travel stipend) exhibitions have been found to generate significant interest, contacts and exposure for the organisation.



Participation in Devon House Craft Fair – Kumba Mi Yabba drew attention and interest in the National Park and new craft line



**PROGRAMME AREA 3: Advocacy**

**GOAL 4: Influence Government agencies to adopt/implement policies that enhance Protected Area management**

Main Funding (2007): This programme is implemented mainly through the time of JCDT personnel, particularly the Executive Director, Board members and Programme Officers.

Person responsible: Executive Director (ED) – Susan Otuokon

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
1. Continue to participate in Protected Area Master Plan Process	1. As possible, throughout the year, and depending on next steps in process	All meetings and workshops held related to the Protected Area Master Plan were attended by either the Conservation Science Officer, Executive Director, or both. The focus was on Ecological Gap Assessments.	100%	
2. Continue to network with other organizations involved in protected area management e.g. JPAN	2. As possible	This was done only through the Protected Area Master Plan process but most groups are struggling and there have been no meetings.	0%	
3. Participate in all relevant policy, strategy and action planning and consultative groups and committees	3. As possible	JCDT staff represented the organisation at the Tourism Task Force, Alien Invasives Working Group, and several other meetings.	100%	
4. Nominate representatives to Boards etc.	4. As possible	No nominees were submitted to EFJ, as JCDT supported those Directors willing to return. Participated in EFJ AGM.  In addition, information on JCDT/BJCMNP and a letter requesting a meeting for a presentation on our work, was sent to all new MPs in areas around the National Park, and to the new Ministers of Environment, Agriculture, Culture, Tourism and the Prime Minister. Meetings were held with MPs Daryl Vaz (Portland Western) and Donald Rhodd (Portland Eastern) and positive responses for meetings obtained from Culture, Tourism and Environment – perhaps for 2008.	100%	

**PROGRAMME AREA 4: Organisational and Financial Sustainability**

**GOAL 5: Improve & maintain an efficiently & effectively managed organisation**

**GOAL 6: Become financially sustainable within 5 years**

This JCDT Programme Area dovetails with the Governance & Administration and Recreation & Tourism Programmes of the BJCMNP.

**BJCMNP Recreation and Tourism Programme – 5 Year Goal:** To provide recreational opportunities for local and international visitors, using ecotourism principles, to generate income and support for the Park. The basic operations of the Park’s Recreation Areas run mainly on income they generate, but their management and supervision is subsidized by JCDT through implementation of the necessary activities by the Executive Director (marketing), Administrative Manager (sales and logistics), Administrative Officer (bookings and sales), Park Rangers – particularly Station Chiefs (visitor & site management). The Recreation & Tourism Officer taken on full-time in August will make a big difference. Main Funding (2007): Recreation Area Income, European Union Private Sector Development Programme (to April), Inter-American Development Bank and USAID REACT.

<b>Planned Tasks/Activities</b>	<b>Targets/Proposed Outputs</b>	<b>Achievements</b>	<b>Results</b>	<b>Comments/Plans for 2008</b>
1. Employ Recreation & Tourism/Business Development Officer	1. Position filled by May 31	1. USAID REACT Project approved in July and Recreation & Tourism Officer contracted in August, for 2 years.	1. Target achieved	1. Part-time Officer under EU PSDP & IDB since mid-2006 not very successful & resigned end of February. Rumours of USAID REACT closure.
2. Employ full-time Site Supervisor for Holywell	2. Position filled by June 30	2. Funds requested from the Tourism Enhancement Fund (TEF) but due to issues with obtaining a Quantity Surveyor’s Report, the proposal has not been reviewed..	2. Target not achieved	2. TPDCo. approved technical assistance but the QS resigned before submitting report and the other QS assigned has not completed the new report.
3. Product Development at Holywell: 3a. Entry Portal complete	3. As per H/well Plan 3a. By March 31	3a. Entry Portal designed by Dawn Scott & constructed by Tech Builders complete however Hurricane Dean tore it down.	3a. Target achieved	3a. Discussions with contractor to repair and replace with Hurricane mitigation features.
3b. Ticket Booth complete	3b. By March 31	3b. Ticket Booth designed by Ann Hodges & constructed by Tech Builders complete.	3b. Target achieved	
3c. Enhance Tuck-Shop to Café & Gift Shop	3c. By April 15	3c. Not enough funds from EU PSDP. Sought funds TEF but proposal awaiting QS. Holywell patron expressed interest but hasn’t been back in touch. Woodford citizen interested.	3c. Target not achieved	3c. To be addressed in early 2008.
3d. Obtain funds for Amphitheater/Stage, new Visitors’ Centre & Ranger Station/Education Centre	3d. By Dec 31	3d. Funds requested from TEF but delays due to QS	3d. Target not achieved	3d. To be addressed in 2008.
4. Product Development Plans for rest of Park and communities - Holywell & Upper Rio	4. Plans completed & work started by Dec	4. Product Development Plans – Community Buffer Zone 4a. Heritage Design team visited sites between February 28 –	4. Target exceeded in terms	4. Project delayed due to availability of Heritage Design –

JCDT Report on 2007 Work Plan

<p>Grande</p> <p>5. Seek funds for Blue Mountain Peak Trail Improvement Project and do some repairs if possible</p> <p>6. Holywell Interpretive Programme 6a. Host groups at the KDZ 6b. Host educational packages for schools/colleges</p> <p>6c. Implement Signage Plan – Phase 1</p> <p>7. Complete &amp; Implement Holywell Marketing Plan</p>	<p>31</p> <p>5. Funds sourced and repairs etc. started. by Dec 31</p> <p>6a. At least 10 schools by Dec 31 6b. At least 20 schools by Dec 31</p> <p>6c. Phase 1 signs (see Plan) by June 30</p> <p>7. As per Plan by Dec 31</p>	<p>March 3 and in July. Draft plans presented to community &amp; other stakeholders (at a meeting at Strawberry Hills). 4b. Meeting held with JDF re: Newcastle and JCDT's possible involvement in development and management of the site. 4c. Project expanded to Mavis Bank/Peak Trail Area and draft plan presented and completed. 4d. Discussions initiated with communities re: development and funding.</p> <p>5. Discussions with the Tourism Enhancement Fund and community members. UTECH sent QS report for building at Peak to TPDCo. but lost. Product development planning initiated as described above. Some repairs made but Hurricane Dean &amp; heavy rains did further damage.</p> <p>6a. None 6b. 5 schools, 3 colleges &amp; 2 churches visited</p> <p>6c. Funds approved in July under USAID REACT Project for Phase 1 – most signs. Estimates obtained and selection to be made from three estimates.</p> <p>7. Footprints Hike not financially successful due to insufficient sponsorship &amp; limited marketing. Rain impacted the Hike and Misty Bliss. Misty Bliss made a significant profit for second time. Events for remainder of year postponed as need more personnel/time for planning, fundraising and organization. Monthly event – planning initiated and flyers distributed but no reservations made.</p>	<p>of geographic scope but not achieved with respect to implementation</p> <p>5. Target not achieved</p> <p>6a. Target not achieved due to lack of marketing &amp; Hurricane Dean</p> <p>7. Plan completed but not implemented due to lack of resources.</p>	<p>the project should have started in mid-2006 when they had scheduled it in but issues with contracting delayed their start-up.</p> <p>5. USAID PARE through the US Forest Service has approved technical assistance for Trail assessment and training re: repairs and maintenance.</p> <p>6a/b. No marketing due to lack of human &amp; financial resources. Plans for re-vamping in summer and marketing in Sept. crushed by Hurricane Dean in August. 6c. Hurricane Dean damage shifted focus from getting signs made to getting funds for repairs.</p> <p>7. Focus on vents &amp; educational packages marketing for 2008 &amp; wider Blue Mtns Product marketing.</p>
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JCDT Report on 2007 Work Plan

<p>8. Increase revenue from Holywell &amp; Portland Gap</p>	<p>8. Holywell by 50% and P/Gap by 40% over '06 by Dec 31</p>	<p>8. Generally, there has been a decline in income although there has been some increase in visitor numbers. At Holywell, the decline can be attributed to Hurricane Dean (closure of cabins) and absence of researchers (about \$300,000 in 2006).</p> <table border="1"> <thead> <tr> <th></th> <th>YTD 2007</th> <th>YTD 2006</th> <th>%</th> </tr> </thead> <tbody> <tr> <td colspan="4"><b>Holywell</b></td> </tr> <tr> <td>Income:</td> <td>1,679,225</td> <td>2,290,371</td> <td>26.7% decrease</td> </tr> <tr> <td>Visitor #:</td> <td>6,894</td> <td>6,952</td> <td>1% decrease</td> </tr> <tr> <td colspan="4"><b>Portland Gap</b></td> </tr> <tr> <td>Income:</td> <td>433,010</td> <td>601,404</td> <td>28% decrease</td> </tr> <tr> <td>Visitor #:</td> <td>1,250</td> <td>1,466</td> <td>7% decrease</td> </tr> </tbody> </table>		YTD 2007	YTD 2006	%	<b>Holywell</b>				Income:	1,679,225	2,290,371	26.7% decrease	Visitor #:	6,894	6,952	1% decrease	<b>Portland Gap</b>				Income:	433,010	601,404	28% decrease	Visitor #:	1,250	1,466	7% decrease	<p>8. Target not achieved</p>	<p>8. The figures show that cabin rental is critical, as there was only a small decrease in numbers probably during August immediately after the Hurricane, but the income declined significantly. This was also due to reduced number of school groups (primary to tertiary) with only 8 in 2007 compared with 24 in 2006. There is a need for added value e.g. sale of food and craft.</p>
	YTD 2007	YTD 2006	%																													
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<p>9. Develop BJCMNP &amp; Buffer Zone Recreation &amp; Tourism Marketing Plan and Promotional Materials &amp; Increase Marketing over 2006</p>	<p>9. Plan &amp; Materials by Dec 31</p>	<p>9. Planning initiated through IDB funded project, with Heritage Design as consultants, but won't be finished until end April 2008. Marketing should have increased but focus on events seems to have increased visitor # but not income. There is a need for added value e.g. products for sale, tours etc.</p>	<p>9. Target not yet achieved (some draft plans &amp; products)</p>	<p>9. Marketing designed by Heritage Design is for the wider Blue Mountains Sustainable Tourism product.</p>																												
<p>10. Complete establishment of BJCMNP Craft Line</p>	<p>10. Craft Line being produced &amp; sold by April 30</p>	<p>10. 4 community youth completed 3 weeks training with JBDC, to make the BJCMNP craft lines. 3 females furthered training over several months to refine products. Market research indicated likely support. Positive meeting with Things Jamaican but challenges with 3 craft producers.</p>	<p>10. Target not yet achieved</p>	<p>10. Project impacted by lack of human resources. 2 of 3 took up other training opportunities but indicated willingness to continue production and help train others.</p>																												
<p>11. Conduct Training for Rec. Area staff and Community Members in relevant skills e.g. Hospitality, Interpretation</p>	<p>11. 30 Training Days by Dec 31</p>	<p>11a. Investigation of training through HEART. 11b. 20 dys training involving average of 10 persons including: - First Aid/CPR certification (2 dy), TEAM JAMAICA and Tour Guide certification from TPDCo. through Youth PATH &amp; Customer Service through Unique Jamaica. Some training delayed until 2008.</p>	<p>11a Target 67% achieved (see Education Prog. for details)</p>	<p>11. Community tourism training planned for January and February under IDB and REACT projects.</p>																												
<p>12. Maintain EMS and Regain Green Globe certification</p>	<p>12. Certificate by Aug 31</p>	<p>12. Discussions with Bert Brown (auditor) &amp; Green Globe but USAID REACT funds approved July. Benchmarking (Green Globe Bronze certification achieved. EMS functioning but not as well as would be ideal.</p>	<p>12. Target only partially achieved.</p>	<p>12. This area needs improvement</p>																												



Craft items on display at Devon House Craft Fair – Maraka, one of trained artisans assisted in manning our booth



Community Meeting at Ambassabeth Planning for Community Tourism Development



New Ticket Booth at Holywell (closer to Ranger Station)

**PROGRAMME AREA 4: Organisational and Financial Sustainability**

**GOAL 5: Improve & maintain an efficiently & effectively managed organisation**

**GOAL 6: Become financially sustainable within 5 years**

This JCDT Programme Area dovetails with the Governance & Administration and Recreation & Tourism Programmes of the BJCMNP.

**BJCMNP Administration and Governance Programme – 5 Year Goal:** To provide recreational opportunities for local and international visitors, using ecotourism principles, to generate income and support for the Park. The basic operations of the Park’s Recreation Areas run mainly on income they generate, but their management and supervision is subsidized by JCDT through implementation of the necessary activities by the Executive Director (marketing), Administrative Manager (sales and logistics), Administrative Officer (bookings and sales), Park Rangers – particularly Station Chiefs (visitor & site management). The Recreation & Tourism Officer taken on full-time in August will make a big difference.

Main Funding (2007): Recreation Area Income, European Union Private Sector Development Programme (to April), Inter-American Development Bank and USAID REACT.

<b>Planned Tasks/Activities</b>	<b>Targets/Proposed Outputs</b>	<b>Achievements</b>	<b>Results</b>	<b>Comments/Plans for 2008</b>
1. Liaise with Buffer Community Groups	1. Meetings/activities support Park mgmt - 6 communities by December 31	1a. Development of Blue Mountains Sustainable community tourism product with 6 communities. 1b. Meetings with 3 communities re: issues e.g. fires	Target achieved	Formation of Sustainable Tourism Cluster Groups
2. Co-Management Committee meets	2. 4 mtgs/yr	2. Only 1 meeting for the year. Two were postponed & not held, but a meeting with the Commissioner of Lands (NLA) was facilitated by JCDT, with FD and NEPA.	Target not achieved (25%)	Greater effort on part of JCDT to organise these meetings
3. Project Development and Management	3. Develop Projects, Manage & Implement as necessary to implement Park Mgmt Plan – on-going	3. Ongoing	Target achieved	Needs improvement especially for Recreation & Tourism Prog.
4. Human Resource Development/Management	4. See Org. Strengthening (below)	4. See below as well as Enforcement & Education Programmes	See other programmes	
5. World Heritage Site Nomination Process	5. See Conservation Prog. (above)	5. See above	See above	

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
6. Fundraising  7. Networking and Collaboration (a) National Protected Area Groups & Planning (b) Universities for research & study tours (c) Others	6. See Financ'l Sustainability (below)  7a. Continue as per '06 7b. Increase over '06 7c. Increase over '06	6. See below  7a. See above (Conservation and Advocacy)  7b. See above (Conservation) 7c. See above (Conservation, Enforcement, Education)	See below  7. See above	



Hurricane Dean damage to Cabin 1 at Holywell



Hurricane Dean damage at Portland Gap

**PROGRAMME AREA 4: Organisational and Financial Sustainability**

**GOAL 5: Improve & maintain an efficiently & effectively managed organisation**

**GOAL 6: Become financially sustainable within 5 years**

Main Funding (2007): There is generally no specific funding for this programme area, the programme is supported through Project Administration Fees/Overheads, the Jamaica National Parks Trust Fund, Savings/Interest, Donations, Sale of Items, Sponsorship and Fundraisers. In 2007, an 18 month project was approved by the Environmental Foundation of Jamaica, to help support JCDT's Organisational and Financial Sustainability mainly through fundraising events.

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
<p><b>Organisational Sustainability</b></p> <p>1. Complete Training Needs Assessment 2. Staff Training</p> <p>3. Employee Performance Review</p> <p>4. Continue to Implement &amp; Improve Staff Welfare</p> <p>5. Audited Accounts/AGM (a) Auditors send '03 &amp; '04 audited account documents (b) '05 audit completed (c) AGM held</p> <p>6. 2007 Project &amp; Internal Reports</p> <p>7. Finalise arrangements for new HQ</p>	<p>1. Report by March 2. 20 Training days</p> <p>3. Reports</p> <p>4. As possible</p> <p>5a. Signed Audited Statements by February 5b. Signed audited Statements by March 5c. AGM by April</p> <p>6. Reports on time</p> <p>7. Agreement &amp; occupy new office space by October</p>	<p>1. Draft prepared 2. Over 20 training days (see Enforcement &amp; Education)</p> <p>3. Formal reviews postponed to 2008</p> <p>4. "Birthday Club" &amp; percentage from event profits initiated. Investigated pension schemes.</p> <p>5. AGM held April 19 (2003, 2004 &amp; 2005 audited financial statements. 2006 financial statements submitted to auditors at end of 2007.</p> <p>6. Some improvement but consistency needed.</p> <p>7. Phone call and Letter received from Nature Preservation Foundation in September re: agree to lease of property at Hope Gardens and will be using our draft lease to prepare an appropriate document. JCDT also looked at a number of alternatives including seeking a mortgage from EFJ but the latter not supportive, and otherwise, not enough funds.</p>	<p>1. Not achieved 2. Target surpassed 3. Not achieved</p> <p>4. Some achievements</p> <p>5. Targets achieved (100%)</p> <p>6. Targets partially achieved</p> <p>7. Target not achieved</p>	<p>1. Complete 2. Implement training &amp; seek funds ahead of time 3. Conduct formal reviews</p> <p>4. Continue to make improvements</p> <p>5. AGM (2005 &amp; 2006)</p> <p>6. Continue to improve</p> <p>7. Keep options open and seek new opportunities.</p>



Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
<p><b>Financial Sustainability</b></p> <p>1. Fundraising</p> <p>(a) for BJCMNP – proposals etc.</p> <p>(b) for admin/core e.g. Admin Fees</p> <p>(c) Endowment Fund</p> <p>(i) Improve Plan</p> <p>(ii) Raise Funds (separate from Events etc.)</p> <p>(d) Events e.g. Misty Bliss (Plan &amp; Implement)</p> <p>2. Increase revenue from Holywell</p> <p>3. Establish business – BJCMNP Craft Line</p> <p>4. Continue to improve financial management</p>	<p>1a. \$20 million</p> <p>1b. \$5 million</p> <p>1c. (i) Plan working</p> <p>1c. (ii) JA\$5 million</p> <p>1d(i) M/Bliss makes profit</p> <p>1d(ii) At least 1 other event</p> <p>2. By 50% over 2006</p> <p>3. Line being sold</p> <p>4. Increase over 2006</p>	<p>1a. JA\$22,471,154 raised during 2007 mainly from grant proposals, but almost half of this is from the Forest Conservation Fund for activities into 2011 and most of the USAID REACT funds will be cut with closure of the project.</p> <p>1b. Less than \$5 million as some projects did not allow for administrative fees.</p> <p>1c. (i) Plan initiated associated with JCDT’s 20<sup>th</sup> Anniversary</p> <p>1c. (ii) To date only funds from Hotel Mockingbird Hill (US\$160)</p> <p>1d. (i) M/Bliss made a profit of \$582,348 – all back into Programmes and some for staff welfare.</p> <p>1d. (ii) Holywell Hike held – had support but made slight loss due to insufficient sponsorship.</p> <p>2. Revenue decreased – mainly due to Hurricane Dean and loss of cabin roofs from August to end of year, as funds not obtained for repairs until end December, and not sufficient.</p> <p>3. Training completed and production and marketing started, but production is going very slowly and is facing some challenges.</p> <p>4. Improvement over 2006 but needs to maintain consistency e.g. caught up with auditing and Finance Committee met.</p>	<p>1a. Target achieved with caveats</p> <p>1b. Target partially achieved</p> <p>1c. Targets partially achieved</p> <p>1d. Targets achieved (100%)</p> <p>2. Target not achieved</p> <p>3. Target not achieved</p> <p>4. Target partially achieved</p>	<p>1. 2008 will need to see a significant improvement in fundraising, perhaps through additional sources. Human resources are a major limiting factor, as the Executive Director spends most time in project management, and dealing with programmes that are not properly staffed e.g. Recreation and Tourism.</p> <p>2. 2008 will need to see a major improvement e.g. through marketing in order to make up for this loss. A self-insurance funds needs to be considered.</p> <p>3. This venture has significant potential if the personnel issues can be effectively addressed.</p> <p>4. Maintain consistency and improve further.</p>

# Report on Bird Monitoring in Blue and John Crow Mountains National Park

## Introduction

The forests of the BJCM National Park provide one of the most important refuges for Jamaica's birds. A bird monitoring study was initiated in 1998 to assess bird composition in major habitat types of the Park, identify the impact of disturbance, and explore population trends (see Table 1 for a list of bird species and abbreviated names).

The following habitat types were distinguished:

- Upper montane rain forest over shale – typical (UMRF typical)
- Upper montane rain forest over shale – Selaginella variant (UMRF variant)
- Modified montane rain forest (MMRF); degraded forest
- Ruinate (heavily degraded woodlands, often dominated by exotic plant species)
- Pine forest (pines planted for commercial forestry)
- Coffee

A number of sample areas were selected within each habitat type (Fig. 1 and 2); within these sample areas, approximately 40 points per habitat type were identified. It was attempted to conduct bird counts at each point biannually; however, the plans had to be adjusted from year to year dependent on weather conditions and available resources. The pine forest was sampled extensively in 1998 only. Table 2 reports the number of sampled points from 1998 to 2002.

## Results

Fig. 3-8 show the relative abundance of bird species in the six habitat types; results were pooled across all study years. Bird composition was similar in the typical and variant upper montane rainforest. The four most common species were identical, though in somewhat different order: RBST, RTSO, BAQU and JAVI. Both habitats supported significant numbers of birds typically associated with wet forests, i.e. birds such as WCTH, WETH, BMVI, AHWA, JAPE, CQDO, JABE and JABL. Also, GAEL – a bird in Jamaica mainly confined to the higher altitudes in the Blue Mountains - was prominent in both areas. RTP1 appeared to be somewhat more common in the typical than the variant type of upper montane rainforest, and the opposite held for ORQU. Some of the birds occurring at low frequency represented species that are more typical of open dry habitats, e.g. NOMO, GRKI, BFGQ and YFGQ. These birds probably reflected somewhat disturbed peripheral points.

The modified montane rainforest (Fig. 5) was also rather similar to the upper montane forests. A noticeable exception was BFGQ gaining prominence in the

disturbed forest. Also, the variety of birds typical of open dry habitats increased, though they mostly occurred at low frequencies. In ruinate habitats (Fig. 6), species typical of open dry habitats gained prominence at the cost of wet forest species. BFGQ became the most common bird, while NOMO, SBAN, GRKI and LOKI all reached relative abundances between 2% and 4%. On the other hand, WETH, RTSO, JAPE, GAEL and AHWA showed much reduced relative abundances compared to well-preserved forest habitats, and CQDO, JABE, and JABB disappeared altogether. Similar trends were observed in Pine (Fig. 7) and Coffee (Fig. 8). An element distinguishing Pine from all other habitats was the relatively common occurrence of WCPI. Bird composition in coffee was most different from that of upper montane forest; the most common species in coffee included BFGQ, NOMO, GRKI and SBAN – a feature typical of open dry habitats at low altitudes.

Fig. 9 summarizes the changes in bird species composition from the well-preserved upper montane forests to ruinate habitats and coffee, thus indicating the birds' sensitivity to forest disturbance and conversion. Bars indicate percent change in relative abundance for each species. The change is expressed relative to the abundance in natural forest for birds more common in natural forest, and relative to degraded/converted areas in birds less common in natural forest. The species most affected by habitat degradation and conversion within the Park were JABB, JABE, AHWA, CQDO, BMVI, GAEL, RTSO, and JAPE. On the other hand, SBAN, CGDO, AMKE, ZEDO, BFGR, GRKI, YFGQ, NOMO and LOKI gained substantially by deforestation. Endemic species were mainly represented among the birds more common in natural forests. Also, species recognized as threatened or near threatened by IUCN were among those most sensitive to forest loss: JABB, CQDO, BMVI and RTPI.

An ordination (correspondence analysis) of the 1998 point count data produced results similar to those described above (Fig. 10, 11). Axis 1 of the ordination expressed forest degradation and conversion. It neatly separated upper montane rain forest communities (left side of axis) from those in pine forest, ruinate habitats and coffee (right side). Modified montane rain forest points were close to those of upper montane rain forest, but on average noticeably shifted towards the right. Coffee points were most different from natural and near-natural forest. Axis 2 further subdivided the man-made habitats, with coffee and pine at the upper and lower levels, respectively, and ruinate in an intermediate position. Overall, ruinate points exhibited great variation in their position along both axes; this agreed with the wide variation of habitat conditions within the ruinate category. Neither axis 1 nor 2 separated the two types of upper montane forest.

The position of bird species along axis 1 reflected their sensitivity to forest degradation (Fig. 11). Birds dependent on well-preserved forests had low scores (left side); they included JABL, AHWA, BMVI, RTPI, and CQDO. On the other hand, birds with highest axis 1 scores represented species that are common in

dry open habitats at low altitudes, but absent from closed rain forests. These species included CGDO, YFGQ, NOMO, SBAN, and GRKI.

Fig. 12 shows by year the average number of birds observed per count in upper montane and modified rainforest for species most sensitive to forest degradation (including the threatened and near threatened species). While the average number per count varied considerably across years in most of these species, there was no overall trend towards either increase or decrease. Many factors might influence yearly results including differences in sampling date, weather and food abundance.

The two well-preserved habitat types studied were already assessed about 35 years ago by David Lack. Both studies used Morce's Gap for the typical and Mount Horeb for the variant upper montane rainforest. Species abundance ranks between studies were highly correlated for both areas (Morice's Gap: Spearman rank correlation coefficient  $r_s = 0.83$ ,  $P < 0.001$ ; Mount Horeb:  $r_s = 0.871$ ,  $P < 0.001$ ). This indicates a fairly stable bird composition within well-preserved upper montane rainforest despite a major Hurricane (Gilbert 1988) in the intervening period. Almost all of the birds most sensitive to forest degradation attained an equal or somewhat higher abundance rank in the present study compared to Lack's in both habitats. Thus, if anything, the quality of the bird composition may have somewhat improved rather than declined. The most aberrant result exhibited WCPI. While this species was very rarely observed in natural forest during the present study, it was fairly common in Lack's survey. Though the upper montane rainforest is not a major habitat for WCPI, its possible decline in this habitat deserves further attention.

## Conclusions

The present survey indicated a fairly stable and healthy bird community in the upper montane rainforest of the Park. It also demonstrated dramatic declines of endemic species most sensitive to habitat degradation in rinate areas, pine and coffee. These latter areas were characterized by the prominence of non-endemic birds more typical of dry open areas at lower altitudes. Thus, the preservation of the natural and near-natural forests of the Park is a critical strategy to conserve Jamaica's unique birds.

The distribution of sampling areas (Fig. 1) indicates major gaps in data collection. In particular, central and eastern sections of the Blue Mountains have received little attention so far. Also, forests at altitudes below 1000 m in the Blue Mountains remain under-sampled. On the other hand, bird counts in the John Crow Mountains were conducted recently by JCDT and BirdLife Jamaica.

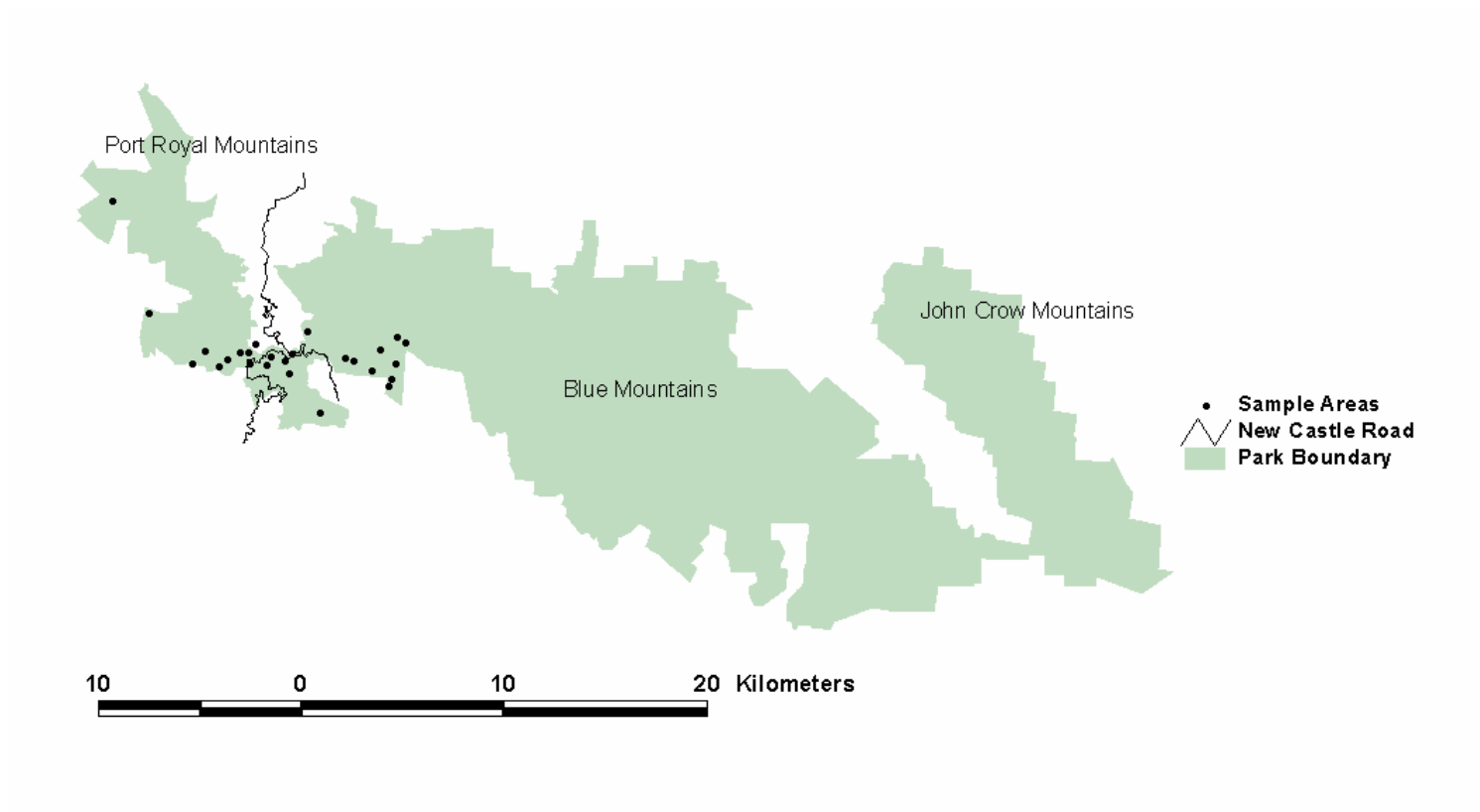
Peter Vogel

Table 1. Bird Abbreviations

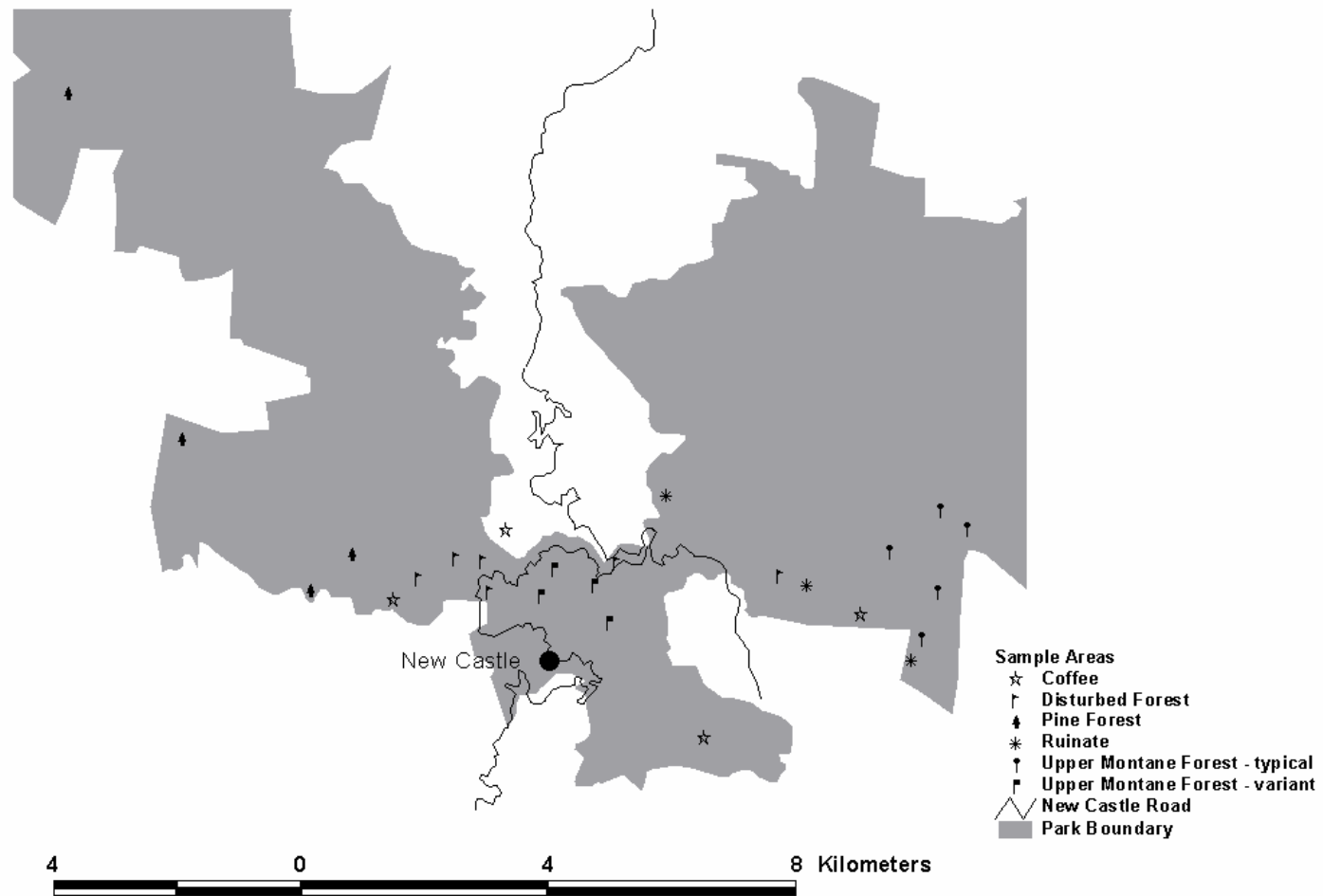
AHWA	Arrow-headed Warbler
AMKE	American Kestrel
BAQU	Banaquit
BFGQ	Black-faced Grassquit
BMVI	Blue Mountain Vireo
BWVI	Black-whiskered Vireo
CBCU	Chestnut-bellied Cockoo
COGD	Common Ground Dove
CQDO	Crested Quail Dove
GABU	Greater Antillean Bullfinch
GAEL	Greater Antillean Elaenia
GRKI	Grey Kingbird
JABL	Jamaican Blackbird
JABE	Jamaican Becard
JACR	Jamaican Crow
JAEL	Jamaican Elaenia
JAEU	Jamaican Euphonia
JAOR	Jamaican Oriole
JAPE	Jamaican Pewee
JATO	Jamaican Tody
JAVI	Jamaican Vireo
JAWO	Jamaican Woodpecker
JLCU	Jamaican Lizard-cuckoo
LOKI	Loggerhead Kingbird
NOMO	Northern Mockingbird
ORQU	Orangequit
RBST	Red-billed Streamertail
RQDO	Ruddy Quail-dove
RTFL	Rufous-tailed Flycatcher
RTPI	Ring-tailed Pigeon
RTSO	Rufous-throated Solitaire
SAFL	Sad Flycatcher
SBAN	Smooth-billed Ani
SHTA	Striped-headed Tanager
STFL	Stolid Flycatcher
VEHU	Vervain Humminbird
WCPI	White-crowned Pigeon
WCTH	White-chinned Thrush
WETH	White-eyed Thrush
WWDO	White-winged Dove
YFGQ	Yellow-faced Grassquit
YSGQ	Yellow-shouldered Grassquit
ZEDO	Zenaida Dove

Table 2. Sample points by habitat type and year (summer counts)

	1998	1999	2000	2001	2002
UMRF typical	40	30	35	34	35
UMRF variant	39	34	34	36	37
MMRF	41	40	40	44	44
Ruinade	41	36	40	39	32
Coffee	40	12	40	40	42
Pine	41	9			

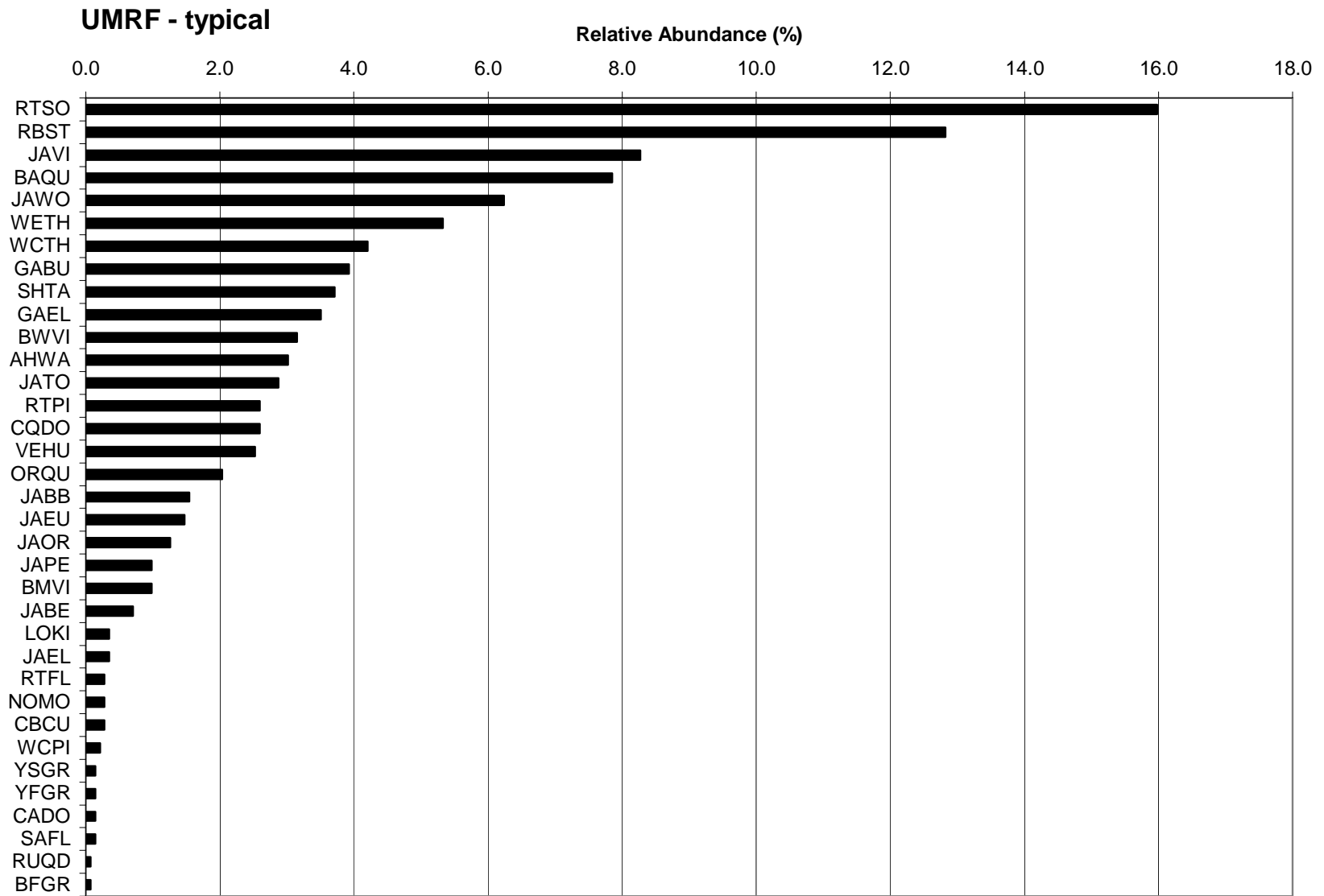


**Fig. 1. Park and bird sample areas.**

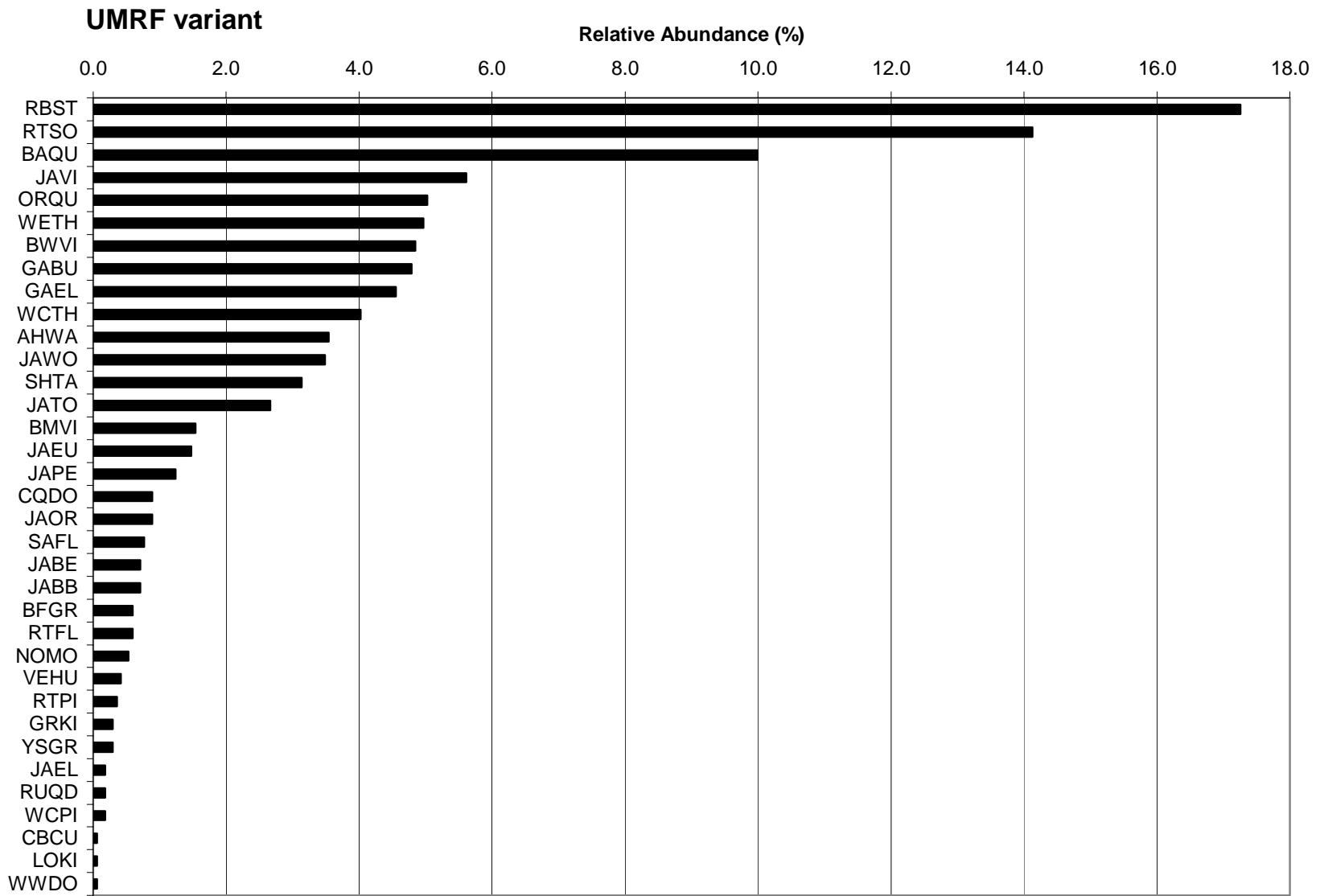


**Fig. 2. Bird sample areas by habitat type.**

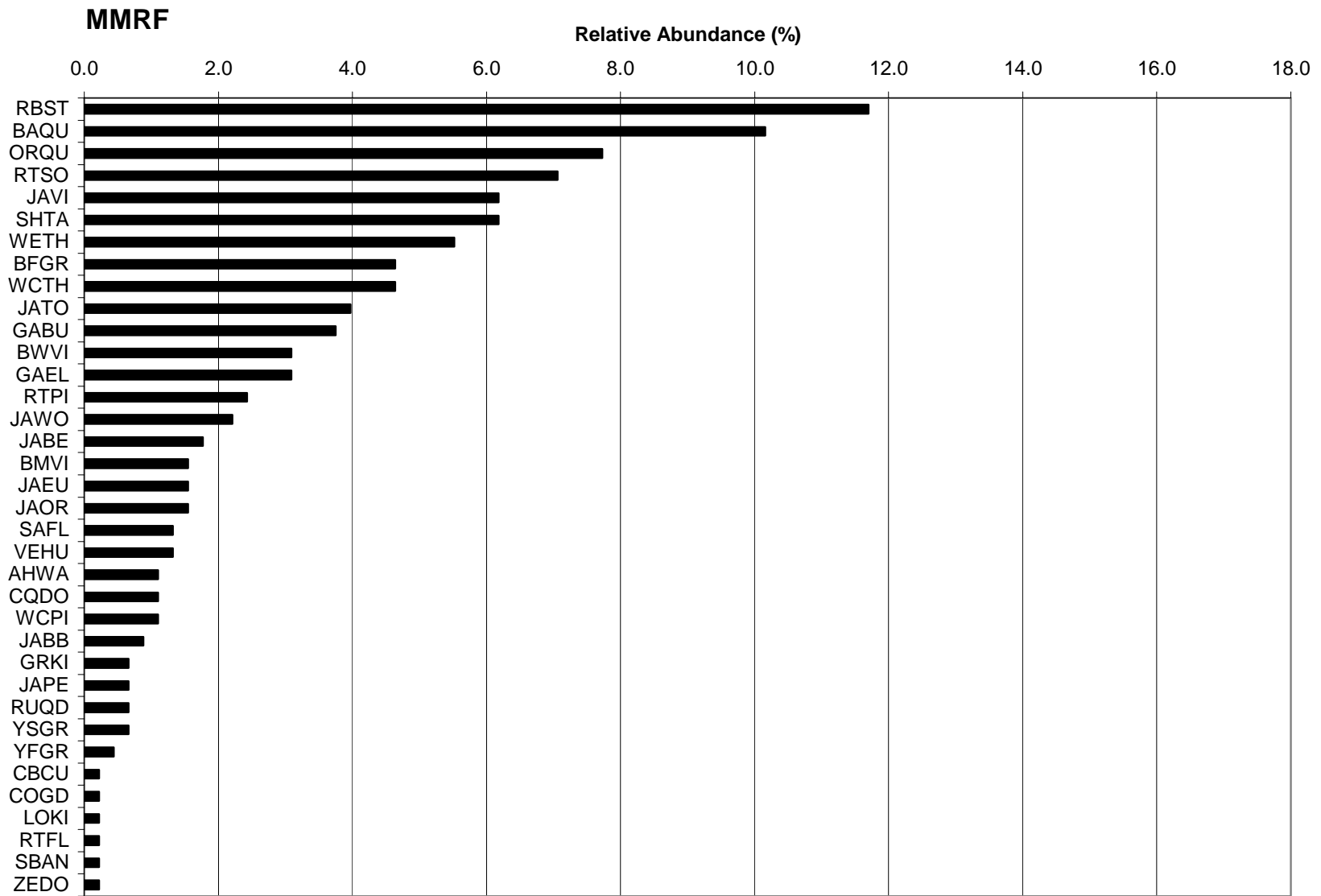




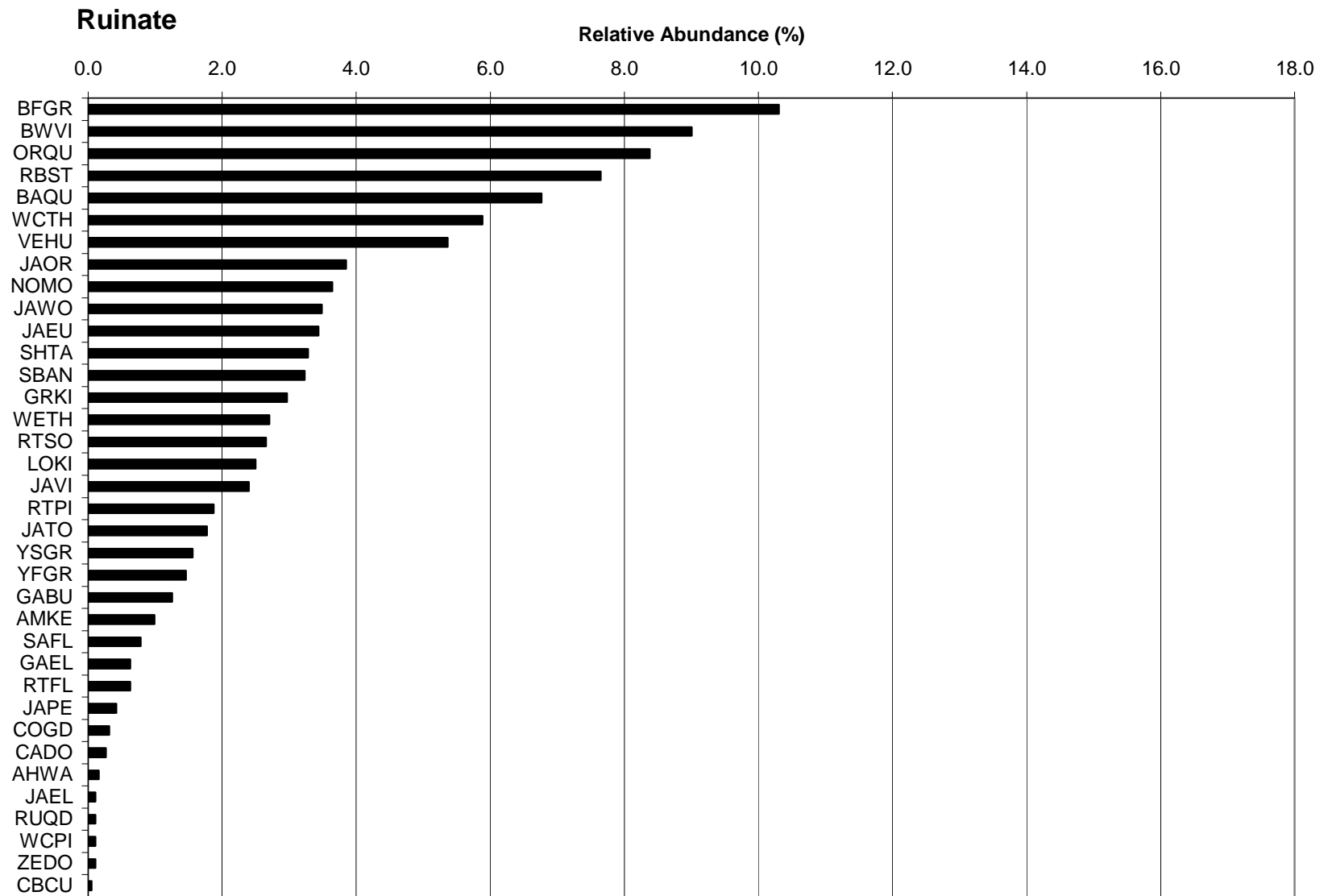
**Fig. 3. Species composition upper montane rainforest – typical.**



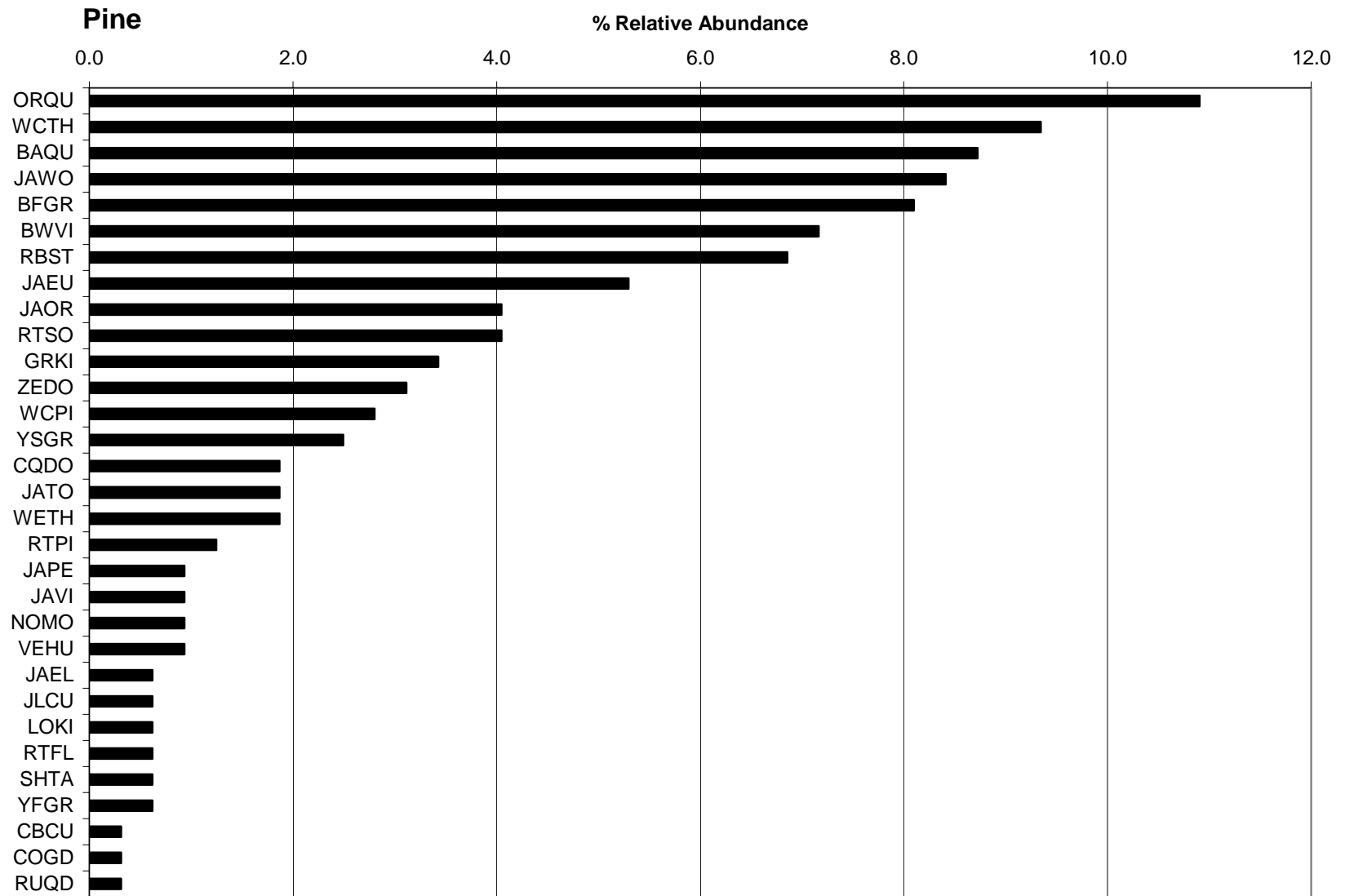
**Fig. 4. Species composition upper montane rainforest – variant.**



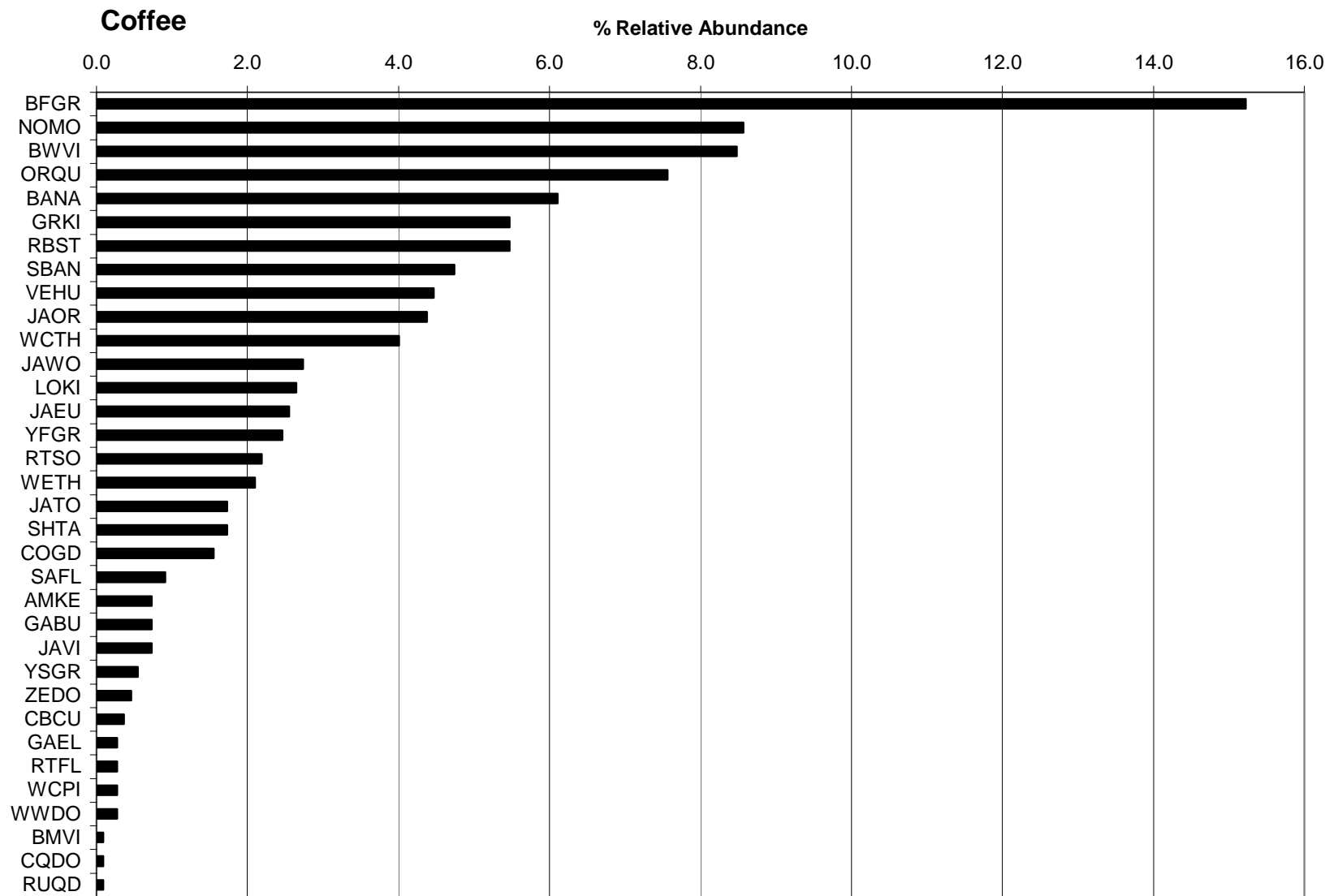
**Fig. 5. Species composition modified montane rainforest.**



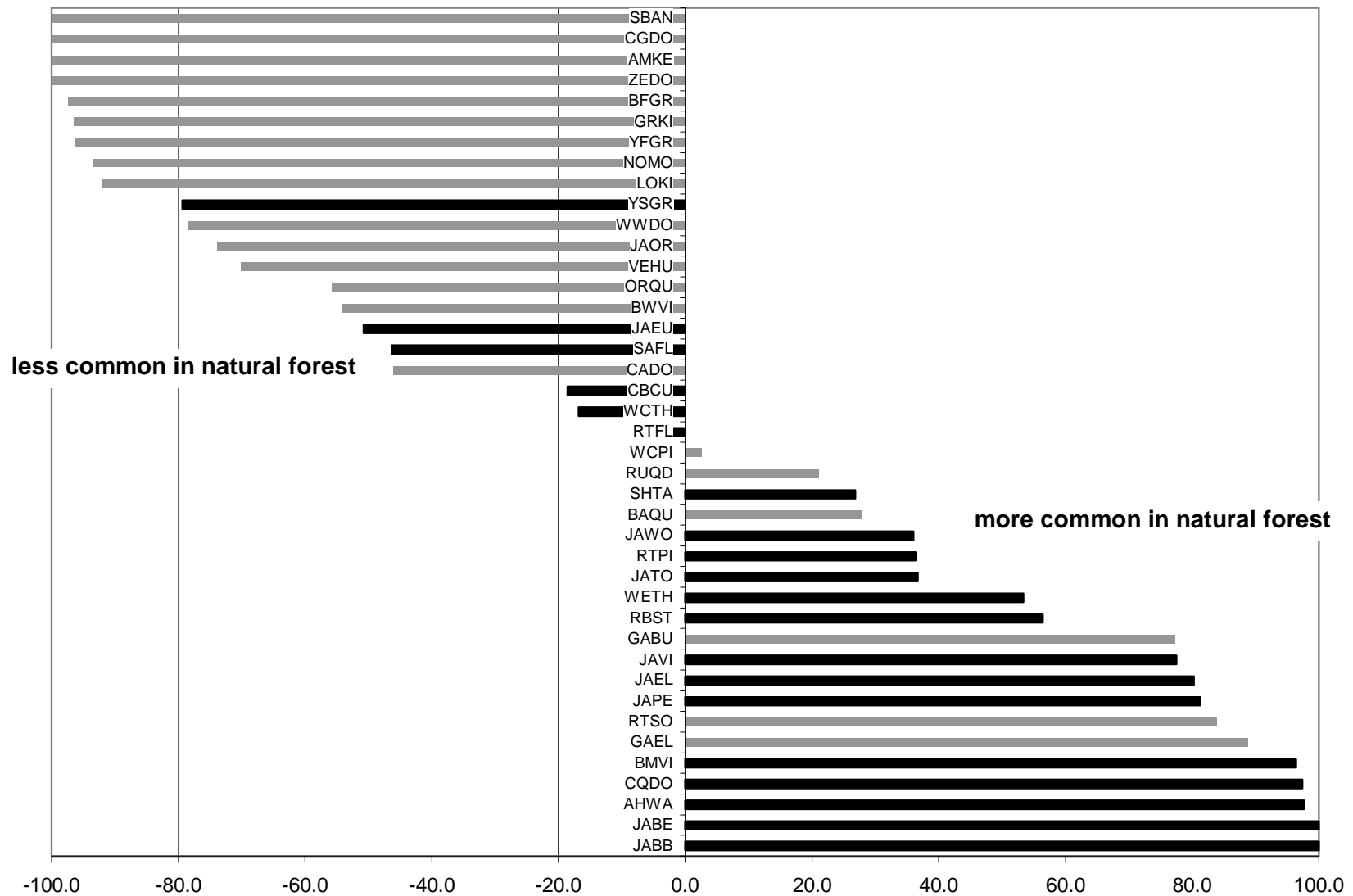
**Fig. 6. Species composition ruinate habitat.**



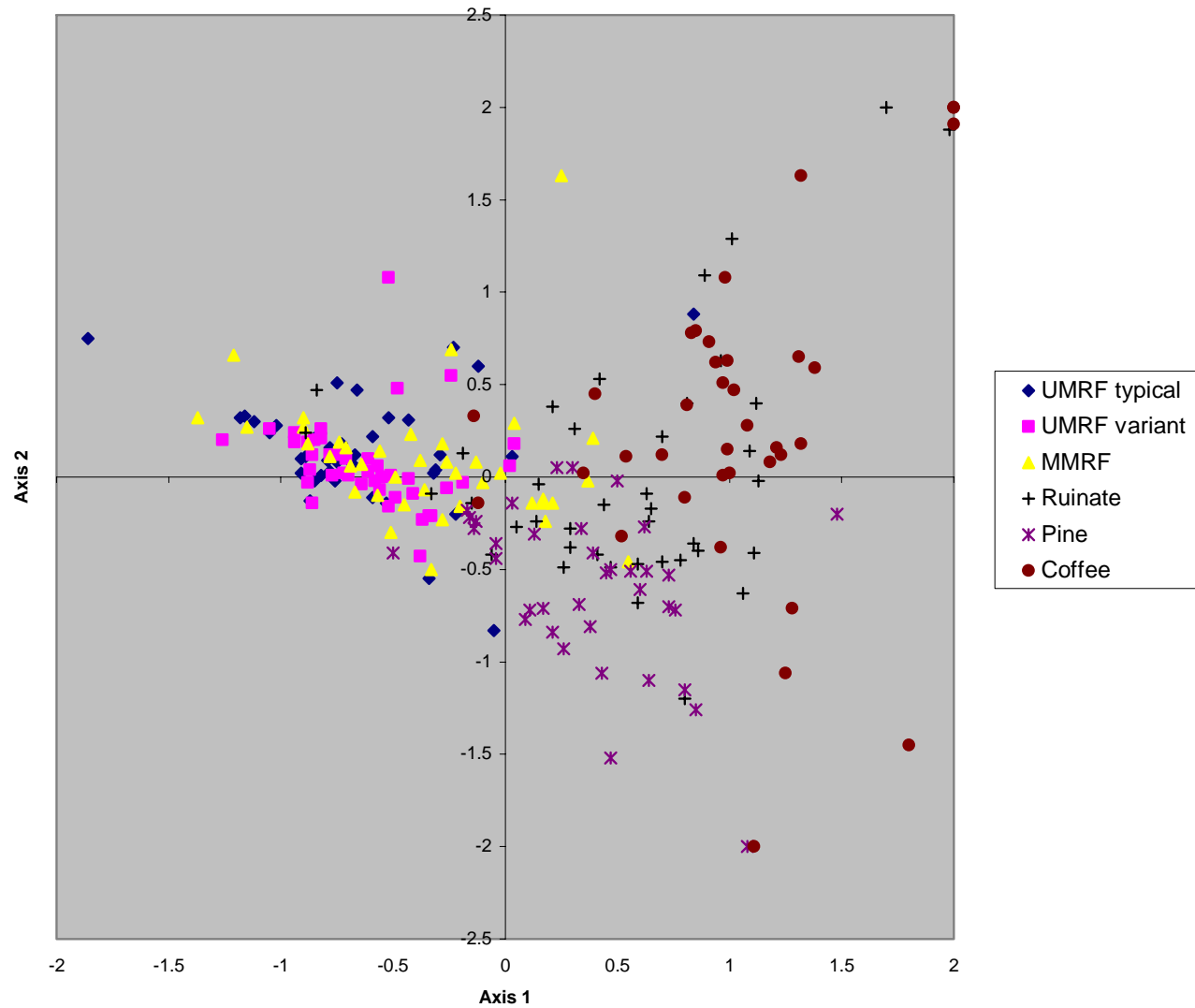
**Fig. 7. Species composition pine forest.**



**Fig. 8. Species composition coffee.**

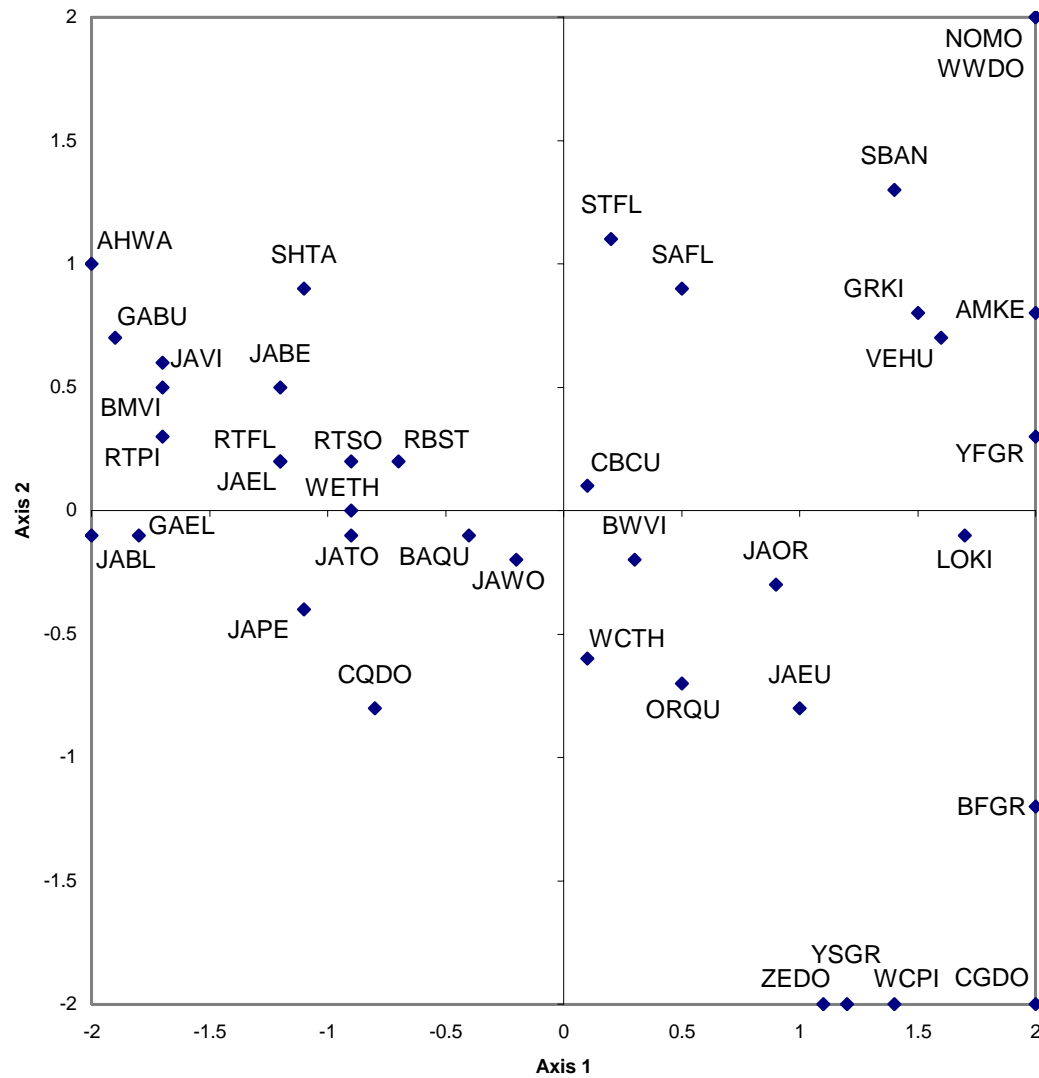


**Fig. 9. Sensitivity to forest disturbance and conversion.** Axis value indicates percentage change in relative abundance in natural forest compared to averaged abundance in ruinate habitats and coffee. The larger relative abundance is taken as 100%. A value of +100% indicates presence in natural forest only; a value of -100% indicates presence in ruinate and coffee only. Black bars show endemic species.



**Fig. 10. Ordination of points by habitat type.** Data from 1998 point counts. Sites with scores beyond the displayed scale of the axes were rescaled to show on the border of the graph.





**Fig. 11. Ordination of bird species.** Data from 1998 point counts. Birds with scores beyond the displayed scale of the axes were rescaled to show on the border of the graph.

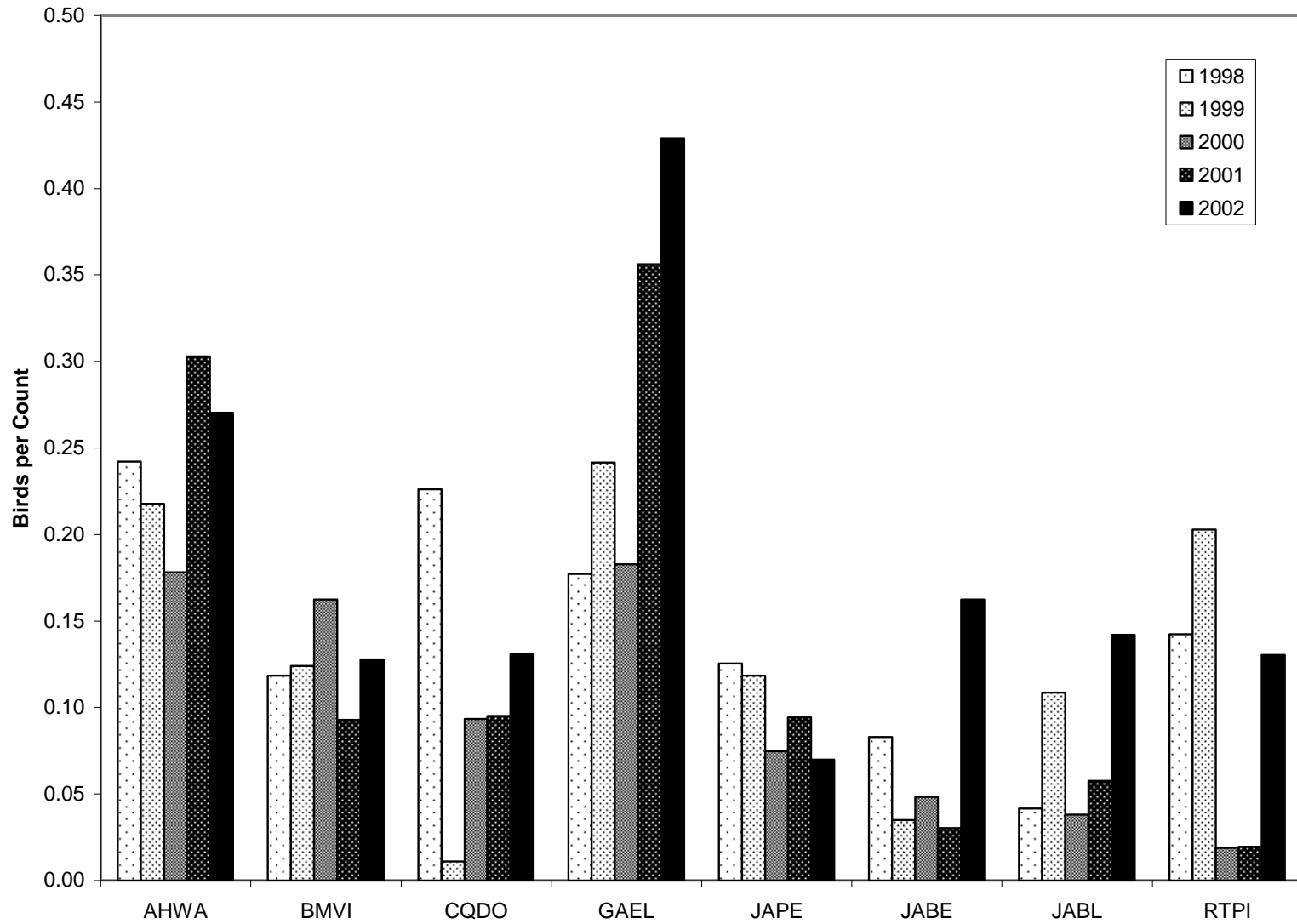


Fig. 12. Yearly variation in birds per count for selected wet forest species.

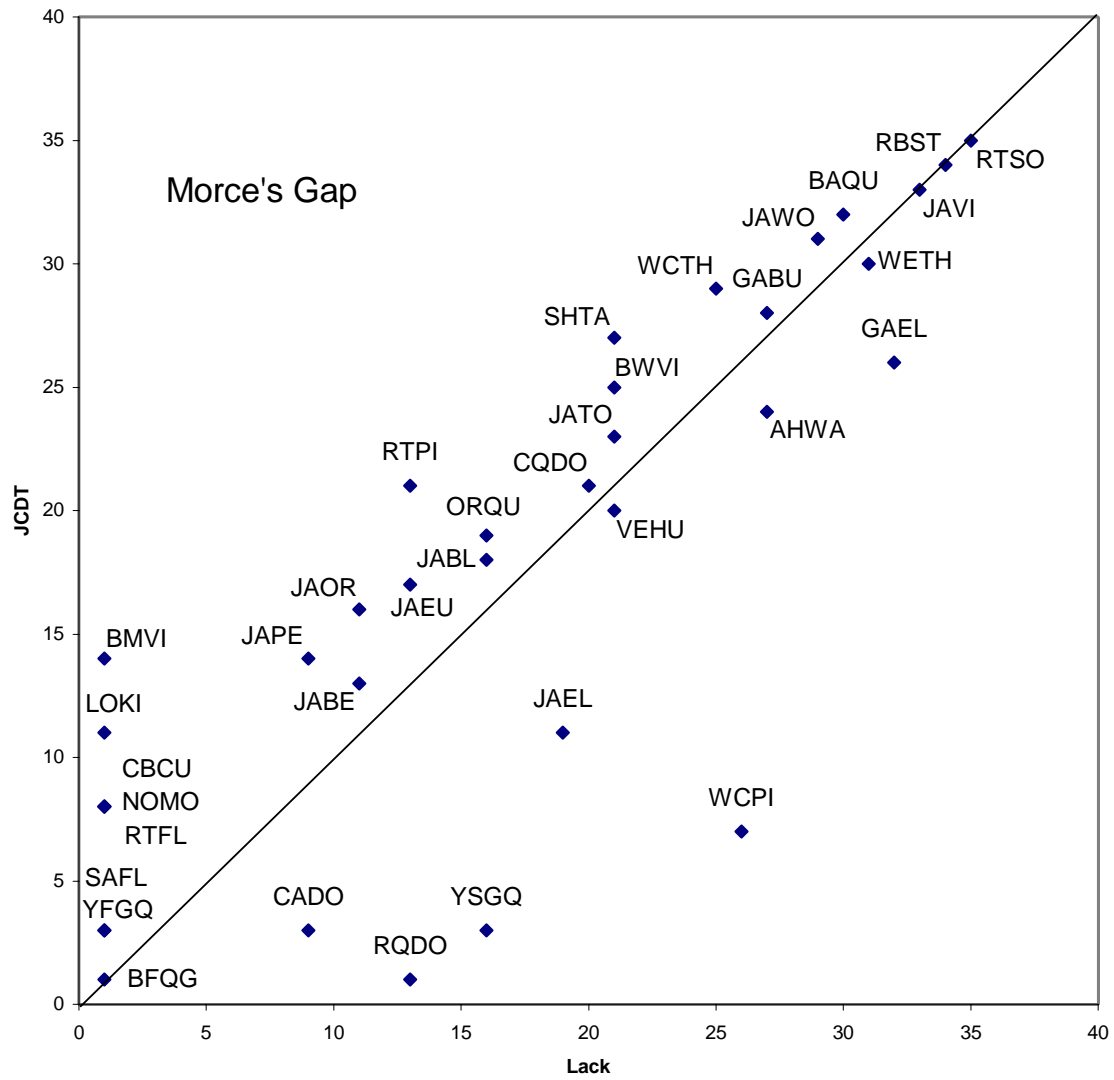


Fig. 13. Comparison of abundance ranks in Morce's Gap area.

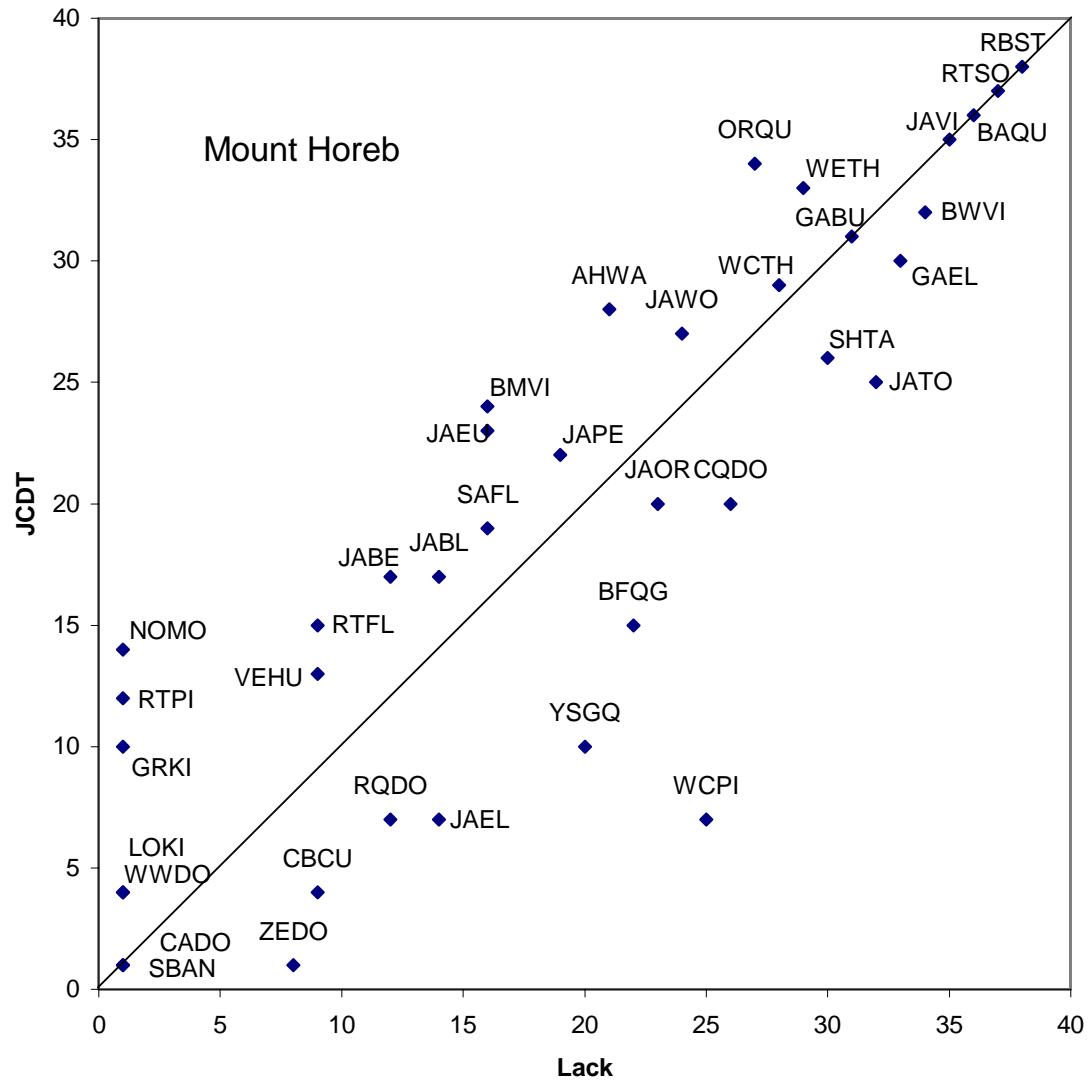


Fig. 14. Comparison of abundance ranks in Mount Horeb area.

# Report on Stream Monitoring activities 2004-2005 in and around the Blue & John Crow Mountains National Park

## Introduction

The freshwater ecosystems of the Blue & John Crow Mountains National Park (BJCMNP) are classified as a conservation target under the Park's management regime. As such, there is a monitoring programme in place for these ecosystems. This report is based on the findings of stream monitoring activities under the Park's Monitoring programme funded by the TNC-CTW Link Project, where twelve streams are monitored for general habitat quality, physico-chemical data, and benthic macroinvertebrate composition (figure 1).

### 1. Physical description of streams

Pencar River (adjacent to the community of Golden Valley) – These headwaters run through disturbed forest with no canopy overhanging the stream, and small-scale agriculture nearby. Crops near the overbank include coconut, cocoa, and susumber. No algae was however observed in the riverbed. Trees such as coconut, *Zygia latifolia* (horse wood) and *Cecropia peltata* (trumpet tree) were observed growing on the river bank. The stream flow was heavy and fast-flowing with no pools due to the recent rain event, and the water depth ranged from about 1-5 feet deep.



*Pencar River monitoring site*

Drivers River (adjacent to the community of Reach) – Dense secondary forest grows up to the riverbank of Drivers river, and the canopy overhangs the river in most places. Trees on the river bank include *Cecropia peltata* (trumpet tree), *Dendropanax* sp., *Hernandia catalpifolia* (water mahoe, the food plant of the endangered and endemic

Giant Swallowtail butterfly), laden with numerous bromeliads. This is the only monitored site with a limestone substrate, and so there was very little gravel, and few sites suitable for kick sampling. At the time of sampling (04/05), the river was receding, after rising to over 0.5 m after two days of rainfall.



*Rangers Thompson (left) and Love (right) along with TNC's freshwater ecologist Kimberly John (middle) sampling at the Drivers River monitoring site*

Morant River (adjacent to the community of Hill Side) – This stream runs through degraded forest with trees from the melostome family, *Cecropia peltata* (trumpet tree), *Glicidia sepium* (quick stick), (*Mangifera indica*) mango, and *Cordia gerascanthus* (spanish elm). Algae was present in the river bed. The water was between 0.5-6 feet in depth.

Plantain Garden River (adjacent to the community of Golden Valley) – Ruinate forest with no canopy overhang characterizes this riverbank, and there is agriculture upstream that causes algal growth in the riverbed. The hillside forests around this river were observed to be recently burnt out, and require management intervention. The family Calamoceratidae (leaf cased trichopteran) which is usually well represented at this site was noticeably absent, probably due to the lack of riparian vegetation. Sugarcane, *Bambusa vulgaris* (bamboo), coconut and other cash crops were observed. Trees such as *Ficus* sp (fig), *Bursera simaruba* (red birch) and *Cecropia peltata* (trumpet tree) were also observed along the riverbank. The water level varied in depth between 3 inches and 4 feet.

Rio Grande R1 (adjacent to the community of Millbank) – Vegetation including rose apple, ginger, mango, cocoa, bamboo, and *Dendropanax* was observed on both sides of this river, but the canopy did not overhang. The river was about 30 feet wide and 1-4 feet deep. Algae was present in the river bed, and there was farming upstream.

Rio Grande R2 (adjacent to the community of Seamans Valley) – This site is in disturbed forest with agriculture upstream, and algae present in the riverbed. The river varied between 1-15 feet deep. Riverbank vegetation included rose apple, *Bambusa vulgaris* (bamboo), wild ginger, African grass and *Cecropia peltata* (trumpet tree).

Spanish River (adjacent to the community of Chepstowe) – This site was in disturbed forest with agriculture upstream (but no algae was observed in the riverbed). The riparian vegetation was found to be about 1.5 m from the riverbed. Trees observed include coconut, rose apple, *Matabya apetala* (wanika), ackee, bamboo, susumber, and mango. The river was heavy and fast flowing due to a recent rain event, and this resulted in the absence of leaf litter. The site was approximately 10 m wide and 0.5 m deep.

Swift River S1 (adjacent to the community of Epping Farm)- Good forest cover lined the riverbank at this site, with the canopy overhanging in most places. Trees observed were native forest trees including *Dendropanax* sp., tree ferns, and *Eugenia* sp (rodwood). Large mayflies were seen at this site compared with other sites. The river was approximately 24 feet wide and 1.5 feet deep at the sample site.

Swift River S2 (adjacent to the community of Chelsea) – Disturbed forest with agriculture upstream was present at this site. No algae was however observed, and trees on the riverbank included rose apple, *Nectandra* sp. (sweetwood), *Mangifera indica* (mango) and *Ficus* sp (fig). The river was 1-6 feet deep and about 33 feet wide.

Wagwater River (adjacent to the community of Settlement) – This narrow shallow stream ran through secondary forest containing wild ginger, the canopy overhung in some places.

Yallahs River Y1 (adjacent to the community of St. Peters) – Secondary forest containing *Dendropanax* sp and *Eugenia* sp (rodwood) with invasive plants - wild ginger and redbush were observed.

Yallahs River Y2 (adjacent to the community of Hagley Gap) – This is the sample site with greatest distance from the Park boundary, and it was found to be in ruinate forest with sugarcane, *Bambusa vulgaris* (bamboo), susumber, *Mangifera indica* (mango), and *Cecropia peltata* (trumpet tree) on the river bank. Algae was observed in the riverbed. There was little leaf litter present in the water. The river has changed its course veering to the right due to heavy rainfall, and is about 0.5-4 feet deep. There was a marked decline in gastropods observed in previous years.

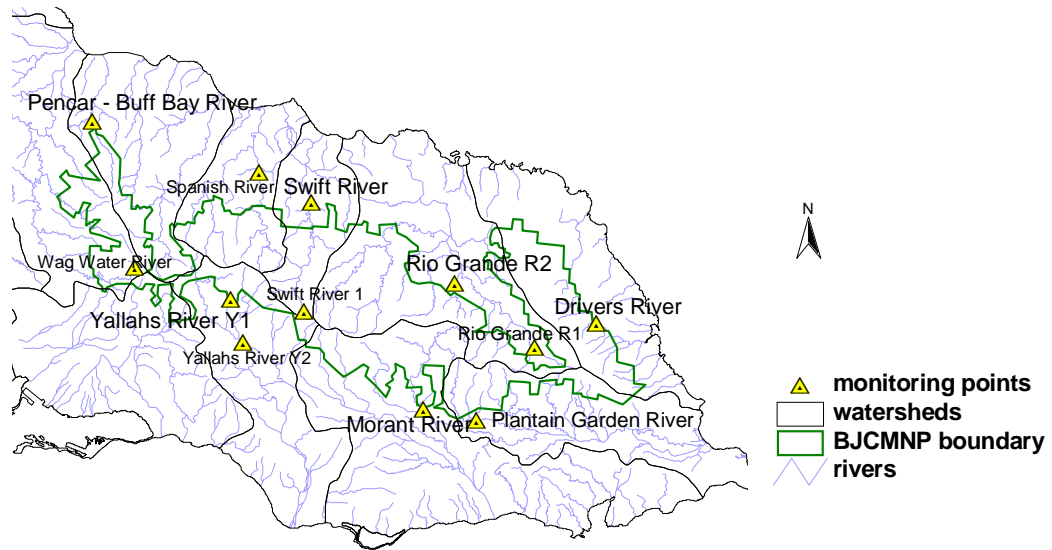


Figure 1. Stream quality monitoring sites

## 2. Results - Physico-chemical parameters



River	Temperature (0C)	pH	Conductivity (mS/cm)	Turbidity (NTU)
Pencar River	22.70	10.00	0.10	10
Drivers River	23.53	9.58	0.25	10
Morant River	25.0	10.18	0.173	10
Plantain Garden River	-	-	-	-
Rio Grande River S1	26.75	10.21	1.018	9.83
Rio Grande River S2	27.88	10.40	0.224	1.67
Spanish River	-	-	-	-
Swift River S1	22.5	8.35	0.15	3.67
Swift River S2	-	-	-	-
Wagwater River	18.00	10.10	0.06	3.33
Yallahs River S1	17.17	8.41	0.46	-
Yallahs River S2	23.37	10.47	0.32	11.73

Table 1. Physico-chemical parameters of monitored streams for the dry season (December 04-April 05)

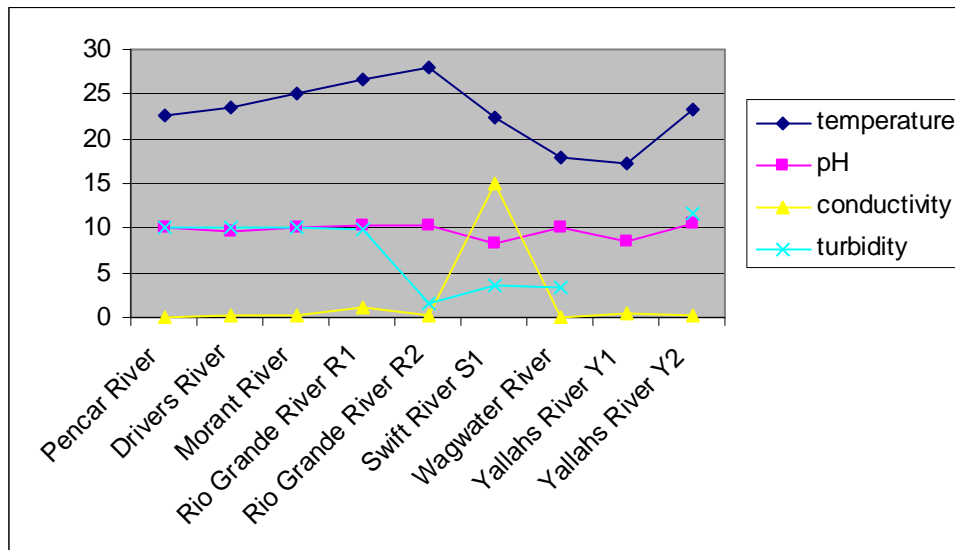


Figure 2. Physico-chemical parameters of monitored rivers for the dry season (December 04-April 05)

Table 2 and Figure 2 show that temperature in the rivers monitored ranged between 17.2 – 27.9<sup>0</sup>C, with most of the rivers at the lower end of this range, due to their high altitude and associated low temperatures. The pH was similarly alkaline for all the sites sampled, as is characteristic of these streams. Conductivity was low, as the rivers in the Park are low in minerals such as sodium and magnesium resulting in this trend. Turbidity measurements were also low signifying the transparency of these waters, especially in the dry season when rivers are relatively less turbulent.

### 3. Results – BMI composition

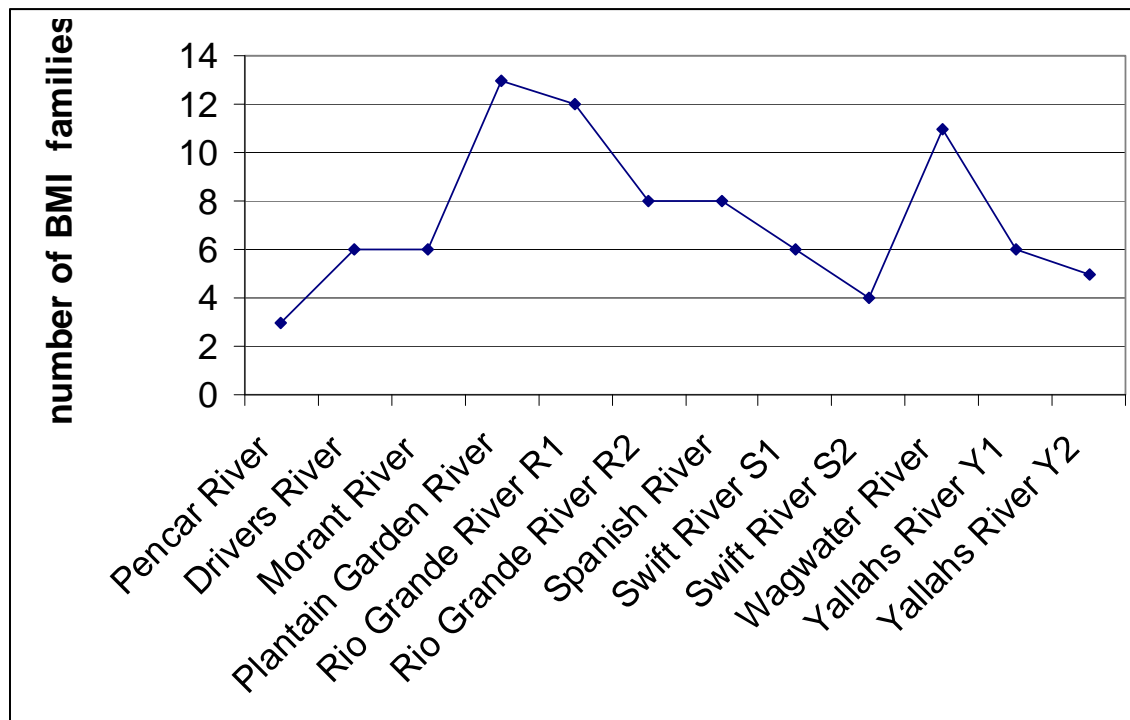


Figure 3. Total number of families of benthic macro-invertebrates (BMI) observed at each site (from kick sampling and qualitative searches)

Figure 3 shows the taxonomic richness of the sites monitored. Appendix 1 contains a list of the BMI families recorded. Generally, a greater taxonomic richness reflects a more pristine site. However, in the Park because of the low temperatures, not many taxa are able to inhabit these high altitude streams, which are often unpolluted, but reflect low taxonomic richness. These rivers therefore represent a challenge in interpreting BMI data. The Plantain Garden River and the Rio Grande R1 sites were found to have the greatest taxonomic richness, but this is probably due to low levels of nutrient enrichment at these sites as indicated from the general site descriptions. The use of reference sites in the future will probably aid in interpreting the BMI composition of these streams. Interpretation of the upcoming year's data will also benefit from having this year's information to compare it with.

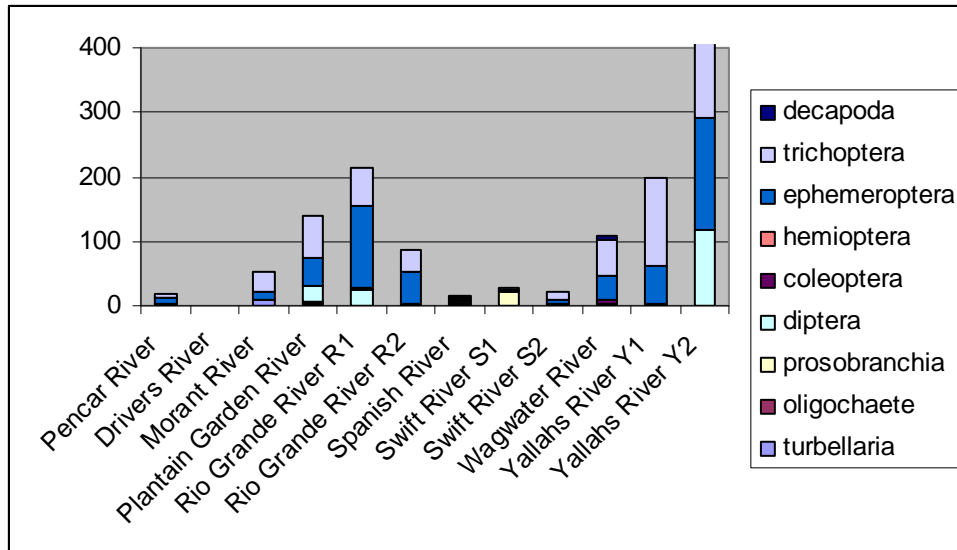


Figure 4. Benthic macroinvertebrate counts (from kick sampling)

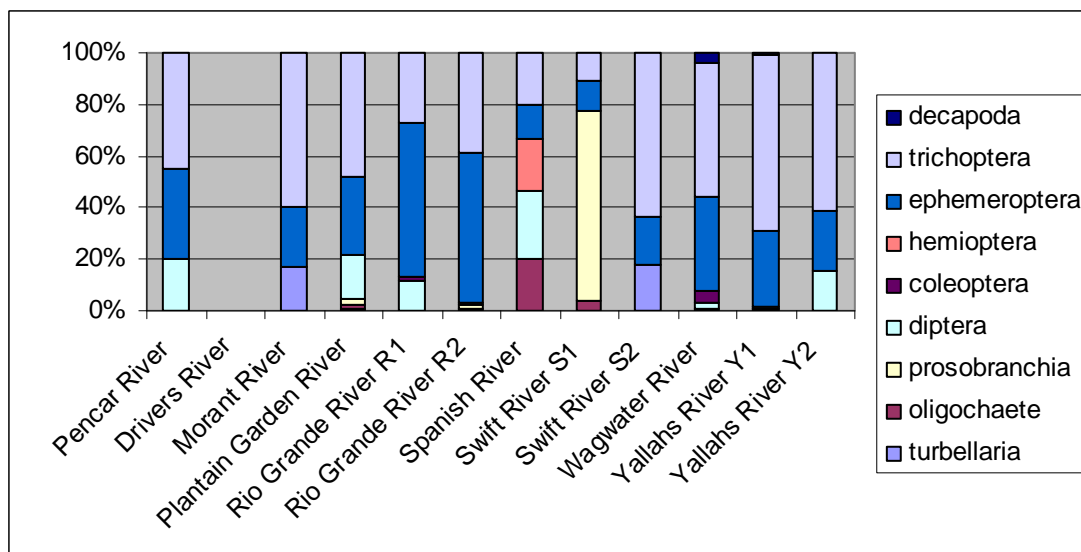


Figure 5. Benthic macroinvertebrate percentage composition (from kick sampling)<sup>1</sup>

Figures 4 and 5 show that as expected, the benthic macroinvertebrate fauna of the rivers sampled was dominated by the orders Ephemeroptera and Trichoptera. Several species of these orders were also found in large numbers (reaching hundreds in kick samples) as is characteristic in the dry season.

<sup>1</sup> The substrate at Drivers river was unsuitable for kick sampling.

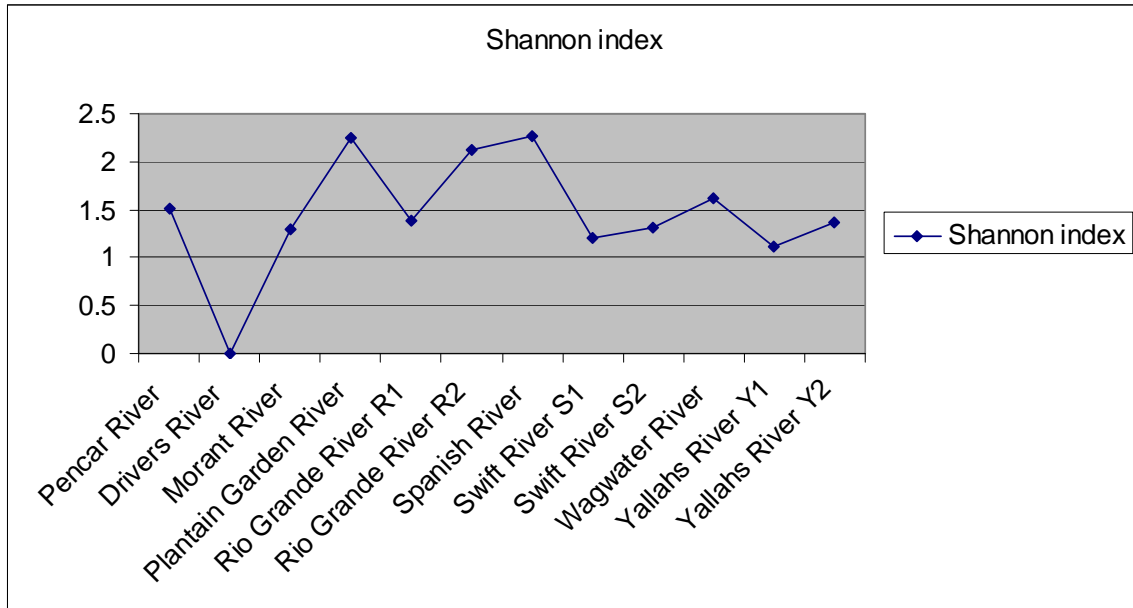


Figure 6. Analysis of BMI composition (from kick samples) using the Shannon diversity index

BMI composition collected from kick samples was analysed using the Shannon diversity index (figure 6) to get a quantitative indication of diversity (species richness and evenness). The analysis shows that areas with the highest diversity were found to be Plantain Garden River, Rio Grande River R2 and Spanish River, which as indicated from the site descriptions, is probably due to low levels of nutrient enrichment rather than the site being pristine. From the site descriptions, the most pristine site is probably the Swift River S1, which showed one of the lower diversity indices probably due to the high altitude and low temperature.

#### 4. Community Involvement

Community residents took part in monitoring activities for 7 out of the 12 rivers monitored. Both children and adults were fascinated to find these tiny creatures with such “big names” living in the river bed. Participants were educated about harmful practices in and around riverbeds such as washing, agriculture, and river poisoning.



*Ranger Ryan Love (left) teaching community children about macroinvertebrates in streams during a monitoring exercise*



*Ranger Roger Thompson (left) getting assistance in kick sampling from a community youth*



**APPENDIX 1.** BMI presence/absence list at sites sampled (kick sampling and qualitative searches)

BMI	Pencar River	Drivers River	Morant River	Plantain Garden River	Rio Grande River R1	Rio Grande River R2	Spanish River	Swift River S1	Swift River S2	Wagwater River	Yallahs River Y1	Yallahs River Y2
<b>turbellaria</b>			1	1					1	1		
<b>oligochaete</b>		1		1		1	1					
Naididae								1				
Thiaridae		1		1								
prosobranchia					1	1		1				
Planarian			1									
<b>Diptera</b>					1							
simulidae	1				1		1			1	1	1
coleoptera												
Tipulidae				1	1	1	1			1		1
<b>Coleoptera</b>					1					1		
Gyrinidae		1										
Gerridae		1		1			1			1		
hemiptera												
Psephenidae					1							

BMI	Pencar River	Drivers River	Morant River	Plantain Garden River	Rio Grande River R1	Rio Grande River R2	Spanish River	Swift River S1	Swift River S2	Wagwater River	Yallahs River Y1	Yallahs River Y2
<b>odonata</b>							1					
Anisoptera			1	1	1					1		
Zygoptera				1	1	1				1		
<b>Ephemeroptera</b>											1	
Baetidae	1	1	1	1	1	1	1	1	1	1		1
<b>Trichoptera</b>						1				1		
Calamoceritidae				1	1	1			1	1		
Glossomatidae								1				
Hydropsychidae			1	1	1			1				
Helicopsychidae	1	1	1	1	1	1	1	1	1	1	1	1
Hydroptilidae							1				1	
Hydropsychidae				1								1
Grapsidae												
Atydae												
<b>decapoda</b>												
Atydae				1							1	
Grapsidae											1	
Palemonidae												
<b>TOTAL</b>	3	6	6	13	12	8	8	6	4	11	6	5

1 – indicates presence



# **Report on Stream Monitoring activities 2005-2006 in and around the Blue & John Crow Mountains National Park**

**Prepared by: Shauna-Lee Chai, Conservation Science Officer**


## **Introduction**

This report is based on the findings of the BJCMNP freshwater monitoring programme 2005-2006. Monitoring data were collected for 12 streams in and around the Park, and this includes assessments of the general habitat quality, physico-chemical data and biological data. Monitoring took place at all 12 sites in the dry season, but only 4 sites were completed for the wet season due to equipment unavailability.

Figure 1 shows the results of stream assessments carried out based on certain physical characteristics of the streams. Based on this assessment, the streams are put into an overall category of good, intermediate, or poor condition for quick reference, and comparison from year to year. The overall stream condition remained the same in comparison to last year's findings (2004-2005), except for notable improvements in the Plantain Garden (near Golden Valley) and Rio Grande 1 (near Millbank) sites.

Figure 1. Physical description of streams (Dry season)

Stream Site	Land tenure	vegetation	Tree cover on bank	Tree overhang on stream	Soil exposure	algae	Stream depth (cm)	Stream width (m)	Livestock present
Pencar	unknown	Coconut, trumpet tree	medium	medium	medium	absent	30-170	10	no
Rio Grande 1	unknown	Grass, wild ginger, rose apple, bamboo, apple	medium	medium	low	absent	30	20	no
Swift River 1	Forestry Dept.	Tree fern, rod wood, mellostome, <i>Dendropanax</i>	high	high	low	absent	30	15	no
Morant 1	unknown	Red birch, mango, breadfruit, rose apple, hog plum, trumpet tree	low	low	high	present	130	80	no
Plantain Garden	unknown	Almond, pond oak, tulip, mango, milkwood, rose apple	low	medium	medium	absent	133	15	no
Yallahs 1	unknown	Rodwood, <i>Dendropanax</i>	high	high	low	absent	67	2	no
Morant 2	Serge Island	<i>Acacia</i> sp.	low	low	high	present	30	10	yes
Yallahs 2	Tenant – Mr. Morgan	Coffee, cane grass, mango, trumpet tree, rose apple	medium	low	high	present	33-133	210	yes
Driver's River	unknown	Rose apple	medium	medium	low	absent	267	2.67	no
Swift River 2	unknown	Banana, coconut, rose apple, trumpet tree, bamboo	medium	medium	medium	absent	50	9	no
Rio Grande 2	unknown	Banana, trumpet, almond, guango, rose apple	Low	low	medium	present	30-130	80	no
Wag water	Forestry Dept.	Mellostome, wild ginger, rose apple	high	medium	low	absent	0.6	2.5	no

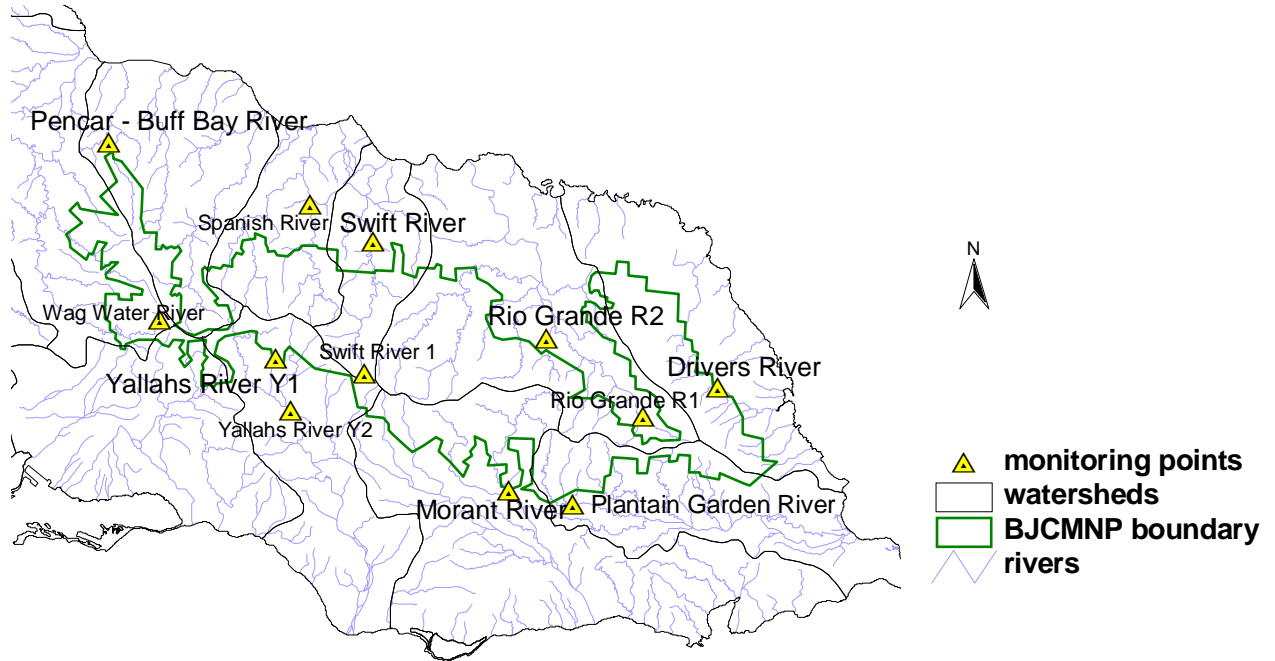
Overall stream condition:  - good  - intermediate  - poor



**Pencar River Stream monitoring Site where new instances of river poisoning were detected**



**Driver's River Stream Monitoring Site**



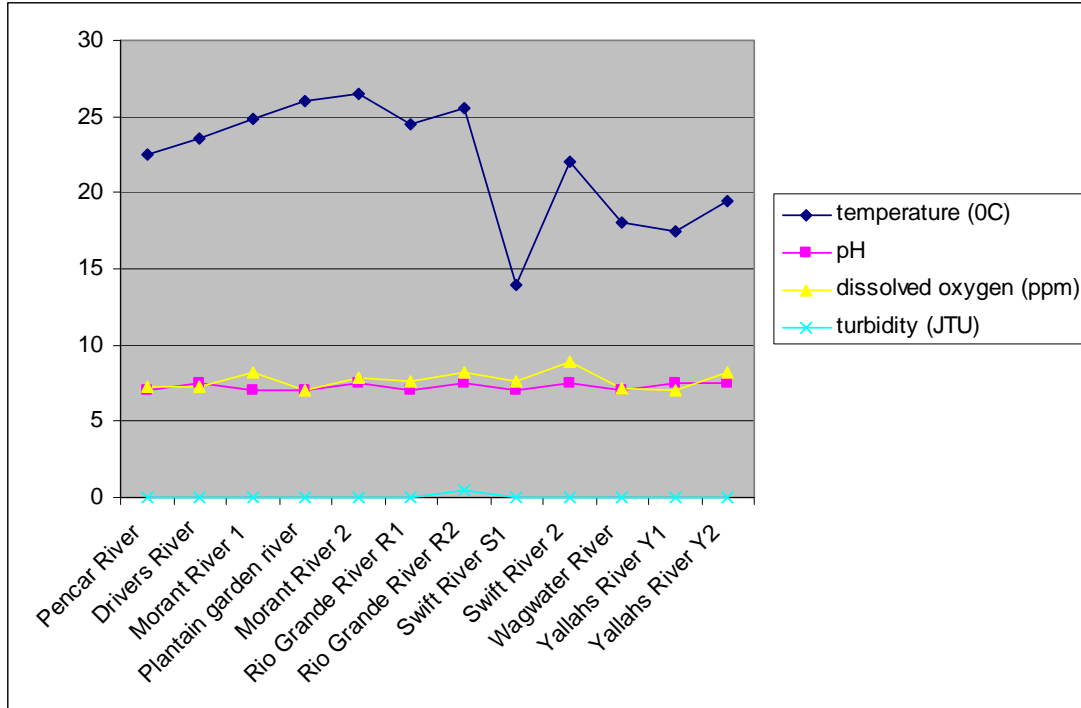
**Figure 2. Stream quality monitoring sites**  
(Spanish River site was blocked off this year)

## Results

### Physico-chemical parameters

River	Temperature (°C)	pH	Dissolved oxygen ( )	Turbidity (JTU)
<b>DRY SEASON</b>				
Pencar River	22.5	7	7.25	0
Drivers River	23.5	7.5	7.3	0
Morant River	24.8	7	8.2	0
Plantain Garden River	26.0	7	7.0	0
Morant River 2	26.5	7.5	7.8	0
Rio Grande River S1	24.5	7.0	7.6	0
Rio Grande River S2	25.5	7.5	8.2	0.5
Swift River S1	14.0	7	7.6	0
Swift River S2	22.0	7.5	8.9	0
Wagwater River	18.0	7	7.2	0
Yallahs River S1	17.5	7.5	7	0
Yallahs River S2	19.5	7.5	8.2	0
<b>WET SEASON</b>				
Wag water 1	19.0	7.0	10.0	0
Swift River 2	22.0	7.5	6.4	0
Yallahs 2	22.5	7.5	7.2	10
Plantain Garden	21.0	7.5	6.75	5

**Table 1. Physico-chemical parameters of monitored streams for the dry season (December 04-April 05) and wet season (May-Nov.)**

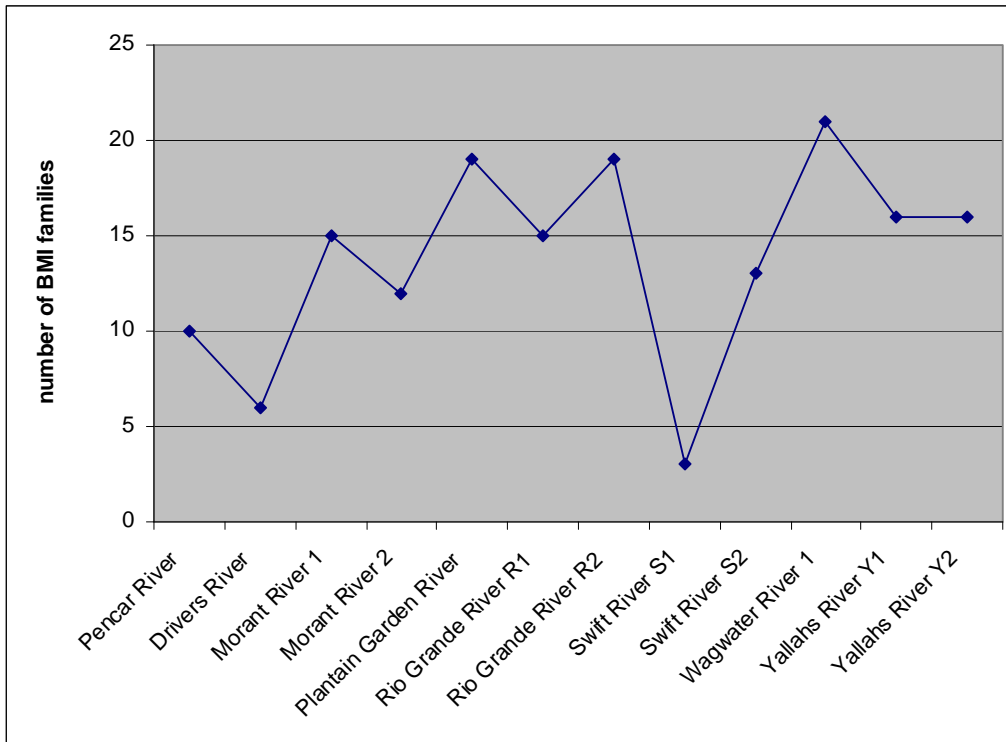


**Figure 3. Physico-chemical parameters of monitored rivers for the dry season (December 04-April 05)**

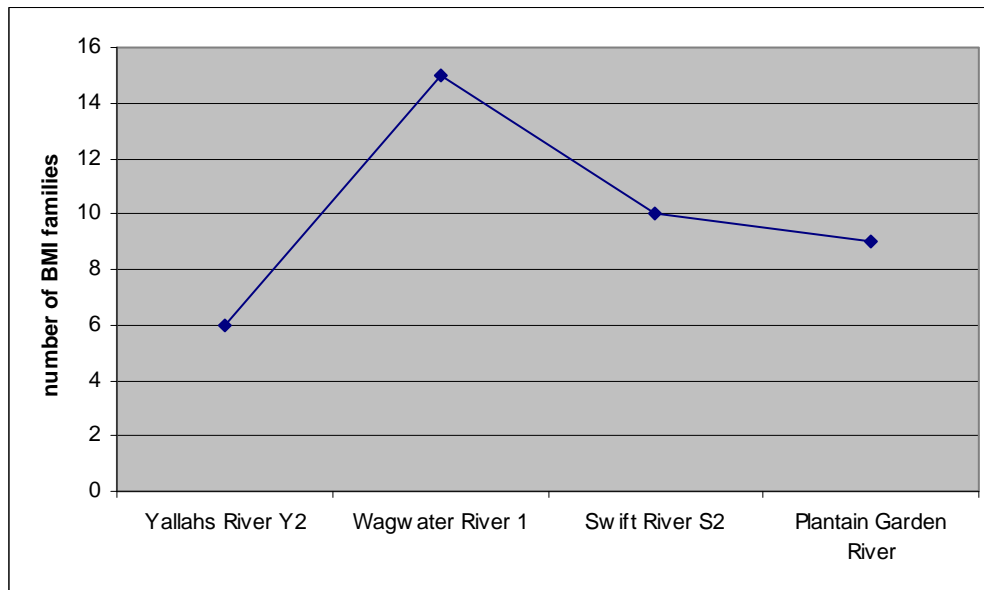
Temperatures ranged from 14<sup>0</sup>C – 26<sup>0</sup>C, with a mean value of 21.8<sup>0</sup>C, compared with last year's mean of 23.0<sup>0</sup>C. This is a positive change, as it may mean that rivers are receiving increased shade from overhanging vegetation. pH values were found to be mostly neutral, unlike the characteristic alkaline values received last year. This is probably due to the change in measuring equipment to a less accurate pH kit device. Turbidity readings were very low signifying the transparency of these waters, except in Yallahs 2 (wet season), which remained the most turbid site for 2 years.

## **BMI composition**

### **Dry season**



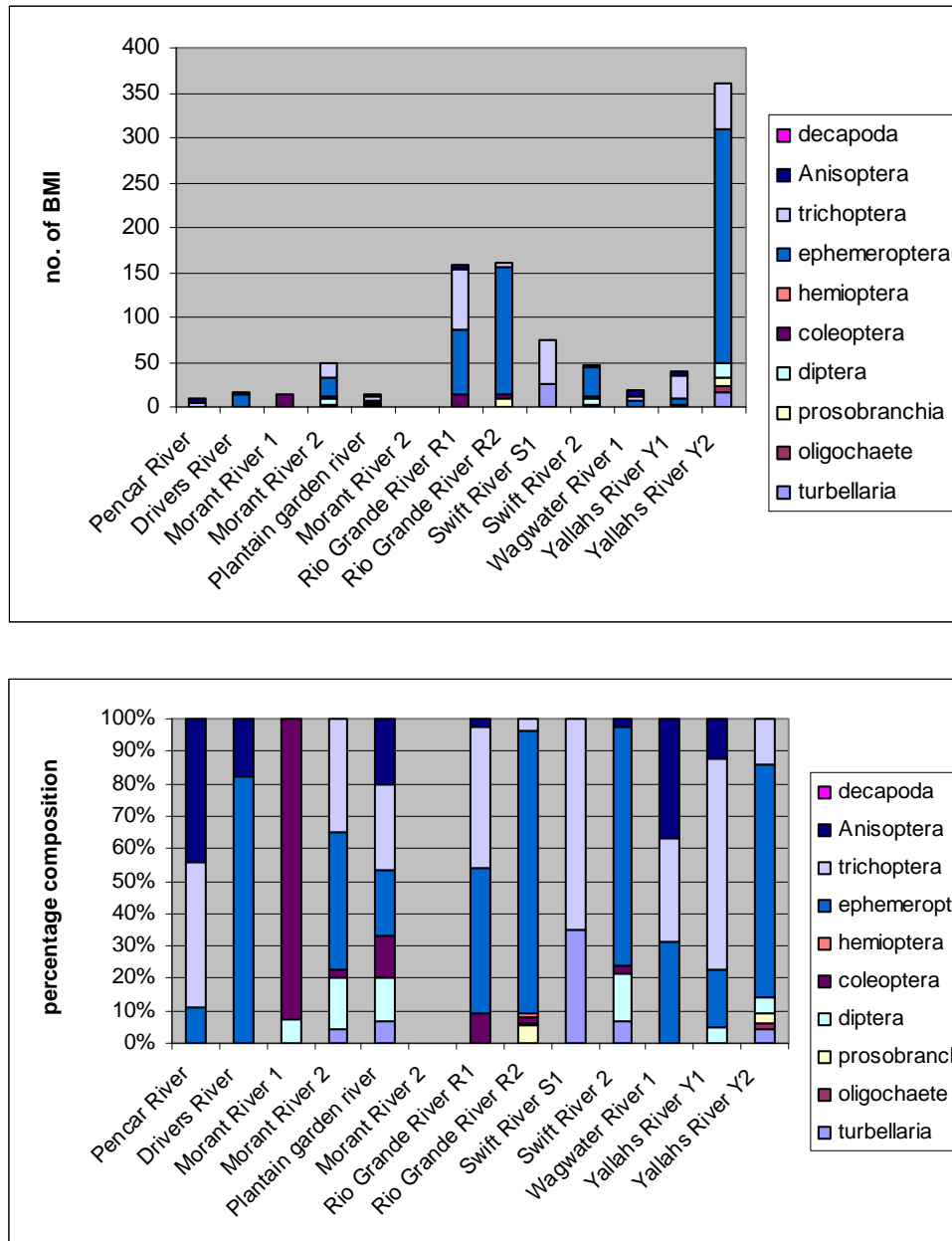
### **Wet season**



**Figure 4. Number of families of benthic macro-invertebrates (BMI) observed at each site (from kick sampling and qualitative searches)**

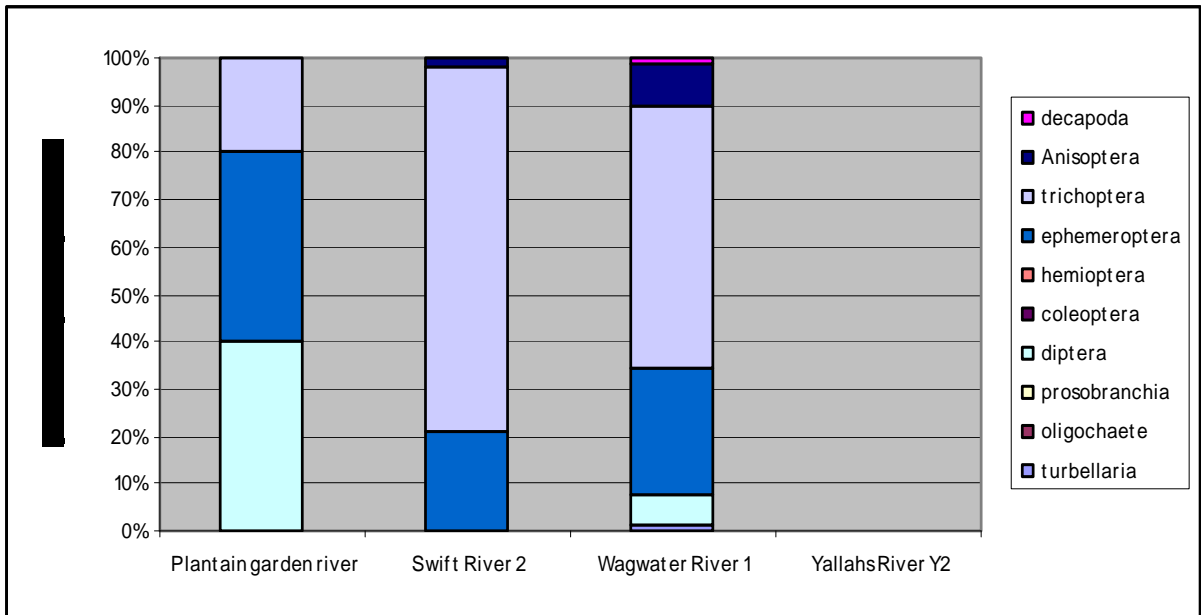
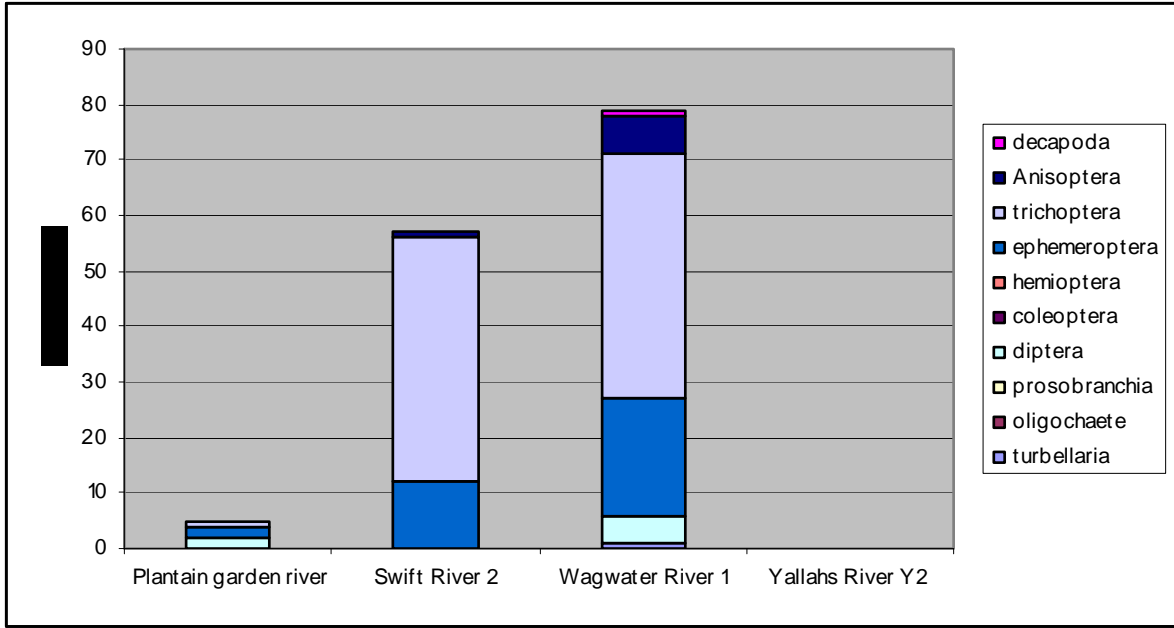
Figure 4 shows the taxonomic richness of the sites monitored. Appendix 1 contains a presence/absence list of BMI families recorded. Overall, the taxonomic richness recorded

was greater than the previous year, mostly between 15-20 families in 2005-2006, and between 6-8 families in 2004-2005. This is indicative of improved stream conditions this year as compared with last year. Swift River recorded the lowest number of taxa due to the low temperature of 14°C. Wag water recorded the highest taxonomic richness probably due to its pristine condition running through National Park forests.



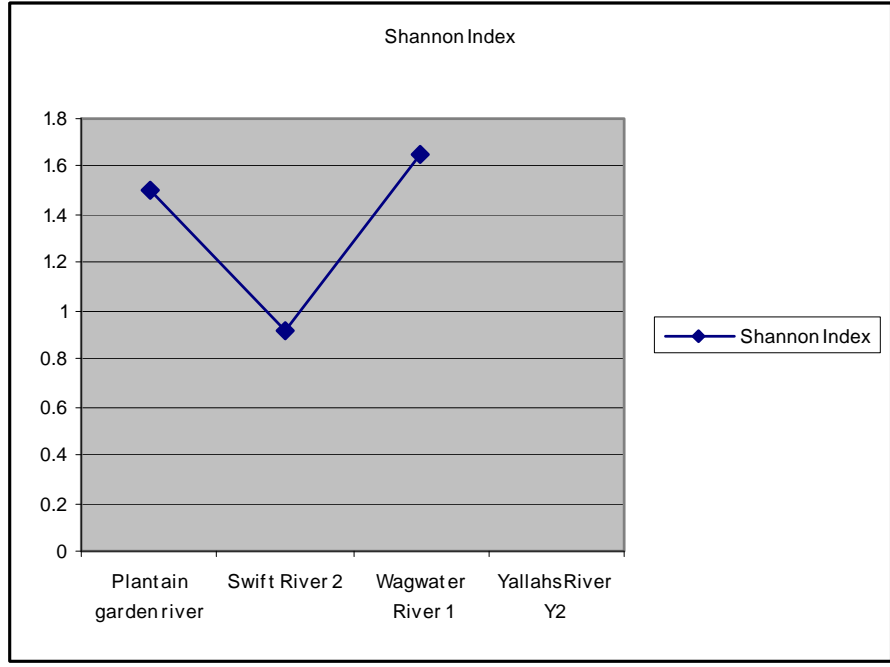
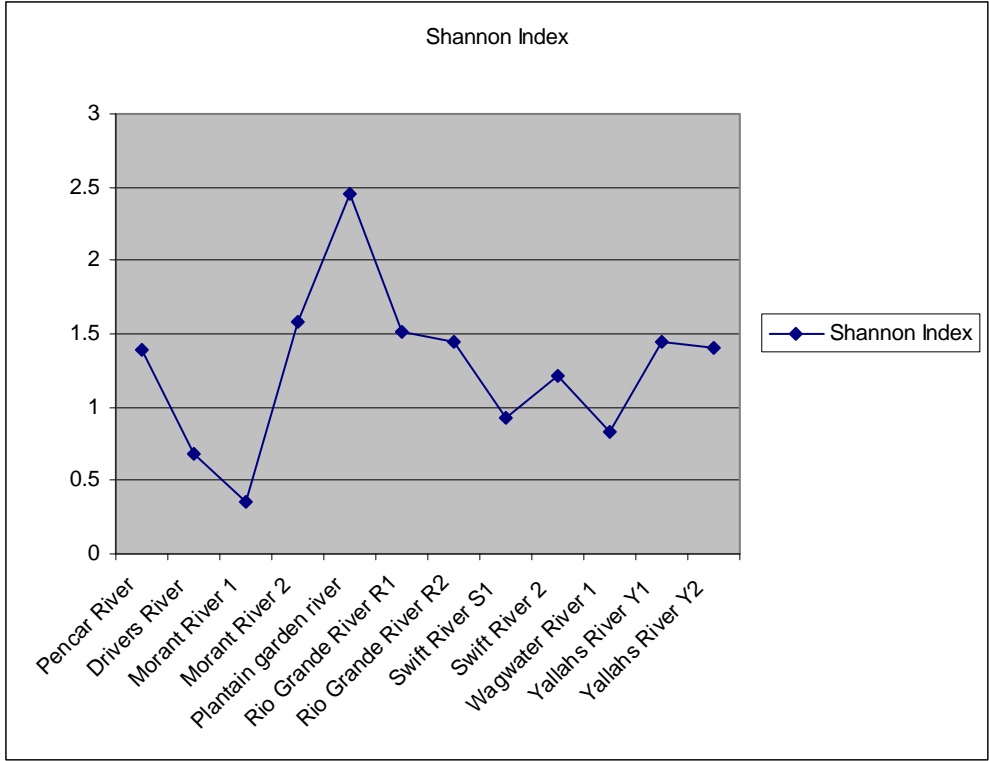
**Figure 5. Dry season Benthic Macro-invertebrate counts and percentage composition (from kick sampling)**





**Figure 6. Wet season Benthic Macro-invertebrate counts and percentage composition (from kick sampling)**

Figures 5 and 6 show the BMI composition from kick sampling. As expected, this group is dominated by the orders Ephemeroptera and Trichoptera. Several species of these orders were also found in their hundreds, as is characteristic of the dry season.



**Figure 7. Analysis of BMI composition (from kick samples) using the Shannon diversity index (top graph-dry season, bottom graph-wet season)**

BMI composition collected from kick samples was analysed using the Shannon diversity index (figure 7) to get a quantitative indication of diversity (species richness and evenness). The analysis shows that areas with the highest diversity were found to be Plantain Garden

Rio Grande River R1 and R2, which as indicated from the site descriptions, is probably due to low levels of nutrient enrichment rather than the sites being pristine.

### **Conclusion**

The monitoring results received this year (2005-2005) show that for the most part, the freshwater ecosystems are being maintained in a similar condition to the previous year. Small improvements have even been noted over last year, which points to effective management of freshwater ecosystems in the BJCMNP.

**APPENDIX 1.** BMI presence/absence list at sites sampled (kick sampling and qualitative searches)

	Pencar River	Drivers River	Morant River 1	Morant River 2	Plantain Garden River	Rio Grande River R1	Rio Grande River R2	Swift River S1	Swift River S2	Wagwater River 1	Yallahs River Y1	Yallahs River Y2
<b>dry season</b>												
<b>turbellaria</b>												
Planarian			1	1	1	1	1	1	1	1		1
<b>oligochaete</b>												
Naididae				1								1
<b>prosobranchia</b>												
Thiaridae		1				1	1					1
<b>Diptera</b>												
Culicidae					1							
simulidae				1						1		1
coleoptera												
Syrphidae												
Tipulidae			1				1		1		1	1
<b>Coleoptera</b>												
Gyrinidae			1		1		1		1	1		
Gerridae				1		1				1		
Mesovelidae							1					
hemioptera												
Psephenidae							1		1	1		

	Pencar River	Drivers River	Morant River 1	Morant River 2	Plantain Garden River	Rio Grande River R1	Rio Grande River R2	Swift River S1	Swift River S2	Wagwater River 1	Yallahs River Y1	Yallahs River Y2
<b>dry season</b>												
<b>odonata</b>												
Anisoptera												
Zygoptera												
<b>Ephemeroptera</b>												
Baetidae	1	1	1	1	1	1	1		1	1	1	1
<b>Trichoptera</b>												
Calamoceratidae				1	1		1		1	1	1	1
Glossomatidae	1				1	1	1				1	
Hydropsychidae					1						1	
Helicopsychidae	1		1	1	1	1	1	1		1	1	1
Hydroptilidae	1		1			1				1	1	
Hydropsychidae												1
Grapsidae												
Atydae												
<b>Anisoptera</b>												
Gomphidae	1	1	1		1	1			1	1	1	
Libellulidae			1							1		
<b>Decapoda</b>												
Atydae					1							
Grapsidae												
Palemonidae												
Simuliidae												
Tipulidae												
<b>TOTAL</b>	<b>5</b>	<b>3</b>	<b>8</b>	<b>7</b>	<b>10</b>	<b>8</b>	<b>10</b>	<b>2</b>	<b>7</b>	<b>11</b>	<b>8</b>	<b>9</b>

	Yallahs River Y2	Wagwater River 1	Swift River S2	Plantain Garden River
<b>wet season</b>				
<b>turbellaria</b>				1
Planarian		1		
<b>oligochaete</b>				
Naididae				
<b>prosobranchia</b>				
Thiaridae				
<b>Diptera</b>				
Culicidae				
simulidae		1		1
coleoptera				
Syrphidae			1	
Tipulidae			1	1
<b>Coleoptera</b>				
Gyrinidae				
Gerridae		1		
Mesovelidae				
hemiptera				
Psephenidae				
<b>odonata</b>				
Anisoptera				
Zygoptera				

	Yallahs River Y2	Wagwater River 1	Swift River S2	Plantain Garden River
<b>wet season</b>				
<b>Ephemeroptera</b>				
Baetidae	1	1	1	1
<b>Trichoptera</b>				
Calamoceritidae				
Glossomatidae				
Hydropsychidae		1		
Helicopsychidae	1	1	1	
Hydroptilidae		1	1	1
Hydropsychidae	1			
Grapsidae				
Atydae				
<b>Anisoptera</b>				
Gomphidae				
Libellulidae				
<b>Decapoda</b>				
Atydae				
Grapsidae		1		
Palemonidae				
Simulidae				
Tipulidae				
<b>TOTAL</b>	<b>3</b>	<b>8</b>	<b>5</b>	<b>5</b>

1 – indicates presence

## **Report on Stream Monitoring Activities 2006 – 2007 in and around the Blue & John Crow Mountains National Park**



*Picture of the Spanish River(Upstream of Monitoring Point) – Dry Season 2007*



# **Report on Stream Monitoring Activities 2006 – 2007 in and around the Blue & John Crow Mountains National Park**

**Prepared by: Marlon Beale, Conservation Science Officer**

## **Introduction**

The Freshwater ecosystems of the Blue and John Crow Mountains National Park have been classified as a conservation target of the BJCMNP Management Plan. Therefore freshwater monitoring programmes were instituted 2004 and have continued to present. This report is based on the findings of the BJCMNP freshwater monitoring programme 2006 – 2007. Monitoring data was collected from 12 streams in and around the Park, for both the Wet and Dry Seasons. Information collected included general habitat quality, physico-chemical data and biological data.

Figure 1 shows the monitoring sites tabulated and assessed and categorized based on certain physical characteristics of the streams. Most sites remained the same categorization as they did the previous year 2005 – 2006). The Morant (previously 2 sites) and Rio Grande 2 monitoring sites improved from Poor to Intermediate sites. Also there was the addition of the Spanish River to the monitored sites which was categorized as Poor.

Figure 2 shows a table of vegetation observed at each of the monitoring sites. This allows for better comparison of vegetation across sites, allowing similarities and differences to be better delineated.

**Ranger Ryan Love collecting Monitoring data at the Wag Water River**



**Ranger Lyndon Johnson perform Kick Sampling Technique at the Wag Water River**



**Figure 1. Physical Description of Stream Sites (Wet and Dry Seasons)**

Stream Site	Land Tenure	Tree Cover on bank	Tree overhang on stream	Soil exposure	Algae	Stream depth (cm)	Stream width (m)	Livestock present
<b>Wag Water</b>	Forestry Dept.	Medium	High	Low	Absent	3 – 4	3	No
<b>Morant River</b>	Unknown	Medium /Low	Medium	Medium	Present	16 – 30	10 (wet); 50(dry)	No
<b>Plantain Garden</b>	Unknown	Low	Medium	Medium	Present	25 – 30	70cm (wet); 4 – 10cm (dry)	No
<b>Yallahs 2</b>	Tenant – Mr. Morgan	Medium	Low	Medium	Present	0.25 – 0.5 (wet); 3cm – 1m (dry)	15	No
<b>Yallahs 1</b>	Forestry Dept.	High	High	Low	Absent	3 – 5	4 - 5	No
<b>Pencar</b>	Unknown	Low	Medium/Low	Medium	Absent	30 – 40 (wet); 5cm – 1m (dry)	15 – 30	No
<b>Swift River 1</b>	Forestry Dept.	High	High	Low	Absent	30	15	No
<b>Rio Grande 1</b>	Tenant – Mr. Johnson?	Medium	Medium	Medium	Absent	4cm – 1.5m	45 (wet); 10m(dry)	No
<b>Spanish River</b>	Unknown	Low	Low	Medium	Absent	30	90	Yes
<b>Swift River 2</b>	Unknown	Medium	Medium	Medium	Absent	2 – 5 (wet); 5 – 15 (dry)	50 – 60	No
<b>Driver's River</b>	Unknown	Medium	Medium	Low	Absent	3cm – 1.5m	10	No
<b>Rio Grande 2</b>	Unknown	Medium	Medium	Medium	Present (wet) ; Absent (dry)	2 (wet); 5cm – 2m (dry)	60	No

Overall Stream Condition:  - Good  - Intermediate  - Poor

Figure 2. Table of Vegetation observed for all monitored sites

Vegetation Observed	Site Observed											
	Wag Water	Morant	Plantain Garden	Yallahs 1	Yallahs 2	Pencar	Swift River 1	Swift River 2	Rio Grande 1	Rio Grande 2	Spanish	Driver's
Rod Wood ( <i>Eugenia sp.</i> )	x			x			x					
Woman Wood ( <i>Dendropanax sp.</i> )	x			x			x		x			
Soapwood ( <i>Clethra occidentalis</i> )	x			x								
Bamboo ( <i>Bambusa vulgaris</i> )		x	x					x	x	x		x
Rose Apple ( <i>Syzygium jambos</i> )		x	x		x	x		x	x	x	x	x
Red Birch ( <i>Bursera simarouba</i> )		x	x									
Teak ( <i>Tectona grandis</i> )		x	x								x	
Mango ( <i>Magnifera indica</i> )		x	x		x				x			
Breadfruit ( <i>Artocarpus altilis</i> )		x	x							x		
<i>Acacia sp</i>		x										
Pond Oak			x									
Trumpet Tree ( <i>Cecropia peltata</i> )			x		x	x		x	x	x	x	
Caribbean Pine ( <i>Pinus caribaea</i> )			x									
Milkwood ( <i>Sapium harrisii</i> )			x					x		x		x
African Tulip ( <i>Spathodea campanulata</i> )			x									

x – Present at site

Figure 2 contd

Vegetation Observed	Site Observed											
	Wag Water	Morant	Plantain Garden	Yallahs 1	Yallahs 2	Pencar	Swift River 1	Swift River 2	Rio Grande 1	Rio Grande 2	Spanish	Driver's
Cobywood (Wanika) ( <i>Matayba apetula</i> )						x						
Dogwood ( <i>Piscidia piscipula</i> )						x						
Locust-berry Tree ( <i>Byrsonima coriacea</i> )									x	x		x
Tree Fern ( <i>Cyathea sp.</i> )							x					
Coconut ( <i>Cocos nucifera</i> )						x		x			x	
Silky Oak ( <i>Grevillea robusta</i> )									x			
Palm ( <i>Calyptronoma sp.</i> )											x	
Almond ( <i>Terminalia catappa</i> )								x		x	x	
Spanish Elm ( <i>Cordia gerascanthus</i> )								x				
Guava ( <i>Psidium guajava</i> )								x				
Hog Plum ( <i>Spondias mombin</i> )												x
Cow's Tongue ( <i>Rytidphyllum grande var. grande</i> )								x				
Sweetwood ( <i>Nectandra sp.</i> )												x

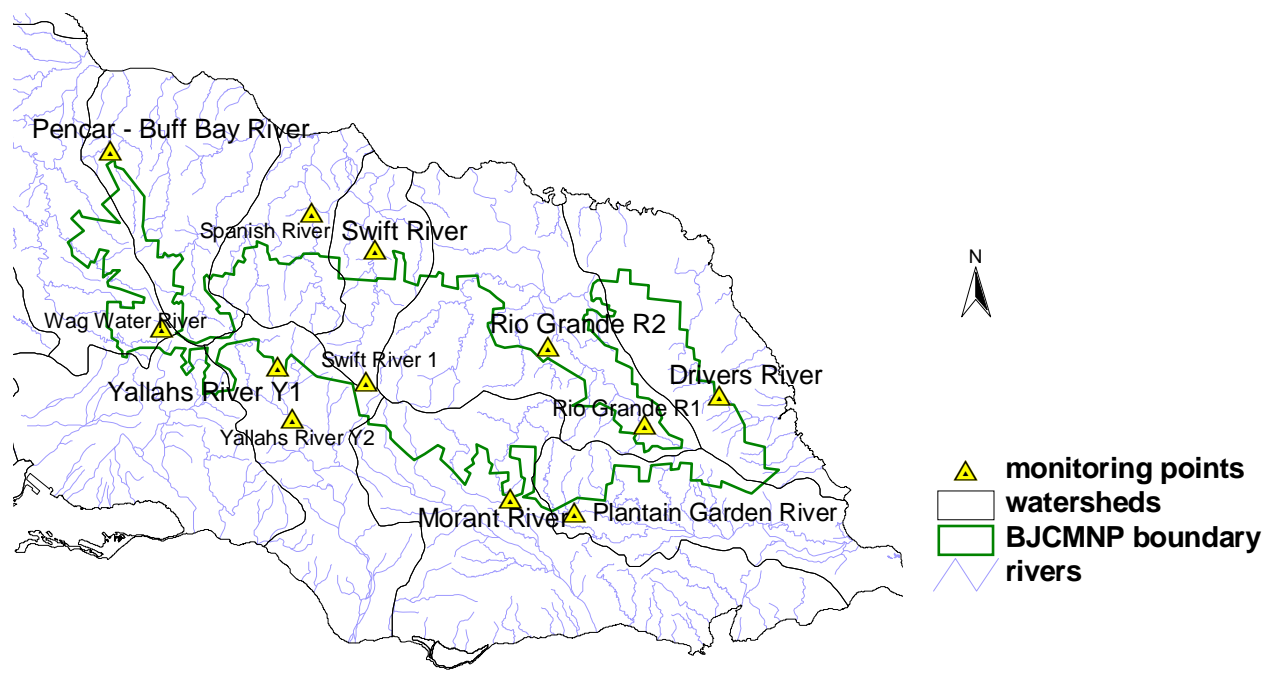
x – Present at site

Figure 2 contd.

Vegetation Observed	Site Observed											
	Wag Water	Morant	Plantain Garden	Yallahs 1	Yallahs 2	Pencar	Swift River 1	Swift River 2	Rio Grande 1	Rio Grande 2	Spanish	Driver's
Wild Cane ( <i>Gynerium sagittatum</i> )					x			x				
Susumber ( <i>Solanum torvum</i> )					x							
Wild Coffee ( <i>Casaeria hirsuta</i> )				x								
Wild Ginger* ( <i>Hedychium sp.</i> )	x			x								
Red Brush* ( <i>Polygonum chinnense</i> )				x								

x – Present at site

Figure 3. Map of Freshwater Monitoring Sites



## Results

### 1. PHYSICO-CHEMICAL PARAMETERS

**Table 1.1 – Physico-chemical Parameters Wet Season (May 07 – November 07)**

<b>Wet Season</b>	<b>Temperature</b>	<b>pH</b>	<b>Dissolved oxygen</b>	<b>Turbidity</b>
Pencar River	No reading taken	7.5	7.9	0
Drivers River	24	7.5	8	0
Morant River	27	7.5	6.8	0
Plantain Garden River	26	7.5	6.8	0
Rio Grande River R1	25	7	7.4	0
Rio Grande River R2	25	7.5	8.4	5
Spanish River	No reading taken	7.5	7.6	0
Swift River S1	14.5	7	8.6	0
Swift River S2	26	7.5	8	0
Wag Water River	18	7	7.4	0
Yallahs River Y1	17	7.5	7.9	0
Yallahs River Y2	27	7.5	7.2	0

**Average Temperature – 20.86°C**

**Table 1.2 – Physico-chemical Parameters Dry Season (December 06 – April 07)**

<b>Dry Season</b>	<b>Temperature</b>	<b>pH</b>	<b>Dissolved oxygen</b>	<b>Turbidity</b>
Pencar River	25	7.5	7.9	0
Drivers River	19	7	8.2	0
Morant River	19	7.5	7.8	0
Plantain Garden River	21	7.5	7.8	0
Rio Grande River R1	19	7.5	7.7	0
Rio Grande River R2	No reading taken	7.5	7.9	0
Spanish River	26	7.5	7.6	5
Swift River S1	8	7	8.4	0
Swift River S2	19	7.5	7.9	0
Wag Water River	17	7	8.2	0
Yallahs River Y1	12	7.5	8	0
Yallahs River Y2	25	8	7.6	0

**Average Temperature – 19.09°C**



Figure 4.1 – Physico-chemical parameters of monitored rivers for the Wet Season

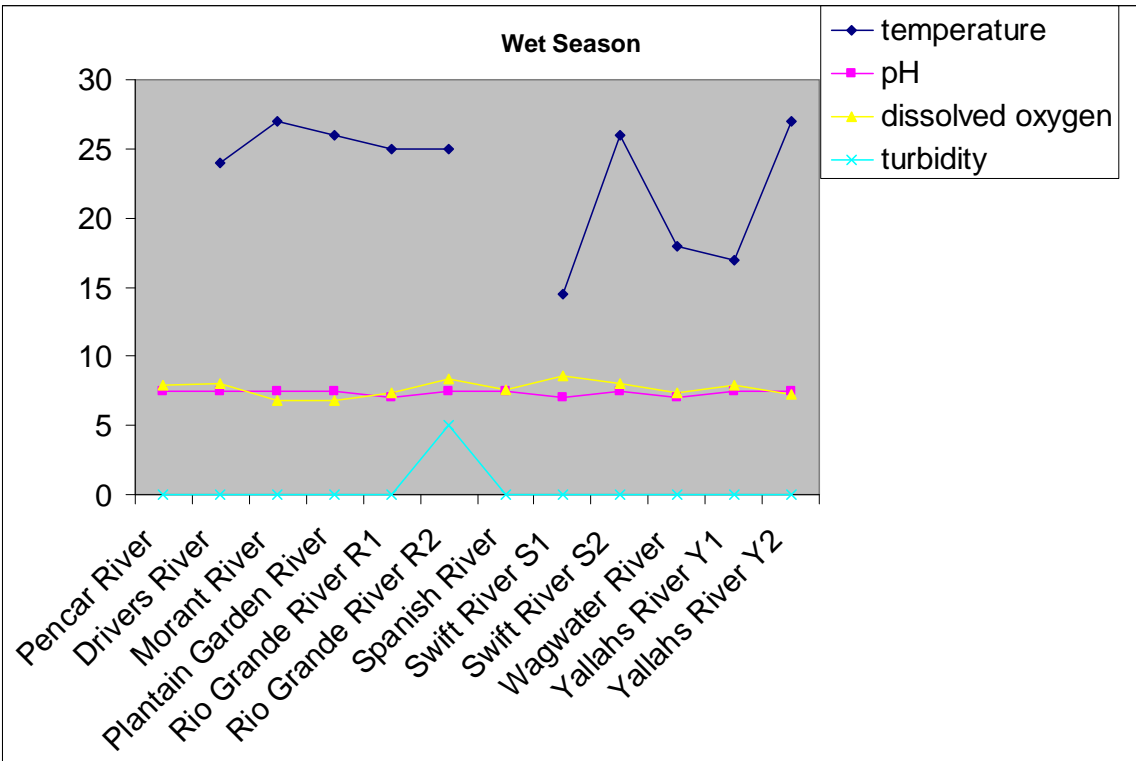
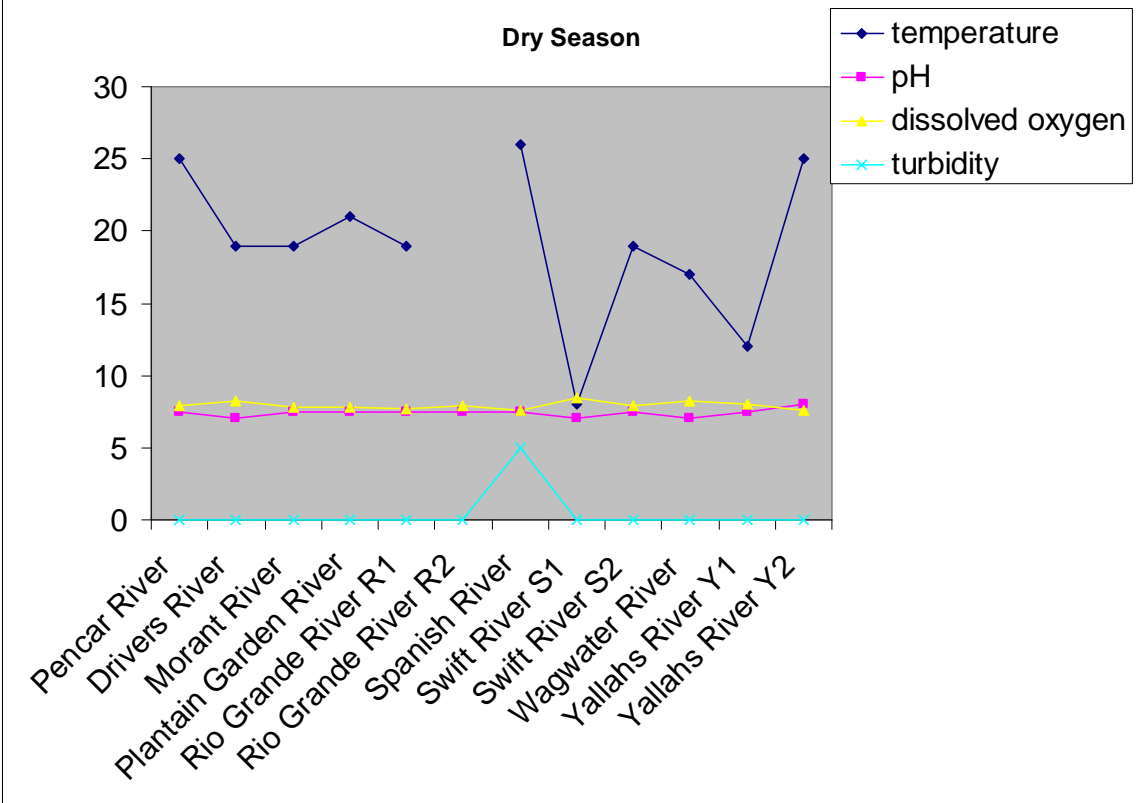


Figure 4.2



From Tables 1a & 1b, the temperature range for the monitored streams were a low of 8°C (Swift River – wet season) to a high of 27°C. Average temperatures show that monitored sites were lower in temperature during the dry season than the wet season (Avg. Dry Season Temperature – 19.09°C; Avg. Wet Season Temperature - 20.86°C). These lower values may indicate that rivers were receiving increased shade from overhanging vegetation.

pH values and Dissolved Oxygen remained fairly constant across all sites. pH values ranged from 7 – 7.5 with only Yallahs 2 increasing to 8 in the Dry Season. Dissolved Oxygen values ranged from 6.8 – 8.6. It was noted that there was increased D.O. in most sites from the Wet to Dry Season, only Swift River1 and Rio Grande 2 having decreased D.O.

Once again as in previous monitoring years Turbidity readings were very low signifying high transparency of these waters. The exceptions were Rio Grande 2 (Wet Season) and Spanish River (Dry season).

## 2. BMI COMPOSITION

**Figure 5.1**

**Numbers of families of benthic macro-invertebrates (BMI) observed at each site (from kick sampling and other qualitative searches)**

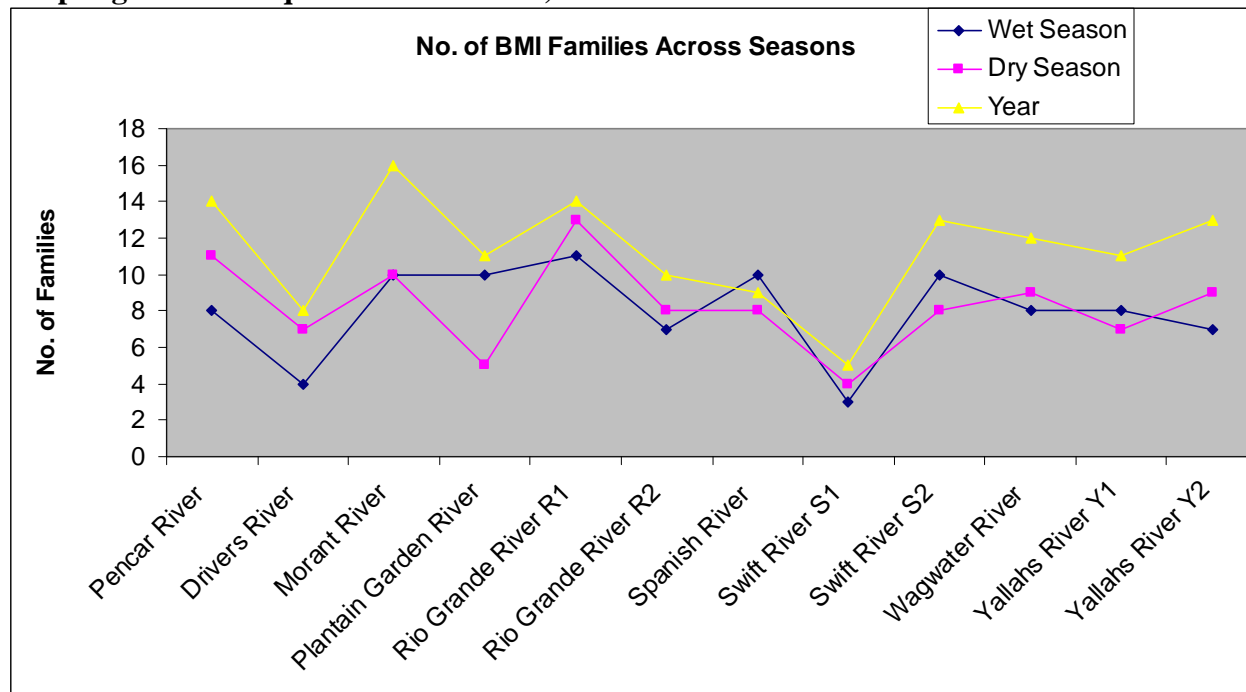


Figure 5.1 indicates this taxonomic richness of the monitored sites. Please see Appendix 1 for complete presence / absence table of BMI Families recorded. The general trend was for greater BMI families to be observed in the Dry season, than the Wet season.

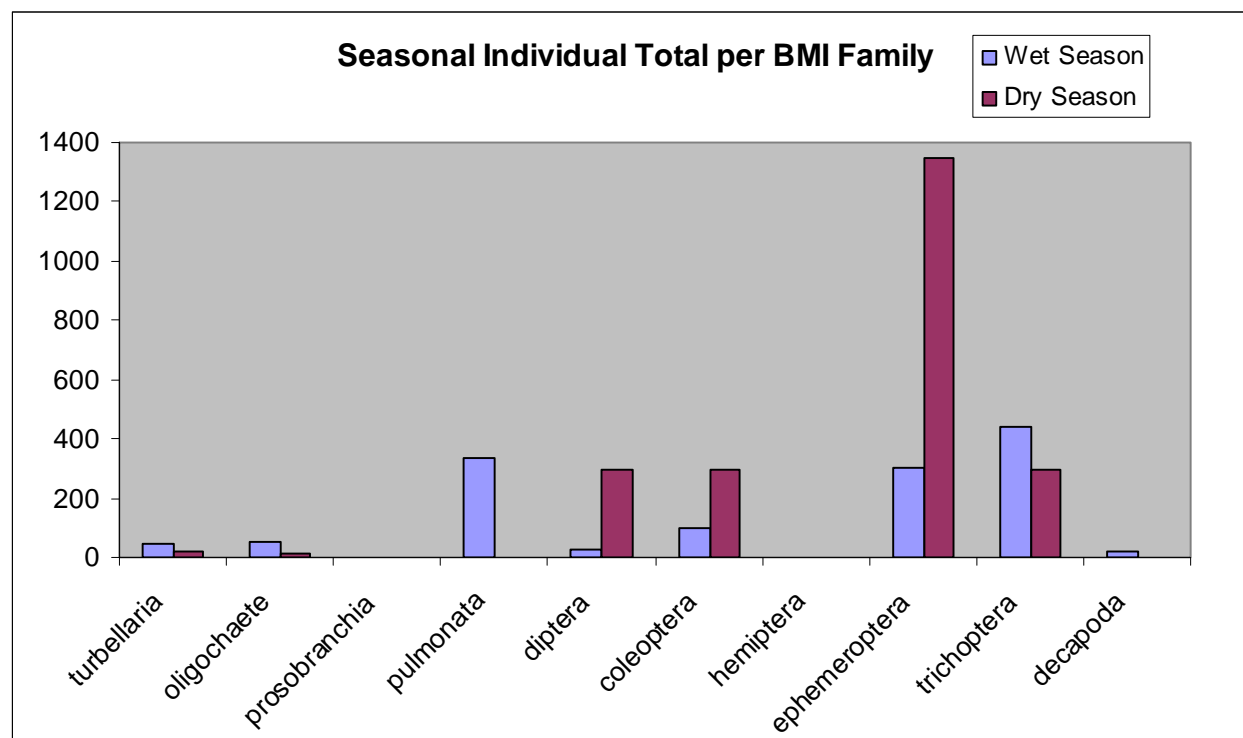
Total numbers of BMI families were less than reported for year 2005 – 2006 (15 – 20 families). For year 2006 – 2007, there was a low of 5 families to high of 16 families recorded. Swift River similarly to 2005 – 2006 had the lowest number of taxa, again believed to be due to the low temperature (8°C) of the river. The highest taxonomic richness was observed at Morant River with a total of 16 BMI Families observed for the year. Morant River is characterized as an intermediate site, and therefore having the highest taxa, would not be expected. However a possible explanation may be the change in surrounding habitat has encouraged an increase in the number of taxa present in the river.



Figures 5.2 and 5.3 indicate that for both wet and dry season monitoring two BMI families were present at all sites and on most occasions dominated the overall composition. These were the orders Ephemeroptera and Trichoptera.

As seen in Figure 5.4 these two orders had the largest number of individuals, over 1200 individuals for Ephemeroptera (Dry season) and 400 individuals for Trichoptera (Wet season).

**Figure 5.4**



### 3.0 BMI SPECIES DIVERSITY

Further analysis of the BMI Composition collected from kick samples was done using the Shannon Weiner Diversity Index, which gives a quantitative indication of species richness and evenness. It was recognized that Index values for this monitoring season were fairly low, with no site, whether during the wet or dry season had diversity index value greater than 0.7.

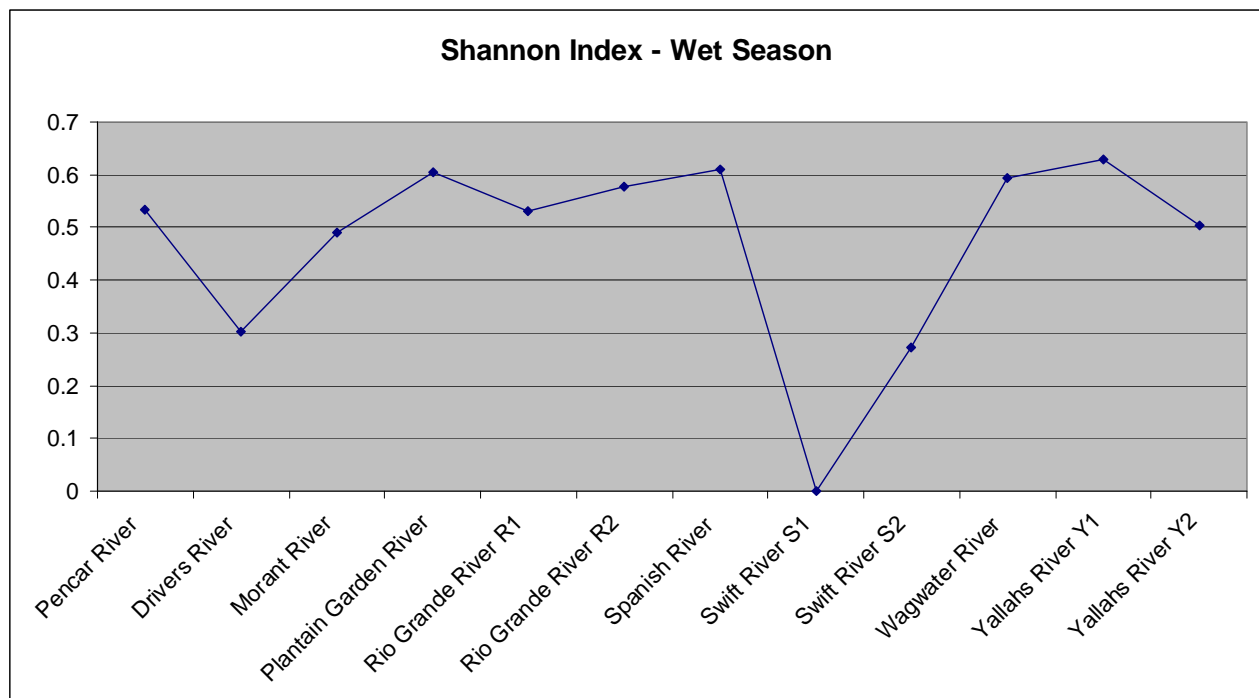
During the wet season the highest diversity were seen in the Plantain Garden, Spanish, Wag Water and Yallahs (Y1) Rivers, with index value  $\leq 0.6$ . (See Figure 6.1)

For the dry season the Pencar, Spanish and Wag Water Rivers had the highest diversity, however values were  $\leq 0.5$  but  $< 0.6$ , further indicating lower diversity within the sites. (See Figure 6.2)

For the year (wet and dry seasons combined), the highest diversity was observed in the Plantain Garden, Spanish, Wag Water and Yallahs (Y1) Rivers. All had diversity index value of  $\leq 0.6$  but  $< 0.7$ .

There is acknowledged that sites with the highest diversity (for both wet and dry seasons) came from all three possible habitat descriptions, i.e. Good, Intermediate and Poor. Higher diversity values are expected for the Good habitat, due to more pristine waters. The Intermediate site having a high diversity index value may also be due to low nutrient enrichment. This explanation may also give an explanation for high diversity index in the Spanish and Plantain Garden Rivers.

**Figure 6.1**



**Figure 6.2**

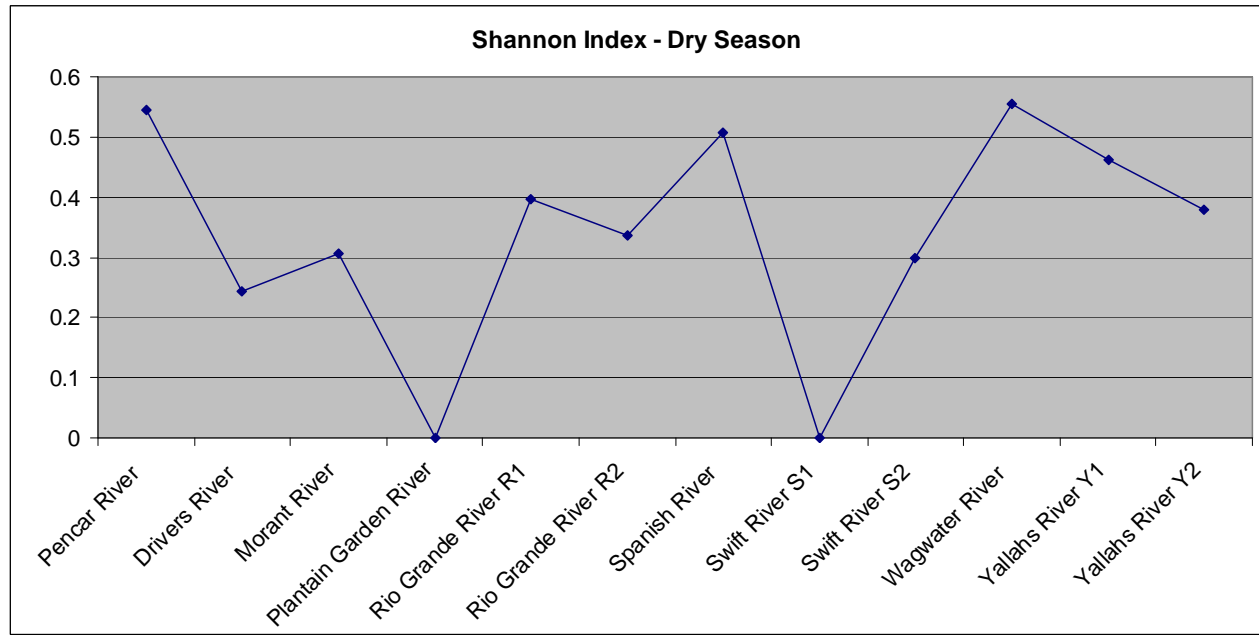
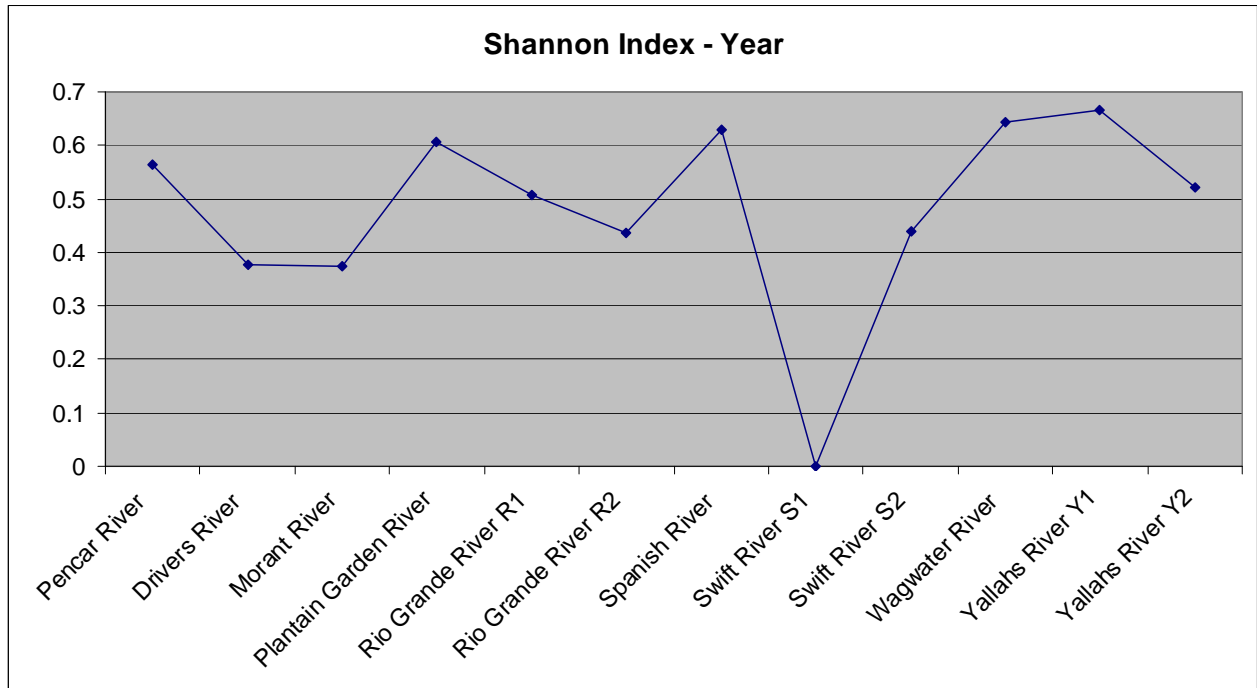


Figure 6.3



### Conclusion

The monitoring results for this year 2006 – 2007 show that the freshwater ecosystems are being maintained in a similar condition. The only noticeable difference is the reduced number of BMI families observed, along with reduced diversity across all monitoring sites. It must be noted that this reduction in diversity should not be viewed as a less effective management of the freshwater ecosystems in the BJCMNP over the previous year, but may be a natural reduction in BMI populations, coupled with other factors which present these dynamic freshwater ecosystems, not captured in the monitored parameters.





	Pencar River	Drivers River	Morant River	Plantain Garden River	Rio Grande River R1	Rio Grande River R2	Spanish River	Swift River S1	Swift River S2	Wagwater River	Yallahs River Y1	Yallahs River Y2
Wet Season												
<b>Odonata</b>												
Anisoptera	1		1	1	1					1		
Zygoptera					1		1		1		1	1

<b>Ephemeroptera</b>					1				1			
Baetidae	1		1	1		1	1	1		1	1	1
Caenidae			1									

<b>Trichoptera</b>	1		1	1	1	1	1	1	1	1	1	1
Calamoceritidae	1	1	1		1		1					
Glossomatidae										1		
Helicopsychidae	1	1	1	1	1	1	1	1	1		1	1
Hydroptilidae												
Hydropsychidae												
Leptoceridae												

<b>Decapoda</b>												
Atyidae			1	1					1			
Grapsidae										1	1	
Palemonidae												
<b>TOTAL</b>	<b>8</b>	<b>4</b>	<b>10</b>	<b>10</b>	<b>11</b>	<b>7</b>	<b>10</b>	<b>3</b>	<b>10</b>	<b>8</b>	<b>8</b>	<b>7</b>



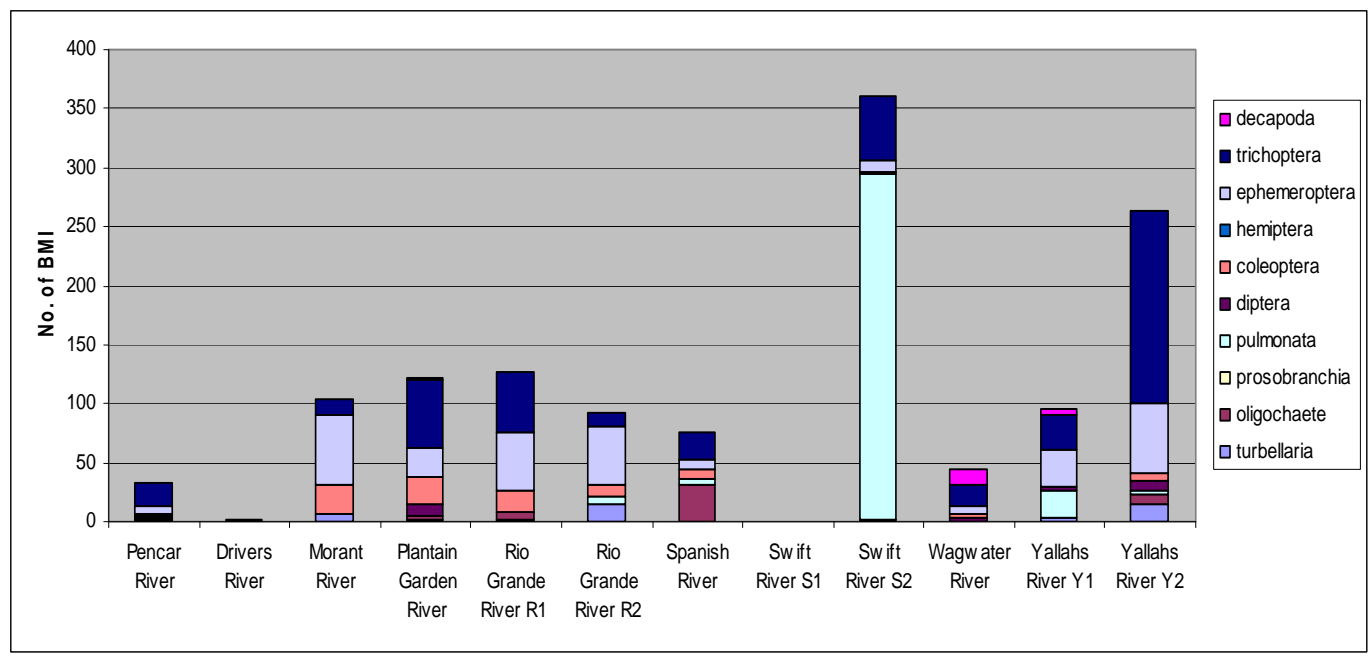
	Pencar River	Drivers River	Morant River	Plantain Garden River	Rio Grande River R1	Rio Grande River R2	Spanish River	Swift River S1	Swift River S2	Wagwater River	Yallahs River Y1	Yallahs River Y2
<b>Dry Season</b>												
<b>Odonata</b>												
Anisoptera					1				1	1		
Zygoptera			1		1						1	

<b>Ephemeroptera</b>		1	1								1	1
Baetidae	1	1	1	1	1	1	1		1	1		
Caenidae												

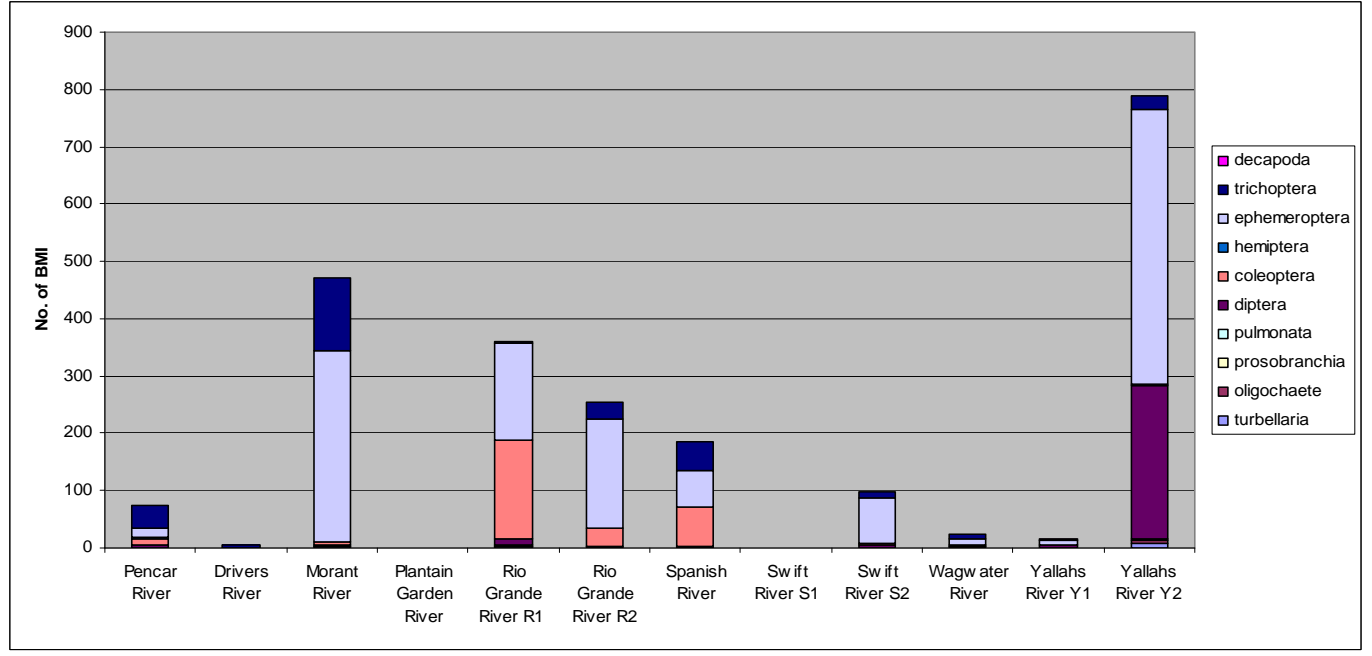
<b>Trichoptera</b>	1	1	1		1	1	1	1	1	1	1	
Calamoceratidae	1	1		1	1		1	1		1		1
Glossomatidae	1			1								
Helicopsychidae	1	1	1	1	1	1	1	1	1	1		1
Hydroptilidae												
Hydropsychidae												
Leptoceridae	1											

<b>Decapoda</b>												
Atyidae												
Grapsidae										1	1	
Palaemonidae												
<b>TOTAL</b>	<b>11</b>	<b>7</b>	<b>10</b>	<b>5</b>	<b>13</b>	<b>8</b>	<b>8</b>	<b>4</b>	<b>8</b>	<b>9</b>	<b>7</b>	<b>9</b>

### APPENDIX 2. BMI Counts for Monitoring Sites (Wet Season)



### BMI Counts for Monitoring Sites (Dry Season)



## 4 THE NATURAL ENVIRONMENT

### 4.1 Portland in the Global Environmental Context

Portland's natural capital is not only rich and unique but is also a critical part of the global natural capital on which civilization depends to create economic prosperity and which is rapidly declining (Boxes 4.1 and 4.2).

#### Box 4.1 NATURAL CAPITAL\*

"Natural capital includes all the familiar resources used by humankind: water, minerals, oil, trees, fish, soil, air, et cetera. But it also encompasses living systems, which include grasslands, savannas, wetlands, estuaries, oceans, coral reefs, riparian corridors, tundras and rainforests. These are deteriorating worldwide at an unprecedented rate. Within these ecological communities are the fungi, ponds, mammals, humus, amphibians, bacteria, trees, flagellates, insects, songbirds, ferns, starfish and flowers that make life possible and worth living on this planet.

"The industrial revolution ... greatly expanded the possibilities for the material development of humankind. It continues to do so today, but at a severe price. Since the mid-eighteenth century, more of nature has been destroyed than in all prior history. While industrial systems [are] able to muster and accumulate human-made capital on vast levels, **natural capital**, on which civilization depends to create economic prosperity, is rapidly declining."

\*Lovins and Hawken, Natural Capital, 1999

Lovins and Hawken anticipate that "As more people and businesses place greater strain on living systems, limits to prosperity are coming to be determined by natural capital rather than industrial prowess."

In the next century, as the human population doubles and resources per person drop by up to three-fourths, a remarkable transformation of industry and commerce can occur ...[through which] society will be able to create a vital economy using radically less material and energy.

The most critical indicators of humankind's use and abuse of natural capital are global climate change and depletion of biodiversity.

#### Box 4.2 EARTH OVERDRAWN ON NATURAL ASSETS

Humankind's ecological footprint is getting heavier and heavier over time, according to a new study by the World Wide Fund for Nature.\* The report's author has noted that: "We are overdrawing on the world's natural capital. This goes unnoticed unless we get some sort of bank statement to tell us that we are overdrawn. Clearly this overdraft is unsustainable."

According to the report:

- While the state of Earth's ecosystems has declined by about 33 percent over the past 30 years, the ecological pressure of humanity on the planet has increased by about 50 percent over the same period, exceeding the biosphere's regeneration rate.
- If people in the developing world gobbled up the same amount of natural resources as people in wealthy countries, the human race would require two additional Earths. In particular, the United States, Canada, Australia and Germany are devouring far more than their earthly share.

\* World Wide Fund for Nature, "Living Planet Report 2000"

**Climate Change.** Human activities continue to increase temperatures and climate globally. Global warming has already brought increased summer heat waves, more frequent and prolonged periods of drought, warmer winters, and increased and more intense precipitation.

- The UN-sponsored Intergovernmental Panel on Climate Change (IPCC) has warned that global temperatures could rise by as much as six degrees Celsius (11 degrees Fahrenheit) by the end of the 21<sup>st</sup> century, compared with 1990.
- Disease-carrying mosquitos are now appearing in more extensive areas of the world and at higher elevations, while coral reefs are showing increased signs of bleaching and the nutrient flow from the cold, deep ocean to the marine food chain at its lowest levels could be altered.
- If emissions of greenhouse gases continue unchecked, sea level will rise by 41cm by the 2080s.<sup>1</sup> Such a rise will expose 81 million more

<sup>1</sup> Hadley Centre, University of Middlesex, London

people (for a total of 94 million) to storm surge flooding and destroy 13% of the 1990 global wetland stock.

- Greenpeace recently reported that rising sea levels and sea temperatures may devastate the economies of several small south Pacific nations over the next 20 years. It noted the effect of the sea level increase would be aggravated by the death of large areas of coral atoll as rising sea temperatures, more frequent cyclones and hurricanes and decreased alkalinity put coral polyps under pressure, likely removing them as dominant organisms on coral reefs in the next 20 to 50 years.”
- Even with reduction in greenhouse gases, changes in climate patterns will continue for many decades, requiring adjustments in patterns of farming, use of water, location of settlements, selection of building materials and other aspects of daily and economic life.

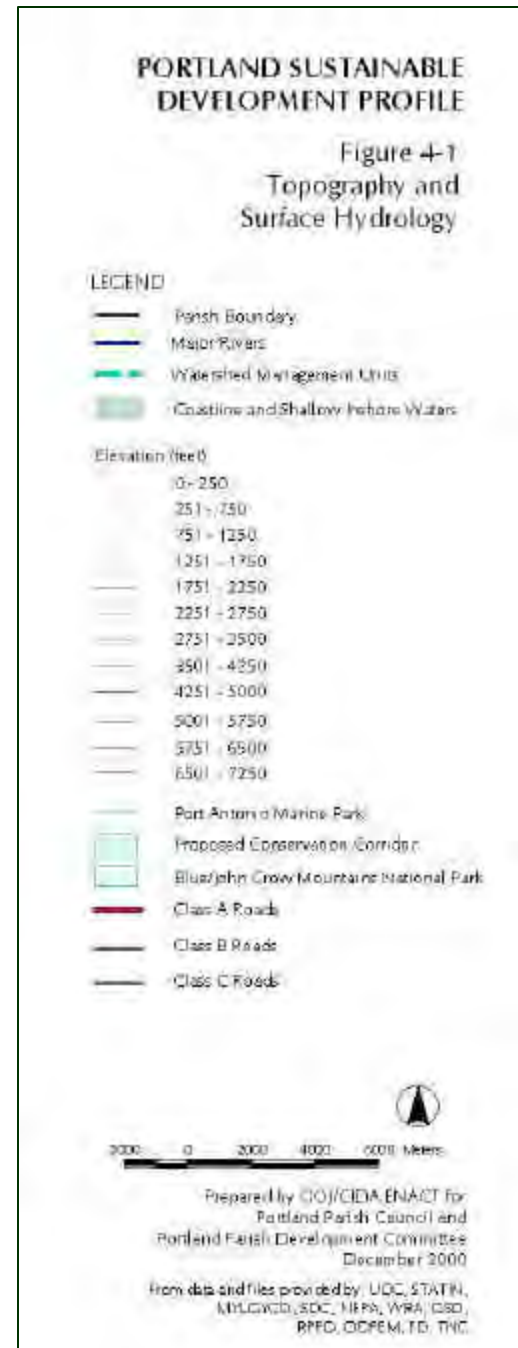
**Biodiversity Depletion.** The world’s biodiversity is a vast and undervalued resource, comprising every form of life from microbes to the largest mammals and the ecosystems of which they are part. It provides humanity with food, energy, fabrics and other materials, and compounds and genes to heal diseases and protect crops.

- Estimates of the number of species range from 10 to 50 million. However, at current rates, 5 to 15 percent of species are predicted to become extinct by 2020 and up to 25 percent by 2025.
- Only 1.4 million species have been identified since classification of life forms began some 230 years ago. The vast majority of all plant species have yet to be identified and their potential discovered.
- Two thirds of the approximately 250,000 identified species of vascular plants and roughly 30% of the 8,700 bird species are naturally found in tropical regions.

Portland’s natural capital therefore needs to be understood in terms of its intrinsic value and condition and in the context of critical global environmental trends. It also needs to be used in ways that realize the transformation envisioned and advocated by Lovins and Amory.

#### 4.2 Portland’s Natural Capital

Portland’s unusual geophysical and microclimatic variety (Figure 4-1) produce terrestrial and marine ecosystems of extraordinary biodiversity.





It is therefore one of the greatest treasures of Jamaica, an island that, despite the ravages of three hundred years of human change, still occupies the position of fifth most biodiverse on earth.

### 4.3 Terrain and Elevation

Portland boasts some of the most spectacular landscapes in Jamaica, combining an 80-km seacoast dotted with rocky coves, black and white sand beaches and wetlands, with a verdant but narrow coastal plain, springs, rivers, waterfalls, and the peaks of the contiguous but strikingly different Blue Mountains and John Crow Mountains.

The roughly east-west Blue Mountains rise steeply, often only a short distance from the coast, and contain steep-sided valleys and deeply gorged rivers. Much of the 16 km Grand Ridge is over 1800 m. The Blue Mountain Peak (2,256 m) is shared with St. Thomas. Other high points include the Blue Mountain eastern peak (2,248 m), Sir John's Peak (1,930 m), and Portland Gap (1,675 m). Lower peaks and ridges radiate from these, giving way to slopes that frequently exceed 50° and sometimes exceed 70° (Figure 4-2). The range of elevation, complex terrain and intricately varied aspect of the slopes (Figure 4-3) are reflected in diverse biological communities and land cover. Some plants are found only at certain elevations with a very specific aspect.

The southeast-northwest trending John Crow Mountains are separated from the easternmost end of the Blue Mountains by the Rio Grande Valley below Corn Puss Gap (640m). The range rises gently from the east to 1140 m but ends abruptly along a steep western escarpment. Unlike the Blue Mountain peaks, the summit is a slightly tilted plateau, a landscape of sinkholes and outcrops devoid of prominent features.

Standards for the suitability of slopes for agricultural and settlement often used in other countries cannot be applied in the Blue Mountains because of their long history of human occupation (see Chapter 5).

### 4.4 Climate

Portland's climate is typical of Jamaica's tropical pattern with hot lowlands giving way to cooler mountains. Seasonal variation in

temperature is less than day-night variation, and extremes of temperature are tempered by the maritime influence.

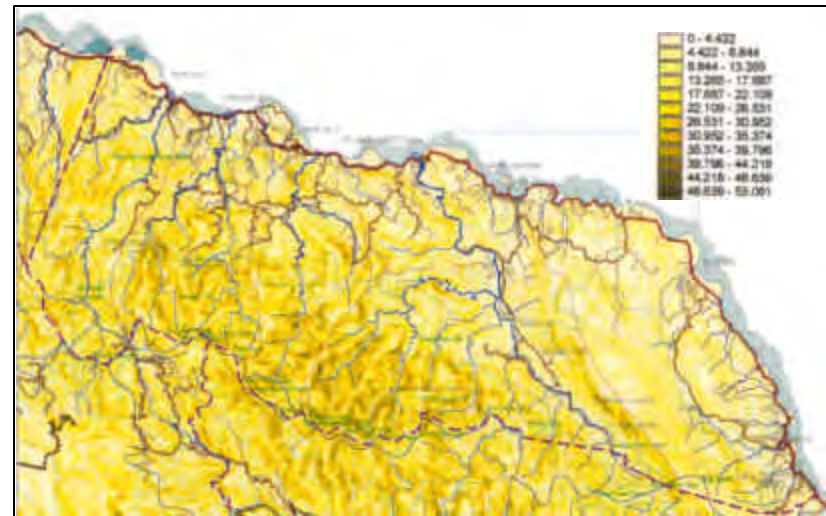


Figure 4-2 Slopes (percent)

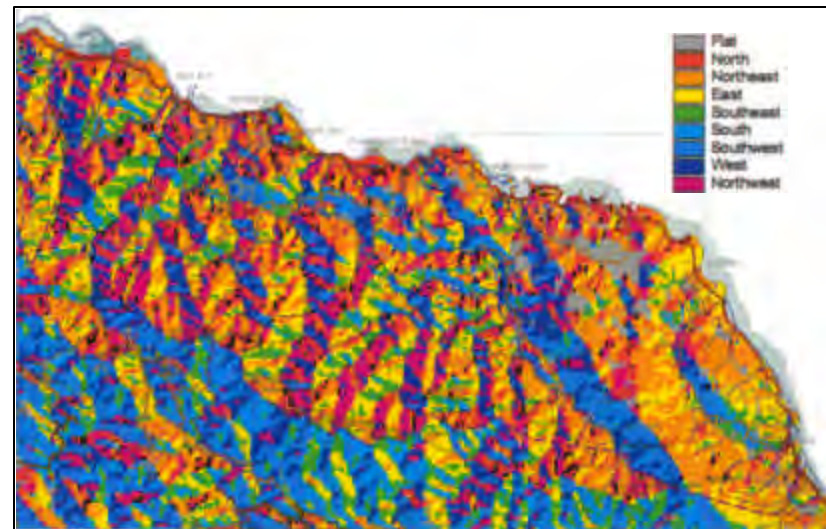


Figure 4-3 Slope Aspect



**4.4.1 Winds**

The prevailing moisture-laden North East Trade winds blow in from the Atlantic Ocean in a south-westerly direction. Wind speed usually rises at dusk and is highest at night and winds are stronger during the winter.

**4.4.2 Temperature**

Lowland temperatures range from 27°C to 31°C and, as a rule, temperatures decrease by 0.6°C for every 100 metres ascended. Temperatures in the mountains are rarely cold enough for frost. Within the montane forests of the western Blue Mountains at 1550 m, mean monthly temperatures range between 18.5°C and 20.5°C. The only consistent high altitude data (for Middle Peak from 1890 to 1900) show an absolute maximum of 24°C and minimum of 0.7°C. Night-time near-ground-level temperatures in open areas may be as much as 5.8°C lower than standard air temperature. The wind chill factor may bring effective below freezing temperatures on Middle Peak on winter nights. These conditions will clearly be increasingly affected over the next 50-60 years, at least, by climate change, although the nature of those changes locally is not fully predictable. Monitoring is advisable.

**4.4.3 Potential Sea Level Rise**

Table 4.1 provides a sea level scenario analysis for five-year increments commencing in 1995.<sup>2</sup> The analysis uses records of sea level change at the Port Royal gauge station between 1954 and 1969,<sup>3</sup> records of tectonic movement at Folly Point, and a conservative estimate of climate-induced sea-level change of 0.28 cm/year.

**Table 4.1 Scenario Modelling for Future Sea Level at Port Antonio**

Scenario	Year					
	2000	2005	2010	2015	2020	2025
Port Royal: 0.049 cm/yr	0.25	0.49	0.73	0.98	1.23	1.47
Port Royal + tectonic	0.29	0.57	0.86	1.14	1.43	1.71
Greenhouse .28cm/yr)	1.4	2.8	4.2	5.6	7.0	8.4

<sup>2</sup> Louis Berger International, Port Antonio Sanitation Study, 1996

<sup>3</sup> Port Royal data may be exaggerated due to an unknown amount of land subsidence.

**4.4.4 Precipitation**

**Rainfall.** Portland experiences Jamaica’s highest rainfall: 3,100 mm was recorded in 1995 and 3,362 mm in 1996. The heaviest rains usually occur in May and October, although annual and monthly rainfall is highly variable and the number of rain days is usually high. As the winds sweep inland they rise up the northern slopes of the mountains, causing precipitation as the air cools with altitude. Thus these slopes, and the wind corridor of the Rio Grande valley in particular, are the wettest areas. Moore Town receives the highest rainfall (5516 mm in 1990), followed by Shirley Castle (4860 mm) and Fruitful Vale (3083 mm). Higher locations receive lower volumes (Ecclesdown 2690 mm and Millbank 2674 mm).

**Storms.** Thunderstorms are frequent events in both mountain ranges and periodically can have a profound influence in the region. As recent experience has shown, storms cause downstream flooding, trigger landslides and can even cause major diversions of river courses. Rainfall associated with, or immediately following, hurricanes frequently causes considerably more damage than normal heavy rains. In the mountains, landslides frequently result, as forest tree root systems are weakened or broken by high winds. The rains of January 3-4, 1998 caused intense flooding, to depths of 2 to 14 feet, and landslides in many communities. Severe flooding affected the entire Port Antonio area. (See Figure 4-4, Natural Hazards, and Section 4.4.3, Landslides.)



Figure 4-4a Devastation caused by January 1998 floods

Coastal areas are also vulnerable to storm surges in major storms, especially along the east coast. Hurricane Allen in 1980 brought 2-12 m surges at Manchioneal. Even more dramatic increases in wave heights were reported during Hurricane Gilbert. Many shallow coral reefs were also extensively damaged by hurricanes Allen and Gilbert. With climate change, storm intensity is already increasing and likely to continue to increase, putting many parts of the coast at risk. Figure 4-4 shows the general location of historic surges and potential risk areas. **These and other areas potentially subject to future sea level rise as well as flooding**

and landslides need updated and more detailed mapping. Annex F presents a list of Portland’s major natural disasters.

**Mists.** The vast majority of precipitation in the mountains falls as rain but a mist (cloud or fog) envelops the upper northern slopes of the Blue Mountains for about 70% of daylight hours for most of the year. This condition supports the Blue Mountains’ rare “cloud forest” (see Box 4.2). Rain usually occurs around mid-day, and the night is clear. Mist increases humidity and cuts incident light to an estimated one-quarter of normal. Heavy dew forms abundantly in open areas on clear nights.

As discussed further in Section 4.8.1, rainfall and fog, which affect the physiology of plant growth, especially photosynthesis and evapo-transpiration, have a profound influence on the ecology of the mountains, while the prevailing winds from the east and northeast exert considerable influence on the vegetation ecology of the exposed ridges. However, again, climate change must be expected to bring profound, if not fully predictable changes in the existing regime.

## 4.5 Geology

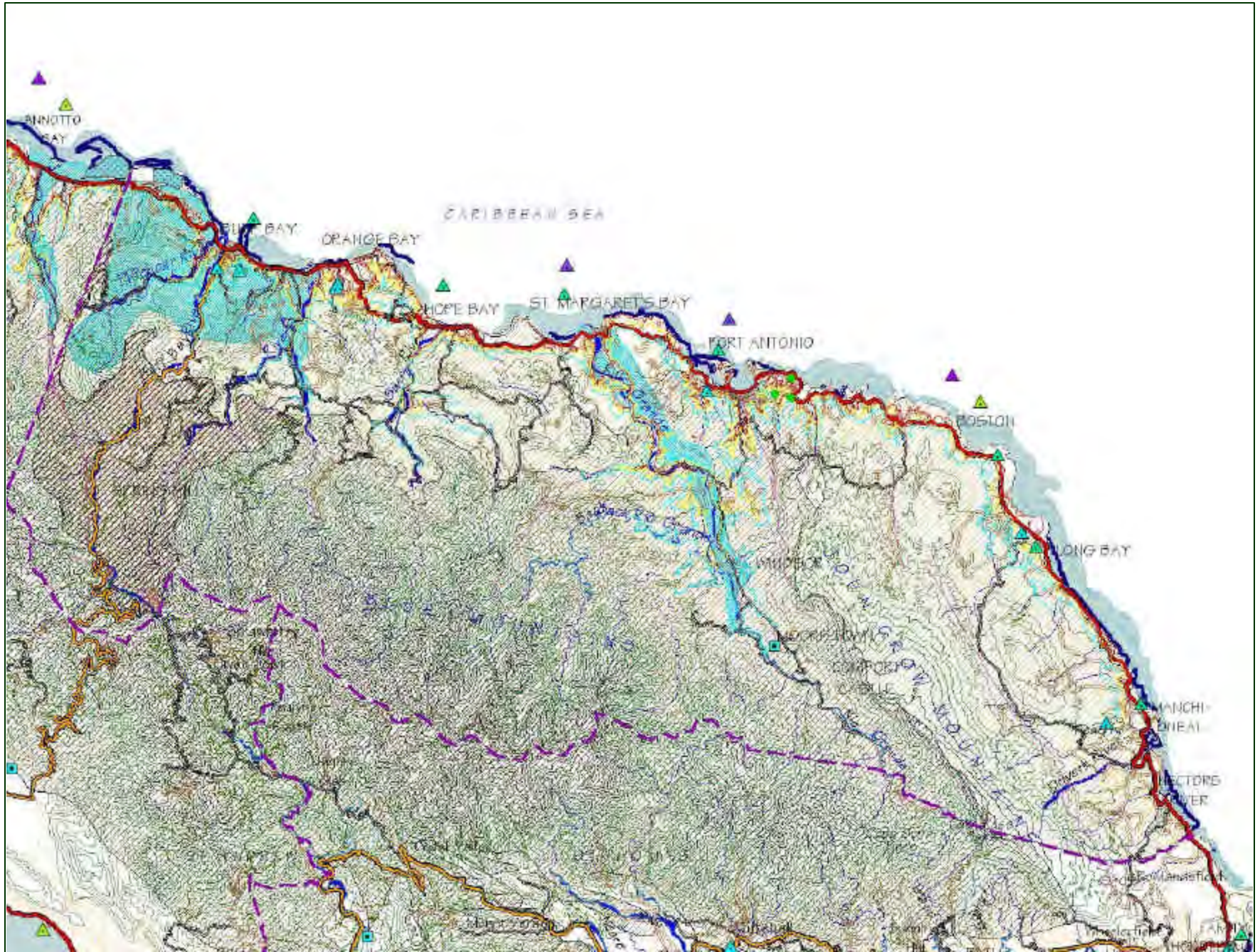
### 4.5.1 Geologic Composition

The rich variety of landforms reflects the complex geological composition and history of this part of the island (Figures 4-5 and 4-6). The Blue Mountains exhibit both igneous and marine influences. They consist predominantly of plutonic rocks and sediments, tuffs and lava flows associated with volcanic activity (probably submarine).

The Blue Mountains also contain minor sedimentary (marine shales, reef limestones, sandstones and conglomerates) and metamorphic (schists and marble) units. The igneous rocks are thought to be the youngest rocks, intruded into the sediments after uplift. The limestone and other deposits have largely been eroded but remain as isolated outcrops and, most notably, as the cap of John Crow Peak at the western end of the Grand Ridge.

In contrast, the John Crow Mountains consist of hard, massive white limestone overlying marine sandstone and shale. Similar hard white limestone formations cover most of Jamaica.





In the John Crow Mountains, the limestone has eroded to form a rugged landscape that is less karstic (dissolved and dissected) than the Cockpit Country but is characterized by steep rocky knolls and deep closed depressions. Deposited in both shallow and deeper water, these limestones abound in marine fossils.

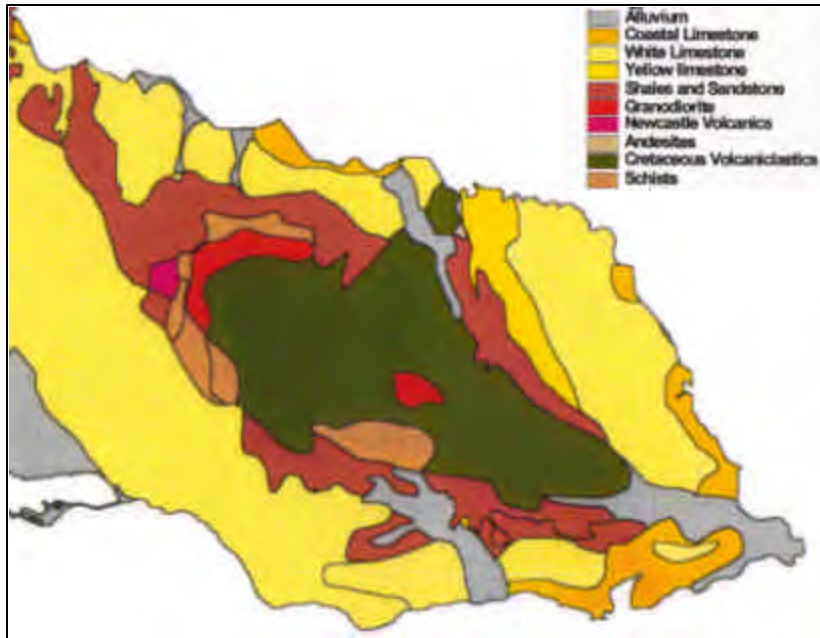
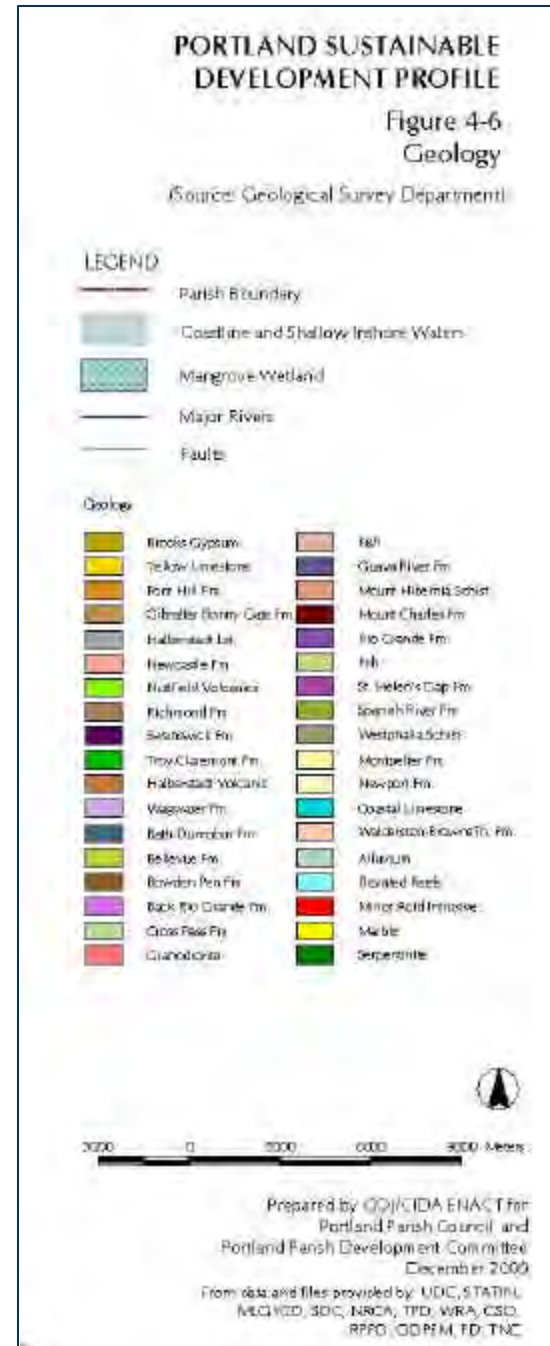
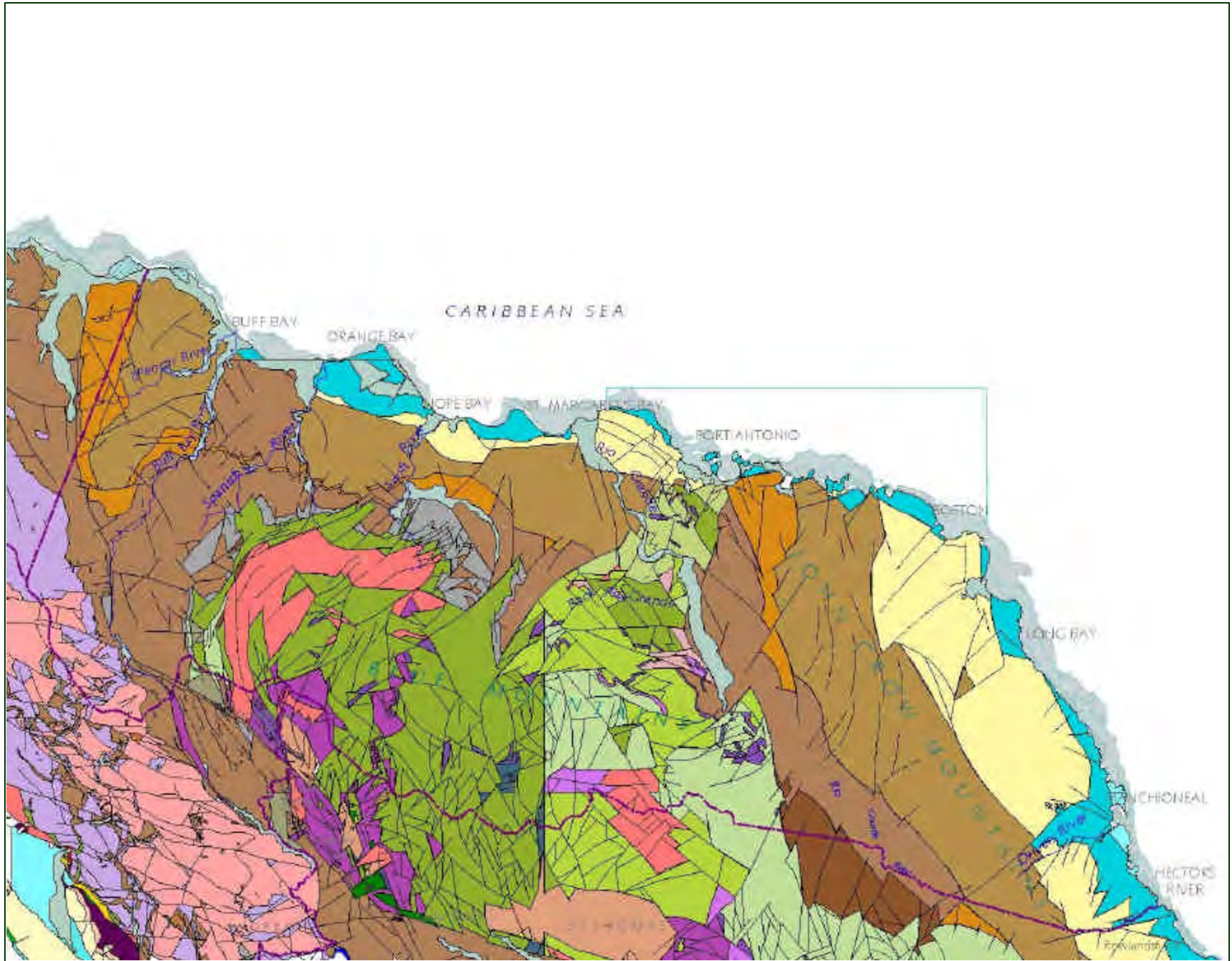


Figure 4-5 Simplified Geology of Eastern Jamaica (Geological Survey Department)

### 4.5.2 Earthquakes

Movement of the North American and Caribbean Plates and associated faults on land are the major sources of earthquakes in Jamaica. Most of the Blue Mountains area relatively stable and have experienced low levels of seismic activity. However, the surrounding area contains major faults, such as the Rio Grande Fault, and many other smaller faults that strongly influence the patterns of drainage.





### 4.5.3 Landslides

Most landslides in the Blue Mountains are shallow and superficial, exposing a layer of subsoil that is constantly subjected to weathering and eroding forces. Slopes most prone to landslides are those with zones of intense faulting and fracturing (see Figure 4-2). However, the occurrence of landslides is also related to vegetation, the intensity and duration of rainfall, hurricane damage, and human influences (deforestation, improper road construction, inappropriate agricultural practices, and improper drainage systems). **Areas denuded of forest cover are far more susceptible to landslides. On steep slopes (greater than 50 degrees), lateral soil reinforcement from plant roots is essential to prevent recurrent slope failure.**

### 4.5.4 Unusual Landforms

Notable and heavily visited features include the Blue Hole or Blue Lagoon and waterfalls, including Somerset, Scatter and Reach.

The San San Blue Hole, reputedly ‘bottomless,’ has a 180 foot bottom. A sinkhole formed by groundwater dissolving limestone rock during low sea level in the Ice Age, it has large springs, which are probably located along a fault.

Portland contains the well-known Nonsuch Caves, southeast of Port Antonio, and the lesser-known Foxes Caves, south of the town. However, 75 others (Figures 4-7 and Annex A) extend under the Blue Mountains and especially under the John Crow Mountains. Although none is

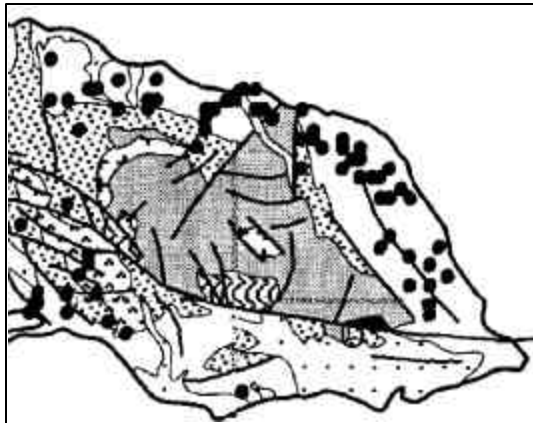


Figure 4-7 Caves in Portland (Fincham 1997)

especially deep and only two exceed 100 meters, the caves represent a mainly unexplored source of interest. As noted in Chapter 3, the caves were of special utility to the Maroons.

### 4.5.5 Minerals

Surveys and general knowledge of economic geology indicate that the volcanic and intrusive igneous rocks of the Blue Mountain inlier have economic mineral potential. The Spaniards mined copper at Leckies on the Swift River in the 16th century. Veins of copper were mined in the Rio Grande Valley, Coopers Hill, Marshall Hall and, extensively, at Durham, southwest of Port Antonio in the mid-19th century. Also present are significant lodes of iron ore-magnetite and hematite as well as nickel, chromium, cobalt, manganese, silver, and platinum. Trace amounts of gold and silver accompany several of the occurrences of copper. The Hope lead and zinc mine east of Papine, closed in 1863, was Jamaica's most successful non-alumina mining venture to date.

No mines currently exist within the mountains but **the Government of Jamaica has granted eight Special Exclusive or Exclusive Prospecting Licences for exploration or mining in areas, which remain current.** Limestone, marl, sand and gravel are extensively available.

### 4.5.6 Soils

**Coastal Soils.** Alluvial soils are distributed mainly along the north-western coastline and a few pockets in the interior near Sherwood and Windsor Forests. However, a majority of soils are thin mountain soils (see Figure 4-8, Generalized Soil Types).

**Mountain Soils.** These soils reflect the fundamental difference in underlying geology between the two ranges. In the Blue Mountains, soils are mainly derived from the metamorphic and igneous rocks and are highly porous loams subject to heavy leaching, resulting in low nutrient content (especially of nitrogen and phosphorus) and low pH.

Slow decomposition of organic matter is a feature of forest soils, especially at higher altitudes. On steep slopes, soils are immature with stony or gravelly parent material at or near the surface, well drained but highly susceptible to erosion. Vegetation types correlate strongly with

certain soil types although the geological boundaries are not clearly seen in the vegetation except over limestone outcrops.<sup>4</sup>

In the John Crow Mountains, the bedrock limestone is often at or just below the surface. Soils are shallow and stony, with pockets of deeper well- to poorly-drained loams and clays under a thin layer of humus.

**Depth and Permeability.** Soils in the Blue Mountain catchment areas have limited water-holding capacity. Those in the catchment of Port Antonio and the Conservation Corridor,<sup>5</sup> fall in Group C under the United States Soil Conservation Service soil classification scheme, which: “Comprises shallow soils and soils containing considerable clay and colloids though less than group D. The group has below-average infiltration after presaturation.”<sup>6,7</sup>

**Erosion Hazard and Soil Capability.** Figure 4-9a shows relative erosion potential. Soil capability in the coastal plain and the Rio Grande Valley is mainly **subject to extreme danger from erosion, only capable of sustaining tree crops (Class IV), or Class IIIe (with high erosion hazard).**



Figure 4-9b Eroded slope in Portland (NRCA photo)

Most of the land in the Blue/John Crow Mountains National Park and much of it outside has a slope angle greater than 25° and often over 50°, and has been classified either as **subject to extreme danger from erosion, only capable of sustaining tree crops (Class IV), or unsuitable for cultivation, to remain under natural vegetation (Class V).**<sup>8</sup>

<sup>4</sup> Grubb & Tanner, 1976

<sup>5</sup> Proposed Port Antonio Marine Park/Blue and John Crow Mountains National Park link.

<sup>6</sup> For comparison: Group A includes deep sand and gravel formation with very little silt and clay, and also deep rapidly permeable losses. This group has the lowest runoff potential. Group B is mostly sandy soils, less deep and well-developed than Group A, but above average infiltration after pre-saturation. Group D includes clay and soils of high swelling percentage, as well as shallow soils with nearly impermeable sub-horizons near the surface. This group has the highest runoff potential.

<sup>7</sup> Site investigations and assignment of classification by Louis Berger International, 1996

<sup>8</sup> Land capability classes are based on a combination of land features, mainly slope angle (steepness) and soil depth. In Jamaica, land with a slope angle of 25-30° and a soil depth greater than 25 cm, may be sustainably used for tree crop cultivation, but great care must be taken with the ground preparation, planting, and harvesting practices so that the

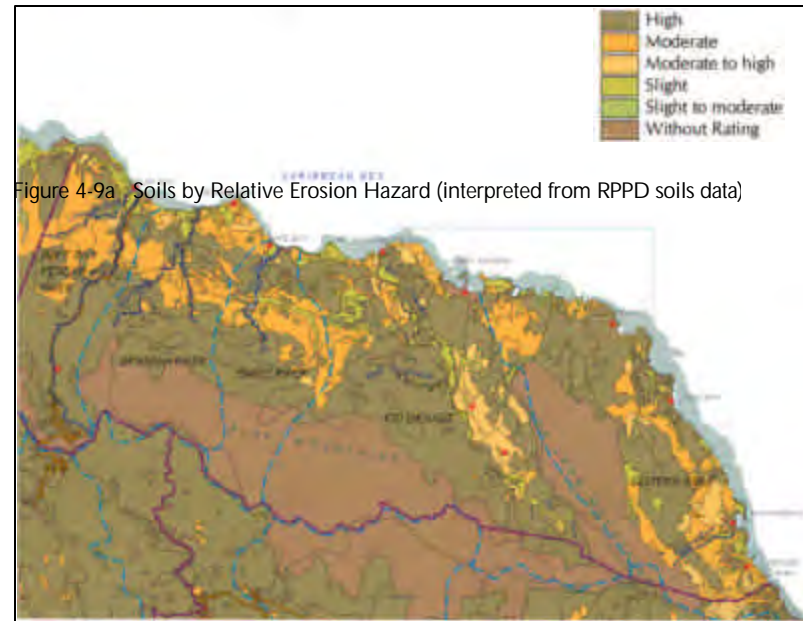


Figure 4-9a Soils by Relative Erosion Hazard (interpreted from RPPD soils data)

Table 4.2 Land Capability Classes in Portland by Approximate Area

Class	Acres	Hectares
I	5,959	2,383.6
II	8,050	3,220
III	28,750	11,500
IV	17,000	6,800
V	59,900	23,960
VI	18,400	7,360
Miscel./Forest Reserves	47,800	19120
Total	185,859	74,343.6

Source: Rural Physical Planning Division

watershed is not damaged or left bare for any length of time. Land with slope angle greater than 25° and soil depth less than 25 cm (most of the land in the Blue/John Crow Mountains National Park) should be kept under forest cover.

A comprehensive study of soil capability and landslide, erosion, flood and seismic hazards would be valuable for sustainable development planning, building on the work of RPPD, ODPEM and recently completed hazard studies for the Kingston region.

#### 4.6 Hydrology

##### 4.6.1 Watersheds

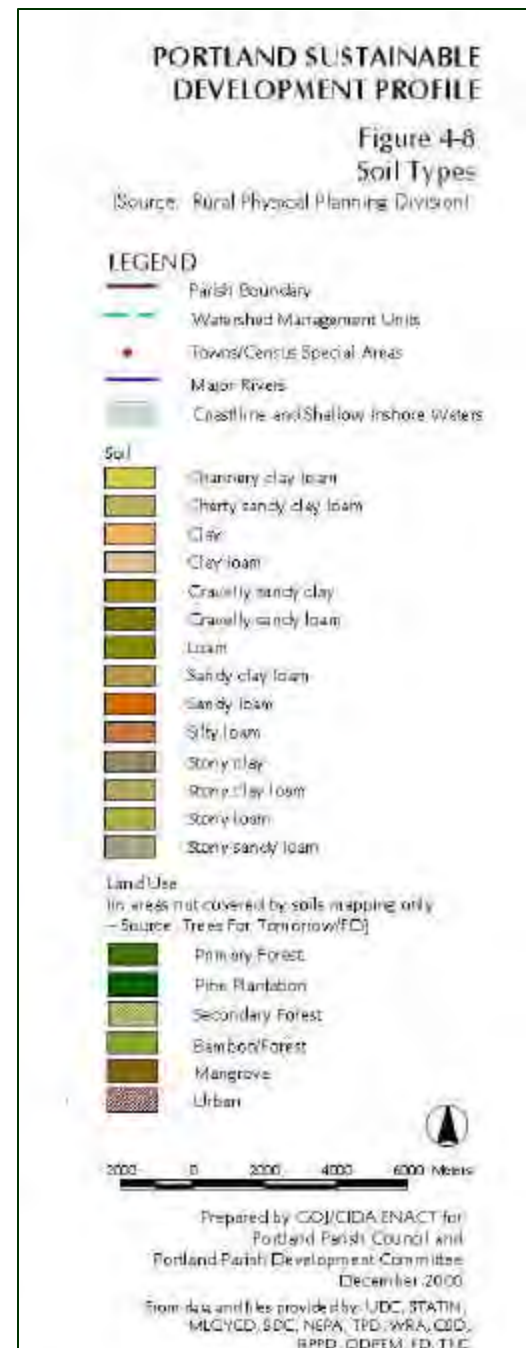
Portland comprises the central and eastern portions of the Blue Mountain North Basin, with five watershed units: Buff Bay, Spanish River, Swift River, Rio Grande, and Driver's River (Figure 4-10). Within these units are 17 major rivers, of which the Rio Grande is the largest.



Figure 4-10 Eastern Jamaica Basins and Watersheds

##### 4.6.2 Surface Drainage

Many of the rivers are fast-flowing and prone to flash floods. Those rivers that rise on the portions of the Blue Mountains of volcanic origin show great flow fluctuations. There is little groundwater storage capability owing to the proximity of bedrock to the soil surface, and the river gradients are steep. Surface runoff can be expected to increase almost immediately during rainstorms, with little retention time.







In the catchments of the north-flowing Blue Mountain rivers, slopes can exceed 60°. In the upper areas, drainage is typically "chute and pool," with bedrock exposed on the chutes. Numerous waterfalls in the main channel and side gullies characterize the upper reaches of typical rivers.



Figure 4-10a Waterfall (NRCA)

The suitability of the rivers for existing and potential uses (for domestic and irrigation water, production of hydroelectricity, etc.) has been incompletely examined. However, past studies have indicated that few suitable sites exist and that the effects on river ecosystems would be adverse. (See also Chapters 5 and 7.)

#### 4.6.3 Water Quality

In the past, a number of physical and chemical tests have shown that the Blue Mountain rivers are all of excellent quality for public water supply purposes. However, additional checks should be made for agricultural chemical runoff (including Endosulfan in coffee-growing areas) and coliform bacteria. Residues of Endosulfan were present in the soil water and shrimp of the Spanish River in 1994, for example. (See also Chapter 5.)



Figure 4-10b Polluted river (NRCA)

#### 4.6.4 The Coastal Shelf

The shelf on the north coast of Jamaica is extremely narrow, dropping to more than 100 fathoms within 1/4 mile from land. The coastline consists of steep rocky headlands separating protected bays, while sea floor habitats include stone, algal, sand, and mud plains. The physical diversity creates a variety of distinct biotic communities, including a wide range of reef types: fringing and knoll reefs; back reef, reef crest and fore reef structures complete with buttresses, caves and vertical escarpments dropping down to deep vertical wall coral communities.

The reefs provide an essential service, protecting the shoreline from the worst ravages of storms and replenishing beaches, as well as providing

nursery and feeding habitat for fish (see also Section 4.8.21). Many shallow reefs were extensively damaged by hurricanes Allen and Gilbert, but young corals are settling and growing in favourable areas.

#### 4.7 Ecosystems

Jamaica's species-rich natural flora and fauna reflect its wide variety of habitats, its great range of altitude, geologic variety, and its position between North and South America and its distance from other land areas. The combination of these features makes Jamaica an important country for species conservation. However, over 27 species of mammal and an unknown number of plant species have become extinct in Jamaica in the past 200-300 years.

Portland's range of altitude and high rainfall supports an extraordinary diversity of plants (trees, ferns and flowering plants) and animals (birds, insects and amphibians), many of which exist only in northeast Jamaica. Together with some of Jamaica's richest coastal ecosystems, the Parish possesses a remarkable stock of natural capital.

» See Table 4-4 and Figure 4-17 for summaries and Annex B for species lists.

#### Box 4.3 Jamaica's Plant Biodiversity

Jamaica's high species diversity is illustrated by its comparative density of flowering plant species per square mile, which is approximately 34 times that of Great Britain, about 7 times more than Sri Lanka, 4.5 times more than Cuba and 4 times more than Hispaniola. Twenty-eight percent of the flowering plant species, 13% of the fern species and 9 out of 10 palm species (*Palmae*) are endemic. There are also seven endemic genera of flowering plants. Forty-four plant species new to science were recorded between 1972 and 1982 and further investigation of the Jamaican flora will no doubt turn up more.

The picture of Jamaica's biota has been dramatically altered in the past 300 years by harvesting of trees and cultivation, resulting in the loss of some 95% of primary forest (see Figure 4-11). Jamaican Mahogany, once considered the finest in the world, is commercially extinct. At least two species of mammals, three species of birds and unknown numbers of plants have been lost, an incalculable loss to Jamaica's ecology and economy. (For further discussion, see Chapter 5.)

## 4.8 Mountain Ecosystems<sup>9</sup>

The natural forests of the Blue and the John Crow Mountains are distinctly different, reflecting the underlying geology and soils and the rainfall, which diminishes from NE to SW. Within each range, factors that influence gradual changes in species composition of these tropical montane forests are altitude<sup>10</sup>, slope steepness, rainfall gradient and localized micro-climatic effects. Again, it must be noted that global climate change is likely to affect these conditions over the coming decades.

Sudden contrasts in species composition are caused by soil factors, slope aspect and human interference. Shreve noted the differences in vegetation between the windward and leeward slopes and variations generated by ravines, slopes and spurs. He also noted that **“the soil may contribute to the low stature of the trees of the ridges at higher altitudes, but in general the phenomenon is due to the rapidity of erosion ... . Only along the beds of valleys where the soil is relatively stable have I seen trees of more than 75cm diameter.”**<sup>11</sup>

### 4.8.1 Blue Mountains

The forests of the upper Blue Mountains are “cloud forests.” Cloud forests are found in zones that experience frequent cloud condensation (mist and fog) in combination with heavy orographic (mountain) rainfall. In the humid tropics, they are characterized by the abundance of mosses, bromeliads, orchids and other epiphytes.



Figure 4-12 Bromeliads (NRCA photo)

The ecological and hydrological significance of cloud forests in the humid tropics has only been recognized over the last two to three decades. “Cloud forest” is not a scientific term but is nevertheless frequently used in scientific literature, which recognizes the strong influence clouds and mist have on forest vegetation, its ecological properties and characteristics [and on hydrology].

#### Box 4.4 THE GLOBAL IMPORTANCE OF CLOUD FORESTS\*

“Cloud forests have always been a fascinating topic for... geographers, climatologists, forest ecologists, botanists, hydrologists and conservationists. One cannot help but be impressed upon entering these forests ... mysterious and enigmatic, with their abundance of ... epiphytes, peculiar insects, reptiles and birds.

“[T]he horizontal precipitation” from the clouds can be as much as 150% of rainfall, with significant, but insufficiently studied, effects on the role of epiphytes, plant physiology, local and regional hydrology and downstream water supplies.

“ ... It is a tragedy that these cloud forests are disappearing as part of worldwide conversion of tropical forests to other uses; it is estimated that only 500,000 square kilometres remain in the humid tropics. It is eloquently argued that certain cloud forests should be totally protected [while all should receive at least partial protection].”

\*Preface to *Cloud Forests in the Humid Tropics, A Bibliographic Review*, Thomas Stadtmuller, United Nations University, 1987

Cloud forests are found in Malaysia and New Guinea, the Andes of Venezuela, Colombia and Ecuador, Pico del Oeste in Puerto Rico, Monteverde in Costa Rica, Tamaulinas in Mexico, and the Blue Mountains of Jamaica.

Table 4.3 comparing biomass above ground reveals the relative significance of the Blue Mountain cloud forests. In addition to the threat of conversion, a study published in *Nature* (April 2000) shows that with global warming, increased temperatures may raise the altitude of clouds so that they recede from mountaintops, threatening complex ecosystems and many endemic species.

<sup>9</sup> The sections on mountain ecosystems draw substantially but not exclusively on the Blue and John Crow Mountains National Park Management Plan, NRCA, 1993.

<sup>10</sup> Some species occupy a broad range, others only a narrow band; some are restricted to the upper reaches, others to the lower parts, while a few are endemic to a specific hillside.

<sup>11</sup> Shreve, F. *A Montane Rainforest*, Washington, 1914

**Table 4.3 Relative Biomass Above Ground (tons/hectare)**

Forest	Altitude (masl)	Geographical Location	Source	Biomass above ground
Bosque nublado andino	2300	Venezuelan Andes	Brun, '76	420
Lower montane RF	2500	New Guinea	Grubb '77	310
Lower montane RF	500	Puerto Rico	Grubb '77	148-194
Upper montane RF (Mor ridge forest)*	1615	Blue Mountains, Jamaica	Tanner '77	218
Mull ridge forest*	1615	"	Tanner '80	312
Wet slope forest	1570	"	"	230
Gap forest	1590	"	"	238

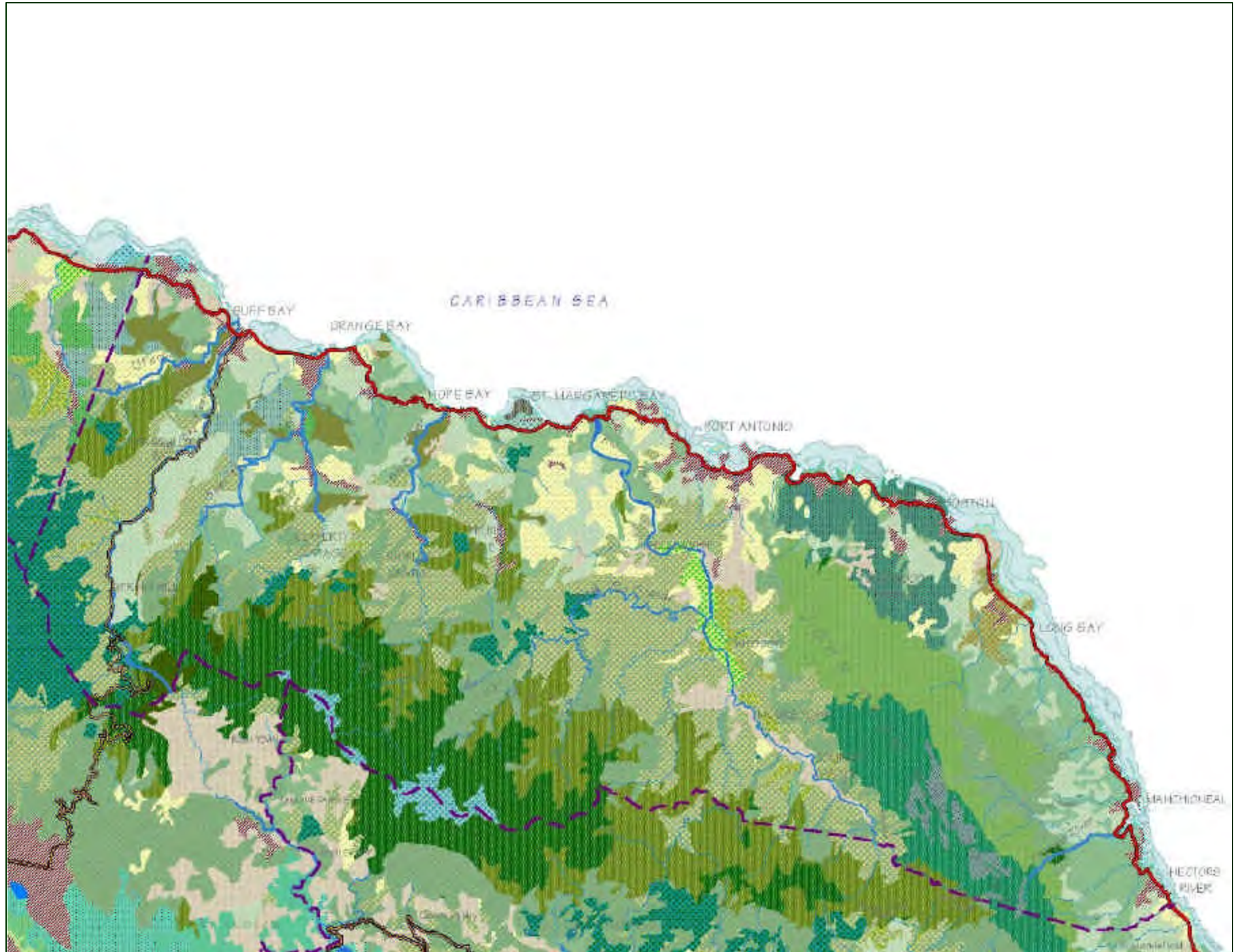
Source: Cloud Forests in the Humid Tropics, A Bibliographic Review, Thomas Stadtmuller, United Nations University, 1987. \* See sections 4.8.

**Ridge Crest Forest.** Forests on and near the Grand Ridge are in general of lower stature than those of slopes, and contain elements of both northern and southern-slope flora. Soil development is poor but more advanced than on slopes. "**Mor Ridge Forest,**" found on the Grand Ridge and the tops of prominent knolls in the west of the range, is unique in the Caribbean. It has a deep layer of springy acid humus not found in the other forest types. The association comprises only a few species and the small diameter trees are 5-7m tall and often lean because the roots are unable to provide a firm anchor. The shrub layer is very poorly developed but bromeliads, usually epiphytic elsewhere, are abundant at ground level.



Figure 4-13, Blue Mountain ferns (source: Rhema Kerr)





**An extremely rare high altitude habitat is natural tussock grass-land near the summit of Sir Johns and High Peaks.**

**High Altitude Limestone Shrubland.** A unique and very restricted high altitude dry limestone scrub forest is found on the summit of John Crow Peak, between 1730m and 1762m, where the limestone has been eroded to a few very small remnants.

**The area is a refuge for some species restricted to its soils and altitudes, and is a major center of endemism.** Scattered stunted trees 2-4m tall of small diameter occur in a landscape of deeply dissected karst features.

**Lower Altitude Forest.** The lower altitude forests of the Blue Mountains are restricted to the northern slopes of the range concentrated in the Mabess, Spanish, Swift and Back Rio Grande watersheds, **the southern slopes having generally been deforested.** Much of this area is inaccessible and the forests and their flora are poorly known. Human activity has somewhat altered the forest at Cuna Cuna Pass (760m). The shrub layer is sparse and ferns and tree seedlings dominate the herb layer. The canopy, dominated by Santa Maria, is 18-24m and lianes, epiphytes, ferns and orchids are common.

The ravines of the wetter northern slopes are particularly rich in mosses, liverworts, ferns and lianes. Typical trees are alligator wood and dove wood, usually widely spaced and quite large, over a scattered layer of shrubs (mostly in the melastome and coffee families) and a dense layer of ferns.



Figure 4-14 Tree Ferns (Andreas Oberli photo)

The slopes are often steep and unstable and trees are widely spaced and can attain great size. Common trees include *Maytenus Jamaican*, alligator wood, soapwood and mountain bullet.

#### 4.8.2 John Crow Mountains

**High Rainforest.** The forests of this range, in the area of the highest rainfall in Jamaica, are rooted in pockets of shallow soil between outcrops of limestone. The fern and bryophyte flora of this area is particularly rich as a result of the high rainfall and humidity and deep canopy shade. A large proportion of Jamaica's 579 species of ferns occur in these mountains, and many are restricted to them.

##### Box 4.5 The John Crow Mountain High Rainforest

" This plateau is made up of pinnaced and crevassed limestone simulating the broken surface of glacier ice. The vegetation is a low sprawling tangle of mossy trees and shrubs. Every leaf and twig is festooned with dripping bryophytes. Horizontal boughs, sinuous roots and sprawling *Clusias* lie hidden under a wet verdant mass of epiphytes ... across the hopeless confusion of large and small fissures and projecting pinnacles of broken limestone. ... The only possible progress is across the top of the tangled vegetation where every foothold must be tested before relinquishing the last. Large rock castles up to 20ft are frequent and each must be circumnavigated. It is small wonder that such an area has been little explored." Asprey & Robbins, 1953

**Lower Montane Rainforest of the John Crow Mountains.** Tropical lowland rain forest was the first to vanish around the island following the original agricultural expansion for sugar. **The lower reaches of these mountains support Jamaica's remaining lower montane forest.**

Undisturbed lowland rainforest, thought to be the most species-rich habitat in Jamaica, is to be protected in the Conservation Corridor between the Port Antonio Marine Park and the Blue/John Crow Mountains National Park. Canopy height is about 24-28m, with emergents up to 40m. The average diameter (DBH) is > 40cm. Drip tips on leaves are frequent. The forest is predominantly evergreen, but a few species are leafless for short periods of the winter. Some structural adaptations of trees, such as buttressing and stilt roots are possibly a response to high rainfall and shallow soils. During hurricanes, many trees rooted in fissures in the limestone break and sprout again.

**Stream channels at headwaters of the eastern rivers are usually without running water and completely devoid of vegetation, swept bare by the catastrophic flash floods associated with torrential rains.**

### 4.8.3 Mountain Flora

#### 4.8.3.1 Blue Mountains

The Conservation Data Centre and The Nature Conservancy<sup>12</sup> list 800 endemic plants in the mountain ecosystems. More than 500 species of flowering plant have been collected from the Blue Mountains. About 40% of the higher plants are Jamaican endemics and many are considered rare and endangered, particularly if locally endemic. The latter include four *Ilex* species and ten *Lepanthes* orchids.

The vascular plants of these forests have been fairly well documented but the bryophyte and lichen flora are poorly known. Moreover, large areas of the northern slopes of the Blue Mountains remain botanically unexplored and it is likely new species will be found there. The forests contain majority of species in many native fern genera, including 15 of 21 species of tree fern, 18 species of filmy ferns (*Hymenophyllum*), and 41 of Jamaica's 51 species of epiphytic ferns (*Grammitis*).

#### 4.8.3.2 John Crow Mountains

The native forests of the John Crow Mountains support a high proportion of flowering plant species with a limited geographical range. At one study site, about 40% of the species were endemic to Jamaica, and about 10% (20 spp.) were endemic to the east of the island. **Portland has the highest number of local endemics of all the parishes in Jamaica (47 spp.), and these are concentrated in the John Crow Mountains.** These plants range from tall trees to tiny epiphytes. Some of them are very rare and have only been described relatively recently.

The best-represented flowering plant families are the orchids, the coffee family, the melastomes and the milkweed family (Euphorbiaceae). Some of the more curious elements of the flora include saprophytic and parasitic herbs that have no green parts and depend on other plants and even dead plants for their nutrition. Members of the herb layer range from tiny pileus to the spectacular wild plantain. Ferns make up 40% of the ground cover in certain areas. Climbers, both flowering plants and ferns, are abundant.

**The area has received some ecological investigation and recent research has discovered six new species.** The very high rainfall and humidity of the John Crow Mountains provide an ideal environment for a lush epiphyte flora, representing 26% of species in some areas. Orchids, bromeliads, ferns and bryophytes abound, filmy ferns being particularly abundant on lower tree trunks.

Both the Blue and John Crow Mountains represent extraordinary opportunities and necessary targets for economic benefit through the conservation, sustainable use, replenishment and commercial cultivation as well as strictly managed access for specialized eco-tourism. Despite the nine-year existence of the Blue and John Crow Mountains National Park, those opportunities and needs have still to be fully realized.

#### 4.8.3.3 Alien and Pest Species

Ironically perhaps, many of the conspicuous flowers of the forest are of introduced ornamentals that have become naturalized. Some are restricted to disturbed habitats but others invade natural areas and may threaten the indigenous flora. Among these naturalized plants are calceolaria, cigarette bush, blue iris (South African blue cups), redbush, two species of ginger lily and the wild coffee. *Pittosporum undulatum*, introduced to Cinchona Botanic Garden 70 years ago, is now a major invasive threat. Bamboo is similarly opportunistic in disturbed areas and is a major threat to indigenous flora, mixed secondary forest and other productive habitats and land uses (see also Chapter 5).

Trees introduced for their timber or fruit include Masson's pines (China), eucalyptus (Australia) and various bananas (Indonesia) and, present in abundance on lower slopes, tulip tree (Africa), silky oak (Australia), trumpet tree, rose apple (IndoMalaysia) and mango (India).

### 4.8.4 Mountain Fauna

Few mammals are native to Jamaica, because of its isolation from Continental landmasses. However, an estimated 37 native species of non-flying mammals have become extinct here since human settlement of the island. Among terrestrial mammals, only the Jamaican hutia and 21 species of bat are native. These are all rather small but a fossil of a giant rodent (*Clidomys*), about the size of a pig, indicates that Jamaican mammals have not always been so restricted in size.

<sup>12</sup> The Nature Conservancy Rapid Ecological Assessment, 1993 and Iremonger, S., A Guide to Plants in the Blue Mountains of Jamaica (In press). (See Annex B.)

#### 4.8.4.1 Native Mammals

**The Jamaican hutia** (or Indian coney), a mostly nocturnal small rodent, is distributed throughout the island. It has become increasingly restricted in range, has declined significantly in population in some areas and is thought to be extinct in others, for reasons that include deforestation and hunting, coupled with predation from introduced mammals. It uses holes formed by roots, hollow trees and crevices in rock-fall areas. There are scattered sighting reports in the Blue Mountain range, specifically in the area of Cuna Cuna Pass, and in most parts of the John Crow Mountains, where the extensive contiguous forest may provide protection. **However, despite the hutia's protected species listing under the Wildlife Protection Act, an increase in hunting pressure in the John Crow Mountains was reported in the early 1990s.**

**Bats.** With 21 known species, bats constitute the great majority of native mammals, although little is known about their distribution. Three species are endemic but their status and habitat are unknown. Other species are restricted to Jamaica and one or more islands of the Greater Antilles. Some sampling has been carried out in the BJCMNP but more information is needed about roosts and feeding habits.

#### 4.8.4.2 Alien and Pest Species

Introduced into Portland in 1872 to control rats and snakes, the mongoose has been implicated in hastening the extinction of the rice rat and possibly other native species (including the black racer, *Alsophis ater*). The mongoose is common throughout the forests of both ranges and was in part responsible for the probable extinction of the Jamaican petrel (*Pterodroma caribbea*), described in Box 4.6.

Rats and mice, probably arriving with the Spaniards in Jamaica in 1494, are common in both forests and may have contributed to the decline of ground-nesting birds, such as the possibly extinct Jamaican petrel, and indigenous land snails. Island ecosystems are particularly vulnerable to these predators of birds, reptiles, amphibians and insects. House mice, more common on the edges of the forest, feed on seeds of many plants and may hinder the regeneration of some species, altering the long-term forest composition.

#### Box 4.6 Jamaica Petrel

The Jamaica Petrel (*Pterodroma caribbaea*) formerly nested in the Blue and John Crow Mountains. It was described as excavating burrows 1.8 to 3 m long for nesting, "in the crevices of almost inaccessible mountains" or in holes under trees "in the unfrequented woods," at elevations of 1,800 and 2,100 m. It was nocturnal and fed on "fishes," returning to the burrow "before dawn."

When first reported in the literature in 1789 it was considered plentiful and was known as the "Blue-Mountain Duck." Predation by introduced mongooses and human exploitation for food caused a rapid decline in numbers. By 1891, investigations suggested that the species was "nearly if not quite exterminated," at least in the Blue Mountains. However, as late as 1965, there were reports of the birds calling at night in the John Crow Mountains. Birdlife Jamaica has therefore recommended searches for the species in both mountain ranges.

Feral cats are often major predators of birds. Feral dogs are also potential predators but are unlikely to roam far into forested areas. Feral pigs, introduced by the Spaniards, are present in both tracts of forest. They were an important source of protein, especially for the Maroons who perfected the technique of jerking pork to cook meat hunted in the forest hinterland. The tradition of boar hunting continues in the northern John Crow Mountains. Pigs are present in moderate density throughout the John Crow Mountains and the lower northern slopes of the Blue Mountains. Pigs are predators of ground insects and molluscs and selectively feed on the fruits of some forest trees, causing localized heavy damage to understorey areas of forest and ground flora.

Semi-wild goats seldom wander far into the forest but as indiscriminate browsers, they could threaten rare flora of the mountains if they started to graze in the BJCMNP. Goats and cattle raised as a source of protein and milk by many rural farmers are often uncontrolled and their grazing and trampling on steep slopes contribute to high erosion rates.

A species of deer introduced in the early 1990s as an attraction escaped into the area around Somerset Falls. The deer has become a pest, destroying vegetable plots and fruit trees, and its numbers are growing in response to favourable conditions and the absence of predators. Current information on its status is required.



#### 4.8.4.3 Birds

Jamaica's bird fauna is rich for a small island and is especially remarkable for the high level of endemism among its land birds. The majority of Jamaica's indigenous land birds, including all the endemic species, occur within Portland. **The chief value of the mountains as habitat for forest birds is that they contain the largest contiguous tracts of forest remaining in Jamaica in a broad range of altitude zones.** As one of the world's most diverse tropical rainforests, the mountains provide a refuge for 220 migrant and resident birds, including 26 endemic bird species.

**Resident Birds of the Blue Mountains.** In the elfin forests, species diversity is low, the fauna being almost entirely composed of insectivores, such as bananaquits and the endemic arrow-headed warbler. Vervain hummingbirds (Figure 4-15, right) occur chiefly at forest margins.



The lower montane primary rainforests are the principal remaining habitat for the rare Jamaican blackbird. The rare endemic ring-tailed pigeon occupies the lowlands during winter months but migrates to the lower montane forests to breed. It and the uncommon crested quail dove are often hunted illegally. The once plentiful Jamaican petrel is extinct or near extinct as a result of mongoose predation and hunting for food.

Other fairly common endemic birds in montane forests include the crested quail dove (or mountain witch), white-eyed thrush, Jamaican becard, Jamaican tody, Jamaican woodpecker and Blue Mountain vireo (not restricted to the Blue Mountains), and the rufous-throated solitaire. The bird populations of the northern-forested slopes of the Blue Mountains remain poorly studied.

**Birds of the John Crow Mountains.** The lower montane forests support some of the greatest diversity of land birds to be found in Jamaica, including most of those found at higher elevations in the Blue Mountains and major populations of larger, more mobile frugivores and omnivores. Endemic species among the latter include the yellow-billed parrot (Figure 4-16, right), which



only occasionally ranges to the higher parts of the Blue Mountains), the rarer black-billed parrot (Figure 4-17, right) and the Jamaican crow. The endemic Jamaican owl and an endemic subspecies of common potoo are found here as well. Most importantly, the John Crow Mountains are the center of the range and principal habitat of the black-billed streamertail. Although the range overlaps with that of the red-billed streamertail in the vicinity of Corn Puss Gap, the two species do not appear to hybridize.



**Migrant Birds.** Roughly 40 forest bird species are migrants on the North American Flyway, some wintering in Jamaica, others resting en route to wintering grounds in South America. Most are species of New World warblers, (the black-throated blue warbler, black-and-white warbler, Swainson's warbler, ovenbird, common Indigo bunting, yellow throat and American redstart) but another winter migrant is the woodpecker, the yellow-bellied sapsucker. Few species depend wholly on large tracts of primary forest but the mountains seem to be important as migrant arrival and departure points and provide an essential global function.

#### 4.8.4.4 Reptiles and Amphibians

**Snakes.** Three of Jamaica's five remaining endemic species are found in the mountain forests. The Jamaican boa, or yellow snake (Figure 4-18), below), is found in a wide range of habitats. Seldom seen and largely nocturnal, its density and actual extent of population is difficult to assess. However, fragmentation of habitat may be causing local declines in numbers. Boas appear to depend on large tracts of primary low altitude forest for viable breeding, preying on birds and small mammals such as rats and even mongooses. Snakes are feared and often killed when seen, so that populations exposed by encroachment into forests risk being killed.



The other two snakes found within the Blue Mountains, below 1300 m are small, inconspicuous, ground dwelling snakes, which are widely distributed and fairly common within Jamaica.

**Lizards.** Many of Jamaica's 24 lizard species, including six endemic species in the genus *Anolis*, are found in the mountains. One, *Anolis reconditus*, is apparently restricted to the area around Hardwar Gap and the headwaters of the Buff Bay River. It is possible that a large, undescribed galliwasp (*Celestus* sp.) may still survive in the Blue Mountains. The distribution of many of the Jamaican lizards is poorly known but **variations within species in the two mountain ranges underscore the need for conservation.**

In the Lower Rio Grande Valley, five species of Gekkonidae, six of Iguanidae and two of Anguillidae have been recorded.

**Amphibians.** The only native amphibians are frogs. All 22 species are endemic, occurring mainly in the Cockpit Country and in the Blue and John Crow Mountains. The latter provide habitat for 10 species. *Eleuthrodactylus andrewsi*, *E. orcutti*, *E. pentasytingos* and *E. nubicola* (in mid-altitude forests) and *E. alticola* (above 1680 m in the Blue Mountains) are endemic to the mountains and the last two are restricted to the Blue Mountains. *E. glaucoreius*, *E. gossei* and *E. pantoni* occur at lower altitudes (760 - 1220 m). **For conservation of these frogs, which live on the ground or in low shrubs and ferns and depend on undisturbed primary forest, it is important to preserve a complete altitudinal sequence of mountain forest.**

*Eleuthrodactylus orcutti* is unique in Jamaica as the only aquatic frog. It is absolutely dependent on clear, fast-flowing streams shaded by a continuous forest cover. There appears to have been a sharp decline in known populations of this frog, attributed to deforestation and consequent siltation of streams.

Some introduced frogs are likely to be found within the mountains, including the cane toad, a predator on lizards, birds and many invertebrates; *Bufo marinus* is commonly found in degraded areas at mid and lower elevations (Garraway et al., 1996).

#### 4.8.4.5 Invertebrates

**Insects.** The forests support a great variety of insects including *Elatedae* (peenywallies, click beetles), *Lampyridae* (blinkies, fireflies) and in places *Culicidae* (mosquitoes). *Euglossine* bees are among the major pollinators

of flowering plants in the Blue Mountains. For nearly all families of insects, distribution is poorly known, while for many groups, such as moths, the taxonomy is very poorly known.

**Butterflies**, probably because of their conspicuousness, are one of the few groups of insects for which taxonomy and distribution are clearly understood. Best known among the butterflies is the Giant swallowtail (*Papilio homerus*), with a spectacular 15cm wingspan, **the second largest new world butterfly and now one of the rarest animals in the world** (on IUCN's 'Top 12 Endangered Species List' in 1988).



Figure 4-19 Giant Swallowtail (E. Garraway photo)

The butterfly, dependent on the Water Mahoe (*Hernandia catalpifolia*) for breeding, is threatened in its small remaining populations by commercial collecting and habitat destruction.

**Other Invertebrates.** Knowledge of the distribution, taxonomy and ecology is sparse regarding other invertebrates of the mountains, including spiders and harvestmen, isopods, crabs, scorpions, molluscs, including the river snail known locally as bossu, and the primitive Onychophora. Two endemic terrestrial crab species are known from the John Crow Mountains and two from the Blue Mountains. Numerous land snail species are endemic to the John Crow Mountains.

#### 4.8.4.6 Freshwater Flora and Fauna

The fast-flowing streams and rivers of the Blue Mountains present an important habitat for a number of plants and animals, and an important breeding ground for other animals, including the endemic freshwater frog. The Ephemeroptera (mayflies) are the major group of aquatic insects, but the Trichoptera (caddis flies) contribute the most to biomass and species diversity. Local nutrient enrichment from farm run-off changes composition and numbers of aquatic flora and fauna increase downstream while diversity declines.

## 4.9 Coastal and Marine Ecosystems

### 4.9.1 Coastal Wetlands

**Mangroves.** The northeast coast provides limited locations suitable for mangroves. **Those few areas of mangroves that do exist are threatened by coastal development.** Mangroves are necessary habitat for a wide variety of species, including the developmental stages of many coral reef and commercially important fish species. Mangroves also filter runoff into the sea and provide vital protection for the shoreline from erosion. PAMP volunteers are seeking protection of all mangroves and have replanted mangroves at Turtle Crawl Harbour.

**Freshwater Wetlands.** The small wetland areas along the coastal fringe play a crucial role in absorbing soil, water and nutrients that would otherwise wash into the sea in heavy rains. Healthy wetlands are critical to coral reef protection and support a wide range of species (see Box 4.7). Many have been lost to drainage and development.

**Coastal-Mountain Connections.** An unbroken forest cover from the shore to the top of the mountains is needed for a complete range of elevational habitats for forest wildlife, which may migrate between zones on a seasonal basis. The proposed Conservation Corridor is to provide permanent protection for secondary forest linking the Marine Park and San San Tree Preserve with the National Park.

As many forest birds, insects, snails, crabs and other animals will not cross a clearing, it is important that this forest corridor not be interrupted by a belt of pasture, farmland, or residential areas. Very wet conditions in the forest allow hermit crabs to reach high elevations, from which they migrate to the sea to breed in immense swarms. They rely on keeping moist in the wet vegetation on the forest floor, made up of ferns, mosses, philodendrons, liverworts, episcias, pileas, and melastomes, etc.

### 4.9.2 Beaches

Portland has a variety of beaches, with varying levels of use and development. Beaches are inherently unstable, even without the effects of climate change. It has been estimated that along the Atlantic coast of the US a sustained rise of 10 cm in sea level could result in 15 metres of

#### Box 4.7 Species Supported by a Wetland at San San Bay\*

A large pond is the source of small stream that runs under the main road and enters the east end of San San. The stream supports a diverse fauna including juvenile mullet (*Mugil curema*), river mudfish, and a variety of fresh water shrimps. The banks of the stream consists of sand and mud which is populated by large populations of fiddler crabs (*Uca pugnax*, *U-minax* and/or *U. pugilator*). Large colonies of land crabs are situated higher up on the bank. Herons frequent the stream, preying on its inhabitants.

The stream's outflow is undisturbed by the current and receives very little wave action. The little silt that is carried out by the stream settles on the sand and eelgrass flats in the immediate vicinity, and is not dispersed in the bay. This area is characterized by a greater biotic diversity than the rest of the beachfront areas. Commonly found in this spot are: Shamefaced crabs (*Calappa flammea*), Blue crabs (*Callinectes sapidus*), Speckled crabs (*Arenaeus cribrarius*), mullet (*M. curema*), as well as large concentrations of Mantis shrimp (*Squilla empusa*) and pink scraper shells (*Strigilla camaria*).

The wetland is also important for its biotic diversity. It is used as a nesting area by many species of birds including herons and sea loggerheads. It contains large populations of white as well as the rarer black land crabs, animals whose habitat is being lost to development island-wide. The flora of the site consists of a wide variety of indigenous grasses, shrubs and vines which are specially adapted to this type of environment. The preservation of the biotic diversity contained within this area is reason enough to protect it from any further development. In addition, this wetland plays an essential role in the functioning of the adjoining marine ecosystem, acting as a buffer zone between the bay and the steep hillsides to the S.W.

\* Letter from Sean Bourke to Bill Burck, Port Antonio Marine Park Proposal, 1992

beach erosion.<sup>13</sup> Coastal development, removal of seagrass and indigenous on-shore vegetation and construction of groynes can all accelerate beach loss. Those beaches that are relatively unchanged need protection so they can continue their essential ecological functions, which may include provision of turtle nesting habitat.

Throughout Jamaica, development continues to destroy beach nesting areas of sea turtles. In some cases, altered beach physiography makes prime nesting sites inaccessible or unsuitable for turtles. Elsewhere, humans and dogs prey on turtle eggs.

<sup>13</sup> Leatherman et al., 1999

Turtles nest and forage at beaches from Buff Bay to the northeast coast. **The PAMP boundaries include a few prime nesting sites for Hawksbills, *Eretmochelys imbricata*** and possibly for the rare Green and Loggerhead turtles, *Chelonia mydas* and *Caretta caretta*. Several beaches, such as Fairy Hill, have lost their natural vegetation to grassed areas for recreational use. The marine park will work towards maintaining the suitability of these as nesting sites, and provide efficient enforcement of existing conservation laws that protect turtles.



Figure 4-20 Loggerhead Turtle (NRCA)

### 4.9.3 Marine Ecosystems

#### 4.9.3.1 Inshore Ecosystems

Portland's inshore marine environment includes a variety of seafloor habitats (stone, algal, sand, and mud plains). Western bays receive rivers draining interior areas of non-limestone geology and are naturally too muddy for reef formation but in the northeast the narrow shelf supports a wide range of coral reef types. The latter include fringing and knoll reefs, back reef, reef crest and fore reef structures with buttresses, caves and vertical escarpments dropping down to deep vertical wall coral communities on the edge of the deep marine environment.

As indicated earlier (Section 4.5.4), coral reefs are critical for the protection of shorelines from wave and storm damage, replenishment of beach sand, and fish habitat. Many shallow reefs were extensively damaged by hurricanes Allen and Gilbert, but young corals are settling

and growing in favourable areas.<sup>14</sup> (See Annex B for a summary of conditions reported in studies for the Port Antonio Marine Park.)

Coral reefs in the Port Antonio Marine Park site include some of the healthiest examples remaining in Jamaica and thus are of critical national priority (see Box 4-8). **Since the parish is on the windward side of the island and has a low population and tourist density, the reefs are least affected by damage from land and human sources.**

According to the PAMP Plan, coral re-growth since Hurricane Gilbert has been hampered in the Fairy Hill Bay area by harvesting of coral for sale.

However, the **major threats to coral reefs and other coastal and marine species are the downstream effects of sewage, other pollutants and mud** brought to the reef by rivers, runoff and prevailing currents.<sup>15</sup> Though coral can be protected from direct perturbation through education, regulations and patrols, it is impossible to seal out pollutants flowing in from sources outside of mountain or marine park jurisdiction. Coral regeneration can be accelerated in clean water by construction of artificial reefs.



Figure 4-21 Coastal Waters at Fairy Hill (NRCA)  
Figure 4-\_\_\_ The Coastline at Fairy Hill

<sup>14</sup> Recovery of these reefs from hurricane damage is the best in the island because there are large amounts of bare limestone rock surface being actively colonized by young healthy corals, and low levels of algae.

<sup>15</sup> The PAMP area contains long stretches where fish and sea urchins are virtually absent, although fleshy algae abundances are minor except for areas near freshwater nutrient sources. This indicates that excessive nutrients, rather than lack of grazing animals, are the major cause of algae overgrowth of corals.

#### Box 4.8 Portland's Coral Reefs

The Portland coral reefs were first described by T. F. Goreau (1956) who reported that: 'The youthful immature reefs fringing the exposed northeastern coast in the area between Manchioneal and Port Antonio are good examples of reefs where the opportunities for reef formation are limited in space and time, unlike mature well developed reefs. This is a precipitous recently emerged coast composed primarily of limestone. The inshore shelf is narrow or altogether absent: the boulder and talus strewn bottom descends rapidly to great depths, and the hundred fathom line (600 feet) lies in many cases within a thousand feet of shore. The coral belt is correspondingly narrow and reefs in the strictest sense of the word are present only in a few instances where a shallow sill across the mouth of some of the numerous embayments had provided an adequate platform.

"Jamaica is renowned for its reefs. More species of stony corals and other reef species have been recorded from Jamaica than from any other Caribbean or Atlantic country. Corals are extremely fragile organisms that thrive only when seawater is clear, low in nutrients, and free of pollution, and only they can build wave-resistant, sand-generating reefs that create the homes of all other reef creatures." Bourke et al., PAMP Plan, 1995.

The waters of the northeast coast support a good diversity of reef fish, snappers, groupers and scad, lobsters and crabs. Large schools of herrings and barracuda are common and sponges and conch are also abundant. Pelagics (tuna, kingfish, dolphin and wahoo) are often found near shore around Northeast Point. The sheltered north-eastern bays are important nursery areas for commercially important fish such as snapper, jack, parrot,<sup>16</sup> and lobster. However, overfishing has seriously impacted stocks. Western inshore waters that lack reefs support fewer fish.

The Portland coast, including the PAMP site, includes several suitable bays that were once frequented by manatee. Manatee are seen occasionally in Turtle Crawle Harbour and St. Margaret's Bay. In the past, they were sometimes harassed or captured and butchered. The PAMP would preserve these habitats and provide effective enforcement of existing conservation laws protecting these animals.<sup>17</sup>

<sup>16</sup> Parrot is a grazing fish important to keeping healthy coral algae-free. It is also a probable source of Ciguatera, or fish poisoning, Jamaican cases of which appear to be concentrated in Portland. For both reasons, fishing of parrot should be discouraged or prohibited.

<sup>17</sup> Bourke, S. PAMP Proposal 1992



Figure 4-22 Corals (Source: NRCA)

Saltwater crocodiles have been sighted with some regularity in the PAMP area, often resulting in harassment and/or capture of the animals. PAMP would enforce existing conservation laws protecting these animals.

#### 4.9.3.2 Deep Sea Conditions

Pelagic fish species include tuna, kingfish and wahoo, dolphin and marlin. The latter are the focus of trophy fishing tournaments that bring significant economic benefits to Port Antonio. Catch and release rules aim to protect the trophy fish stocks. However, pelagic commercial fisheries, to which local fishermen shifted after over-fishing dramatically reduced inshore stocks, are now also suffering declines. The reduced catches reflect both direct fishing pressure and pressure on nursery stocks. (See also Chapter 5.)

#### 4.10 Ecosystem Services

The ecosystems of Portland's mountains, forests, rivers, shorelines and coastal waters support assets of local, national and global importance, illustrated in Figure 4-23. These assets have numerous practical functions that are critical to the short and long-term well-being of parish residents and to the sustainability of the global environment.

# PORTLAND SUSTAINABLE DEVELOPMENT PROFILE

Figure 4-23  
Natural Capital

(Based on land cover mapping by The Nature Conservancy and NRCA coastal mapping)

## LEGEND (continued overleaf)

### Significant Forest Ecosystems (TNC 2000)

- Subtropical forest (wet forest/seasonal forest)
- Subtropical forest (dry forest)
- Mangrove forest
- Subtropical forest (open forest)
- Subtropical forest (open forest)
- Subtropical forest (open forest)
- Subtropical forest (open forest)
- Subtropical forest (open forest)
- Subtropical forest (open forest)
- Subtropical forest (open forest)

### Bottom Conditions (NRCA coastal survey)

- coral
- coral reef
- corals at depth
- corals/vegetation
- land
- mud
- sand
- sand at depth
- sand/coral/veg.
- seagrass
- Reefs (50,000 map, ca. 1980)
- Rivers
- Watershed Management Units
- Fort Antonio Marine Park
- Proposed Conservation Corridor
- Proposed Cons. Corridor Extension
- Blue / John Crow Mtns. Nat. Park
- Parish Boundary



Prepared by GO/ENACT for  
Portland Parish Council and  
Portland Parish Development Committee  
November 2000  
From data and files provided by: UDC, STATIN,  
MLGYCO, SDC, NEPA, WRA, GSD,  
RFPD, ODPFM, FD, TNC

### Elevation (feet)

- 0- 604
- 604- 1208
- 1208- 1812
- 1812- 2416
- 2416- 3020
- 3020- 3625
- 3625- 4229
- 4229- 4833
- 4833- 5437
- 5437- 6041
- 6041- 6645
- 6645- 7250

### Coastal Conditions (NRCA)

- Brown sand
- Construction
- Gravel
- Mangrove

### Spot Depths

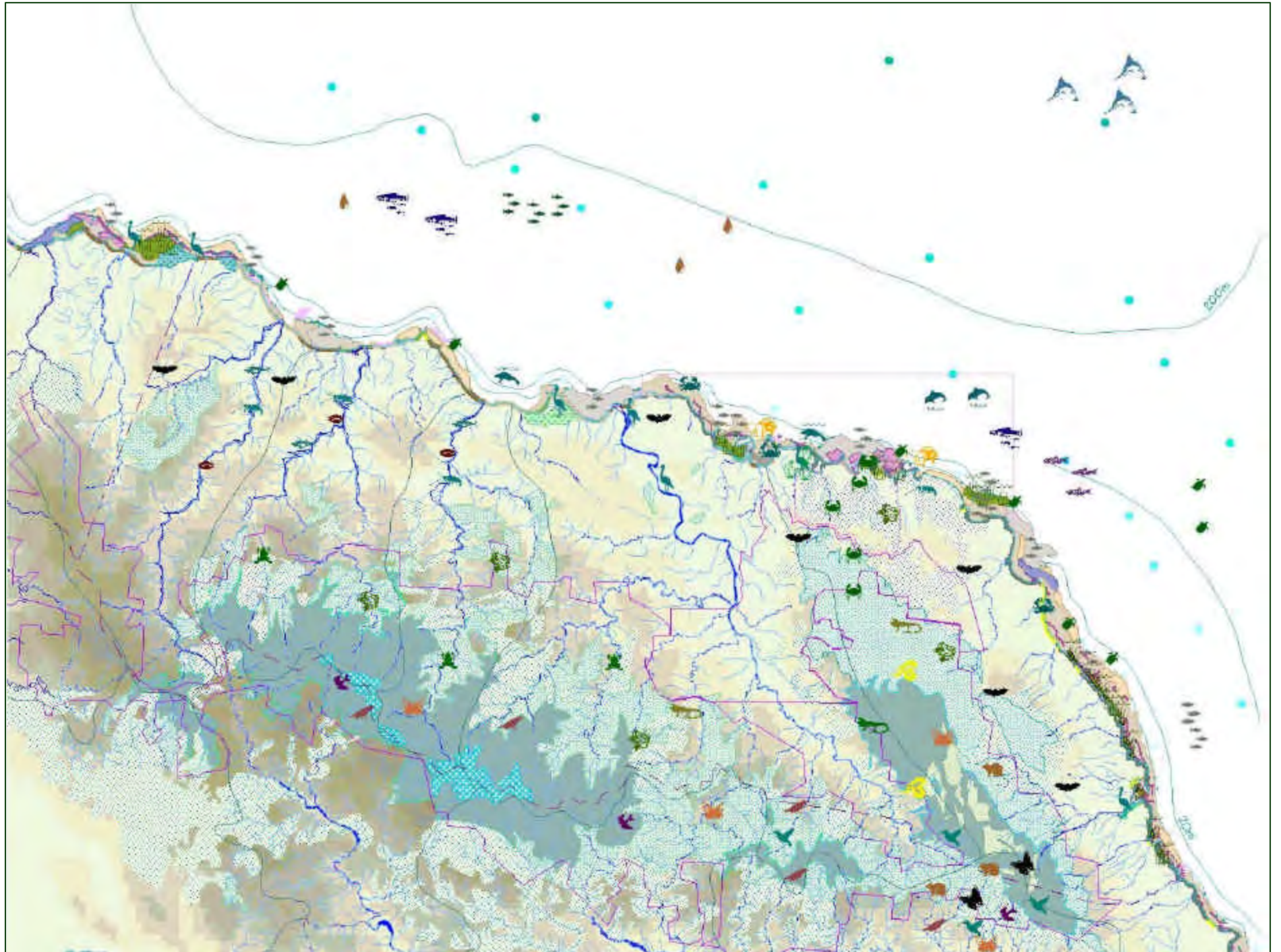
- 1- 192
- 192- 496
- 496- 760
- 760- 1089
- 1089- 1360
- 1360- 1748
- 1748- 2366
- 2366- 3630
- 3630- 5215
- 5215 +

### Coastal Conditions (NRCA)

- Muddy
- Rocky
- Unspec. Vegetation
- Unspecified
- White Sand

### Significant Fauna

- Deep sea fish/shp
- Herring/shp
- Marlin
- Kingfish, tuna, wahoo
- Dolphin
- Conch
- Lobster
- Turtles
- Commercial Reef fish
- Reef fish
- Seagrass bed
- Manatee
- Crabs
- Freshwater wetland
- Crab migration route
- Wading birds
- Invertebrates, Bossu
- Freshwater fish
- Shrimp
- Frogs
- Frogs
- Bats
- Lizards
- Yellow snake
- Butterflies
- Giant swallowtail
- Resident/ endemic birds
- Migratory birds
- Stream/taill
- Hutia (cory)







#### 4.13 Sources and Web Sites

[www.jamaicachm.org.jm](http://www.jamaicachm.org.jm)

Jamaica Conservation and Development Trust: [Greenjamaica.org](http://Greenjamaica.org)

The Nature Conservancy

Birdlife International: [birdlifejamaica.com](http://birdlifejamaica.com)

[www.biodiv.org/rioconv/WEBSITES.HTML](http://www.biodiv.org/rioconv/WEBSITES.HTML)

Environmental News Network: [www.ENN.com](http://www.ENN.com)

Living Planet 2000 Report

Earth Island Journal and [www.earthisland.org](http://www.earthisland.org)

The Environmental Magazine and [www.emagazine.com](http://www.emagazine.com)

Natural Resources Defense Council: The Amicus Journal and

[www.nrdc.org](http://www.nrdc.org)

Table 4.4 Summary and Status of Portland's Natural Capital – Assets, Goods and Services

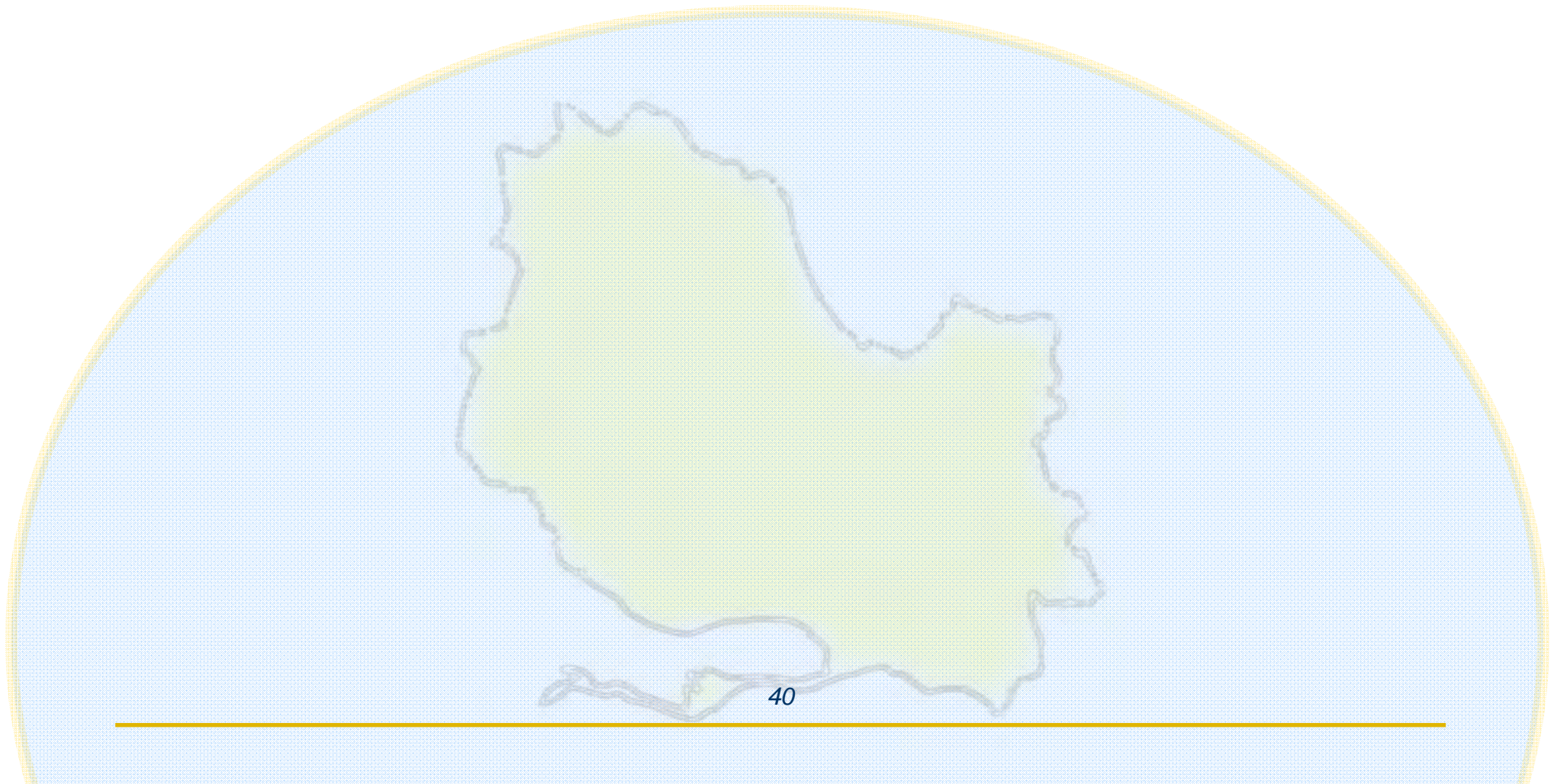
ASSET (ECOSYSTEM/SPECIES/RESOURCE)		PRODUCT OR SERVICE AND SIGNIFICANCE	STATUS / THREAT
MOUNTAINS AND FORESTS			
Forests/Mountain Flora	Cloud Forest	Unique example of a rare and globally important vegetation type	Human presence, alien species
	High Rainforest	Globally important, 500+ endemic species of flora Plant species still being discovered Potential economic value in biodiversity	Many species, especially local endemics, rare and endangered Forest cutting, alien species and plant collection remain threats
		Habitat of black-billed streamertail and rufous-throated solitaire	All forest bird habitat remains threatened by reduction in extent and quality, explosion of introduced species, including bamboo
	Low altitude forest	Primary rainforest principal habitat for rare birds e.g Jamaican blackbird, yellow-billed and rare black-billed parrots	
	All primary forest	Critical habitat for native and endemic birds Essential wintering or resting habitat for 40 species of migratory birds (mainly New World warblers) Stabilization of soils and retention of soil moisture, protecting volume and quality of runoff and water quality Herbal medicines; plants for horticulture; food Eco-tourism opportunities	
Wildlife resources	Birds	220 spp, including 26 endemics	Jamaican petrel probably extinct
	Mammals	Hutia (coney) and 21 species of bat are native Subsistence hunting	37 native species of mammals now extinct Hutia treated by continued hunting
	Reptiles and Amphibians	Habitat of Yellow snake (Jamaican boa)	Yellow snake threatened by encroaching human settlement
		6 endemic species of lizard (one restricted to headwaters of Buff Bay river) 10 endemic species of frog	Dependent on continuous undisturbed forest through all altitudes
		<i>Eleuthrodactylus orcutti</i> – a unique Jamaican species dependent on clear, fast-flowing streams shaded by continuous forest cover	Population has sharply declined due to deforestation and consequent stream siltation
	Invertebrates	Spiders, scorpions, crabs, including two endemic terrestrial species in John Crow Mountains, molluscs, including bossu (snail found in many rivers) and numerous land snails endemic to John Crow Mountains	Very little known about distribution, taxonomy or ecology, increasing the vulnerability of all these species
	Insects	Great variety supported by the forests, including: <i>Euglossine</i> bees, major pollinators Butterflies, including Giant swallowtail, world's second largest Mayflies and diverse caddis flies frequent the Blue Mountain streams	Very little known about insects Giant swallowtail now extremely rare, threatened by habitat destruction and commercial collecting Aquatic insect biodiversity threatened by agricultural runoff
	All	Recreation / tourism: Endemic birds (bird and butterfly watching)	Alien species, including introduced frogs, mongoose, dogs and pigs prey on birds, lizards, insects, mollusks and other invertebrates

Forest resources	Wood fuel Charcoal	Wood used for cooking Charcoal used for cooking locally and supplied to urban centers	Removal of trees damages natural ecosystems, leaves soil unprotected, increases runoff and makes room for invasion by alien species, especially bamboo, if cut without removing the eyes
	Timber, sticks and bark	Hardwood for furniture Roundwood for chicken houses and house frames Scantlings for house walls, fence posts Scaffold poles Poles for yam sticks and fish pot construction; living fence posts Wood for craft industry (especially lignum vitae) Bamboo for rafts, fences, crafts, furniture and construction	
Agricultural resources		Food forests; fibre; wild yams; feral pigs	
Forage resources		Forage and grazing for goats and cattle (specially during drought)	
Fresh water	Numerous rivers and springs	Water supply, rural and urban Supply of spring water for bottling	Volume, reliability threatened by deforestation and associated flood and flow alteration Purity threatened by deforestation, agricultural runoff and poor sanitation
Recreation	Mountains, forests, rivers, caves, falls, etc.	Potential for many outdoor activities: Hiking trails, backpacking and camping, walking, riding, bicycling, caving, Rio Grande rafting High visual quality, nature study, photography Communities, historic houses and estates, vernacular architecture historic sites and associations, especially Maroon heritage	Resources and opportunities insufficiently appreciated, insufficiently but often unsustainably realized, and insufficiently marketed
Aesthetics	Mountain vistas	Important to residents of Portland, perhaps insufficiently appreciated or taken for granted elsewhere in Jamaica Critical element Jamaica's image in marketing Jamaican products and tourism	Degraded by forest clearance, erosion and interruption of stream regimes
Education/scientific value		High level of research interest in Blue and John Crow Mountains Very high and largely unrealized potential for local education	Opportunity for scientific study with economic benefits – research tourism
<b>LOWLANDS</b>			
Lowland forest	Fauna	Many species rely on unbroken forest connection between the coast and the mountains Coastal-Mountain connection. Important contributor to the aesthetic quality of the Parish	Primary forest cleared in 18 <sup>th</sup> C. One extensive area of secondary forest remains south of PAMP and needs protection with declaration of Conservation Corridor
Water resources	Rivers and springs	Provide most of the domestic water supply to agriculture and urban areas Major contributor to biodiversity, visual quality and recreation	Supply of good quality water diminishing as wells become unreliable and/or contaminated
Agricultural resources	Soils	Relatively extensive areas of soils suitable for food crops and trees	Soils are generally erodible and need more effective conservation
Recreation	forests, rivers, caves, falls, etc.	Potential for many outdoor activities: Hiking trails, backpacking and camping, walking, riding, bicycling, caving, Rio Grande rafting, Somerset falls, Nonsuch Caves ... Communities, historic houses and estates, vernacular architecture historic sites and associations, especially Maroon heritage	Opportunities in the lowlands for a network of trails, places of interest and community tourism are still largely unrealized

Minerals	Building materials Other minerals	Limestone, granite, marl, sand and gravel Slight potential for exploitation of commercially valuable metal ores	Copper mined in 16 <sup>th</sup> C. Lodes of other metals present. Economic feasibility unknown. Exploitation could threaten environment and biodiversity
COASTAL AREAS AND WATERS			
Wetlands	Mangroves	Northeast coast not naturally suited to extensive mangrove growth Important areas near Buff Bay, around Turtle Crawle Harbour and at San San Bay. Mangroves provide essential filtering of runoff, protecting aquatic ecosystems, nursery areas, and storm protection	Areas of mangrove have been cleared or filled. Remaining areas are under threat. Wherever possible, they should be replanted (following the PAMP's lead). Potential effect of climate change on mangroves still somewhat uncertain
	Freshwater wetlands	Support highly biodiverse flora and fauna Protect coastal water quality and reefs	Treasures to be protected wherever they occur
Coastline	Views and vistas	Outstanding views and vistas, extensive between Buff Bay and Hope Bay and along the east coast, intermittent in the northeast Unobstructed visual access and visual quality highly important to the long-term quality of life and to marketing Portland for travel and tourism	Views still generally unobstructed but value of open views still under-appreciated Railway offered one of the world's most spectacularly scenic trips and remains an opportunity for reuse North coast highway threatens direct alteration of views and visual quality and could facilitate obstruction of views by development. Designation of protected scenic corridor proposed from Buff Bay to Hope Bay
Beaches and shorelines	All	Several beaches important as turtle nesting habitat Beaches and coastlines are inherently unstable and where kept open provide low-cost protection from natural changes in configuration and sea level Open beaches and coastlines also offer the best defence against storm surges	Beaches subject to retreat as sea level rises The effect of groynes can be hard to predict and can rob sand from adjacent areas Removal of natural vegetation for recreation at some beaches threatens habitat of turtles and other fauna Poorly sited structures obscure or degrade views Many beaches need improved upkeep
	Bathing	14 public bathing beaches and one commercial beach open to the public	
	Fishing	16 fishing beaches	
Inshore ecosystems	Bays	Intricately indented coast provides sheltered habitat for turtles, manatees and shellfish, fish nurseries and opportunities for mariculture	Pollution affects fishing and mariculture opportunities in Port Antonio's East Harbour; potential intensification of development offers an opportunity for improvement, if handled appropriately
	Seagrass beds	An essential link between shoreline (beaches, mangroves and other wetlands) and reefs	Seagrass often cleared on hotel beaches reducing nursery habitat and filtering/anchoring of sediments
	Coral reefs	Globally critical reservoir of biodiversity; Nursery and grazing habitat for wide range of fish and marine species First line of defence against storm damage Source of beach sand	Wide range of reef types found in northeast Portland Reefs among the healthiest in Jamaica but impacted by sediments, sewage and other pollutants Heavier development and increased visitor pressure will undoubtedly increase pressure on the reefs
Deep sea ecosystems		Portland's coastal shelf is narrow, bringing many species of tropical deep water fish, tarpon, kingfish, tuna, dolphin, wahoo, close to shore around Northeast Point	Overfishing of inshore waters has shifted fishing effort to deep water, where stocks are also coming under pressure



## 4.2 Economic Development





### 4.2.1 General Trends in KSA

Kingston and St. Andrew (KSA) is an important engine of growth in the country, as a major source of job creation, income and wealth generation, and as a market for goods and services produced by the rest of the economy. Economic recovery in KSA will therefore boost the entire national economy. KSA has a diverse set of competitive advantages: It is the seat of government, headquarters of all financial institutions and the centre of industrial and commercial operations (Table 3).

**Table 3: KSA Contribution to Jamaica's Employment and GDP**

Years	1999	2000	2001	2002	2003
GDP at constant prices (J\$M)	7833.3	7665.1	7849.3	7819.0	7983.2
KSA employment as a % of total employment	29.5	28.7	28.6	29.6	29.1
KSA contribution to GDP (J\$M)	2310.8	2199.9	2244.9	2316.4	2323.1
% Growth in KSA contribution of GDP		(4.8)	2.0	3.2	0.01

Source: Economic Development Research Paper (2004)

Over the past decade, the contraction of economic activities has resulted in closure of many businesses and an upward drift in the unemployment rate. In spite of this worrying trend, KSA's contribution to the country's GDP remained fairly steady at approximately 29% per annum, moving from J\$2,310.8 million in 1999 to J\$2,323.1 million, in 2003. Except for two years, 2000 and 2001, the region's contribution to GDP was fairly robust. However, continuation of this performance requires the elimination of structural problems, including weak financial and non-financial institutions, high cost of borrowing and an inadequately trained labour force.

If current trends in population growth continue, by 2025 the number of unemployed is projected to surpass 343,000. The projected unemployment is cause for concern and points to the need for urgent policy action. The creation of job opportunities to induce a significant reduction in unemployment will be one of the greatest challenges confronting KSA.

The existence of a largely unorganised, unregulated, mostly legal but unregistered informal sector must be recognised if we are to build a sustained, successful process of economic development in KSA. Table 4 shows that Jamaica has the largest informal sector in the English-speaking Caribbean. In many cases, job creation was at least twice as large when compared to other territories.

**Table 4: Informal Employment (%) in Selected Caribbean Countries**

Country	1991	1994	1998	2000
The Bahamas	13.1	15.1	15.1	-
Barbados	11.9	12.7	12.9	12.8
Belize	-	23.7	24.9	-
Jamaica	42.6	39.4	38.6	37.9
St. Lucia	-	26.9	28.6	30.5
Trinidad & Tobago	20.7	22.3	18.9	18.5

Source: Economic Development Research Paper (2004)

Small and micro businesses are responsible for approximately 33.9% of employment in the country and this is expected to expand over the next few years. Most new entrants to the urban labour force are probably creating their own employment or working for small scale family-owned businesses. The self employed are engaged in a wide range of informal activities ranging from car washing to artisan services, while there are small-scale entrepreneurs with several employees and high incomes. Some could eventually move to the formal economy where they become legally registered, licensed and subject to government regulations.

The informal sector in KSA is linked to the formal sector in that the formal sector depends on the informal sector for cheap inputs and wage goods for its workers, and the informal sector in turn depends on the growth of the formal sector for a good portion of its income and clientele. The informal sector often subsidises the formal sector by providing raw materials and basic commodities to both the workers and employers at artificially low prices, maintained through the formal sector's economic power and legitimacy. The important role that the informal sector is already playing in KSA is therefore indisputable.



Micro business in KSA.

#### 4.2.2 Rationale for Development Area Clusters

The purpose of this section of the Sustainable Development Plan is to translate the vision and strategies outlined in the preceding sections into spatial concepts. To recapitulate, the process from vision to action involved a series of consensus-building workshops held in 2001 and 2003. The workshops brought together a wide range of stakeholders, who discussed pertinent issues and agreed on strategic choices for the sustainable development of KSA. These concepts and visions were further refined into strategic directions and actions which now need to be translated into spatial dimensions.

Development Area Clusters (DACs) are the primary element of spatial planning in the Sustainable Development Plan. Thirteen DACs have been created from the 108 urban communities which make up the KMA; the rural areas; and rural special areas in KSA (*see Section 1.1 for a*



**discussion of special areas;** Annex 1 provides the details of the special areas included in the DACs). The 13 DACs are listed below and shown on **Map # 2**:

- |                  |                               |                             |
|------------------|-------------------------------|-----------------------------|
| 1. Three Miles   | 5. Cross Roads                | 9. Stony Hill/Golden Spring |
| 2. Duhaney Park  | 6. Liguanea                   | 10. Red Hills               |
| 3. Half-Way-Tree | 7. Papine                     | 11. Harbour View            |
| 4. New Kingston  | 8. Constant Spring/Manor Park | 12. Downtown                |
|                  |                               | 13. Port Royal              |

The concept for the creation of Development Area Clusters is based on the principle that there ought to be a more sustainable pattern of orderly development and redevelopment in KSA. The DACs will be the centres of growth in KSA, in the future. Each DAC will therefore include communities and amenities that will improve the living environment of KSA for new and existing residents. In this regard, the DACs are conceived as 'planned development neighbourhoods' and therefore must include certain criteria for selection. It is not possible for all 108 communities to contain all the criteria but, through amalgamation, these services are available. The criteria for the establishment of each DAC are as follows:



*KSA is the seat of headquarters for all financial institutions.*

- The presence of an existing commercial centre;
- Educational institutions;
- Commercial activities;
- Industries;
- Financial institutions;
- Social facilities (e.g., health centres, post offices, markets, police stations);
- Strength of linkages within communities in the cluster.

Based on the categorisation of KSA into 13 DACs, it is possible to provide information on the supply of public facilities and amenities in different parts of the city and determine areas which are under-served. Such an analysis will assist in:

- (1) identifying pilot districts for integrated, spatial, socioeconomic and environmental planning; and,
- (2) providing the framework to undertake feasibility studies for priority action areas.





### 4.2.3 Strategic Guidelines for Growth and Employment

As set out in Section 3, the Sustainable Development Plan is predicated on five strategic goals which aim at improving the living conditions of KSA residents, promoting growth and development in the city, while ensuring the effective use of natural resources. At the same time, the pursuit of these goals and the implementation of the plan will be supported by a stronger, more effective system of local governance.

Set out in Figure 2 is a summary of the sector-specific strategies and actions that must be pursued in order to enhance KSA’s prospects for economic development and growth, followed by detailed sections on elements of the plan.

**Figure 2: Matrix of Strategies in Support of Goal of Economic Growth**

<b>GOAL 2: PROMOTE GROWTH, INCREASED PRODUCTIVITY, BROAD-BASED EMPLOYMENT, INVESTMENT AND TRADE IN KSA</b>	
<b>GENERAL OBJECTIVE # 1</b> Promote investment & industrial development corresponding to the competitive advantage of the city economy.	
Sector Objective	Strategic Direction
Promote an appropriate incentive structure to encourage private investment while allowing for new competitive advantage.	Develop competitive clusters of industries in tourism & related services; arts & culture; tertiary education; business services; IT. Improve infrastructure service quality and efficiency. Provide the regulatory framework that would enable greater participation of producers. In this regard, government needs to increase its role as facilitator by streamlining business regulations, reducing the cost of money, etc., in order to allow greater private sector involvement.
Create a developed city that offers 24-hour services and opportunities.	Develop centralised business niches, e.g., entertainment district, fabric district, banking district, etc. Create well-developed economic activity involving a system of well-managed markets, a waterfront, and a commercial & financial centre. Establish a planned vending area from which the city and the people will benefit. Reduce crime and violence so that investment opportunities in the city may be promoted.



<b>GOAL 2: PROMOTE GROWTH, INCREASED PRODUCTIVITY, BROAD-BASED EMPLOYMENT, INVESTMENT AND TRADE IN KSA</b>	
<b>GENERAL OBJECTIVE # 2</b> Facilitate sustainable employment opportunities focusing on poverty reduction.	
Sector Objective	Strategic Direction
Link economic performance with social cohesion.	Create at least 12 economic zones and ensure that internal disparity within zones is reduced. Support community entrepreneurship and business initiatives by encouraging Community Development Corporation (CDC) to aid job creation at the community level. Provide access to employment for the disabled. Provide opportunities for training in small and micro enterprises, particularly small business ventures run by women. Provide greater access to opportunities in education, for training in tourism and cultural industry professions.
<b>GENERAL OBJECTIVE # 3</b> Promote the growth of the small and micro business sector.	
Sector Objective	Strategic Direction
Address problems hindering the development of the sector.	Provide affordable funding to the sector. Establish a venture capital fund that is earmarked exclusively for the sector. Encourage local private lending agencies to contribute to the pool of funds through the granting of government incentives.
Develop new products and services that would lead to the creation of new employment opportunities.	Increase the availability of services in the areas of marketing and management. Improve the institutional framework to facilitate development of the sector. Promote reform which seeks to reduce the costs of normalisation. Increase development and research for the sector.



<b>GOAL 2: PROMOTE GROWTH, INCREASED PRODUCTIVITY, BROAD-BASED EMPLOYMENT, INVESTMENT AND TRADE IN KSA</b>	
<b>GENERAL OBJECTIVE # 4</b> Promote the growth of tourism facilities, services and related uses.	
Sector Objective	Strategic Direction
Make downtown Kingston an attractive site for conferences.	More effective marketing of the Government Conference Centre. Promote other conference sites in KSA. Market the many attractions of KSA to conference planners who may not see the potential of Kingston. Target special conferences on culture & heritage, for Kingston.
Promote Kingston as the cultural centre of Jamaica and the Caribbean.	Analyse and categorise all of KSA's cultural activities. Provide assistance, including financial assistance, to help small entrepreneurs effectively develop their products. Market KSA as a cultural site, on the Internet and in all promotions. Highlight the diversity of KSA's cultural life. Promote KSA to the domestic tourism market. Highlight culture in a more visible way, in hotels and guesthouses throughout KSA. Rebuild Victoria Pier as an enhanced facility for cruise shipping.
Develop heritage tourism in KSA, targeting Jamaicans in the Diaspora.	Provide greater government assistance for the development of heritage attractions. Reconsider the most feasible approach to using Port Royal as a stimulus for expanded tourism, focusing on niche cruise ships that appeal to specialist tourists interested in history and archaeology. Expand marketing through the use of websites and brochures. Package various attractions to provide day trips. Encourage the creation of relevant high quality souvenirs. Actively promote family reunions through JTB promotions. Create an on-going project with various institutions, that will result in the development of books, videos, etc.



**GOAL 2:  
PROMOTE GROWTH, INCREASED PRODUCTIVITY, BROAD-BASED EMPLOYMENT, INVESTMENT AND TRADE IN KSA**

<p>Promote KSA as a sports tourism destination.</p>	<p>Ensure that existing sports facilities are maintained at a high standard.          Ensure that existing sporting events are marketed to potential visitors.          Promote the sports venues to overseas visitors.          Promote the many hiking and jogging trails in the KSA region and the opportunities for mountain bike riding.          Provide effective training for sports organisers.          Explore the feasibility of other sporting events, particularly those that involve the hills and mountains of KSA.</p>
<p>Provide more support for eco-tourism.</p>	<p>Develop brochures of the eco-tourist attractions in KSA with maps of how to get there; car and bike rental information.          Train tour guides.          Develop nature trails and put the appropriate signage in place.          Collaborate with the relevant authorities to ensure that protected areas remain protected.</p>
<p>Redefine the role of the KSA Resort Board.</p>	<p>The Resort Board should help define a coherent vision for tourism within KSA region and disseminate this vision.          Define the stakeholders and assist them in forming relevant interest groups, e.g., craft vendors association of KSA, musicians of KSA, etc.          Assist the various groups in developing plans that would allow them to participate in tourism as defined by the tourism master plan.          Provide the groups with information about plans and developments within tourism ahead of time and provide technical assistance in management skills and strategic planning.          Identify training needs and help the group members to access the necessary training.          Assist the groups in cross-promotional activities and inter-group collaboration.</p>



<b>GOAL 2: PROMOTE GROWTH, INCREASED PRODUCTIVITY, BROAD-BASED EMPLOYMENT, INVESTMENT AND TRADE IN KSA</b>	
<b>GENERAL OBJECTIVE # 5</b> Accelerate the pace at which alternative energy sources are being developed.	
Sector Objective	Strategic Direction
Reduce high energy costs which threaten prospects for restoring manufacturing capacity, as well as building up agro-processing, information technology, tourism and other base industries.	Explore the possibility of establishing a series of windmills on the southern edge of the Manchester plateau. Explore the potential of photovoltaics becoming competitive in mainstream as well as off-grid, given that oil must be imported. Promote building standards that maximise natural lighting, ventilation and cooling and through which major energy savings can be realised.
<b>GENERAL OBJECTIVE # 6</b> Increase focus on agri-business and agro-forestry.	
Sector Objective	Strategic Direction
Improve food security for residents of KSA.	Improve market access by expanding the agri-business information system that provides farmers with print and web-based information about markets, products, and technical assistance. Increase technical assistance to farmers to allow for improved delivery of agri-business information via the Internet and thereby increase the number of direct users of the system. Encourage highly efficient in-fill development and other measures which discourage further suburban and ex-urban sprawl, even within the urban fence.
Support more sustainable communities by closing the nutrient, pollution and carbon loops that are devastating the environment in most urban communities and provide sources of employment.	Encourage organic production through the support of market research, training and international certification for farmers and local farming organisations. Encourage the return to the use of gardens for home food supply and the use of rooftop gardens in density developments.
Strengthen the linkages between tourism and the agricultural and agro-forestry sectors.	Reduce leakage of foreign exchange by providing agricultural products for the tourism industry. Provide agricultural and forestry products for the craft sector.



## Economic Zones

KSA is to be divided into 13 economic zones in order to ensure that all sections of KSA participate in the process of wealth creation. This will only be possible if each zone is able to attract economic drivers and economic supporters. Economic drivers are basically wealth creators or businesses that bring new and sustainable investments into the zone and are able to produce goods/services that are sold to other zones and/or exported. An economic supporter is a business that circulates money within the zone by selling goods/services to residents or to other businesses. Excellent examples of economic supporters are the distributive trade, the construction sector, public administration and non-government organisations.

There is a close inter-connection between economic drivers and economic supporters. Although the economic supporters rely on economic drivers to generate new wealth, it is the combined effort of these two sets of businesses that will bring development and sustained prosperity to KSA. To achieve this objective, however, the choice of drivers must be based on the zone's competitive strengths. Against this background, Table 5 identifies some of the possible drivers that may be appropriate to each of the 13 economic zones.

**Table 5: Economic Zones and their Economic Drivers**

<u>Economic Zone</u>	<u>Economic Driver</u>	<u>Economic Zone</u>	<u>Economic Driver</u>
1. Constant Spring	Light Manufacturing	7. Stony Hill	Recreational Tourism
2. Papine	Technology and Information Technology (IT)	8. Downtown	Cultural Tourism, Music
3. Liguanea	Cottage Industry	9. Port Royal	Sea-based Tourism
4. Red Hills	Recreational Tourism	10. Three Miles	Manufacturing
5. Duhaney Park	Cottage Industry	11. Cross Roads	Cottage Industry
6. Half Way Tree	Light Manufacturing	12. Harbour View	Sea-based Tourism
		13. New Kingston	Financial Institutions

## Economic Clusters

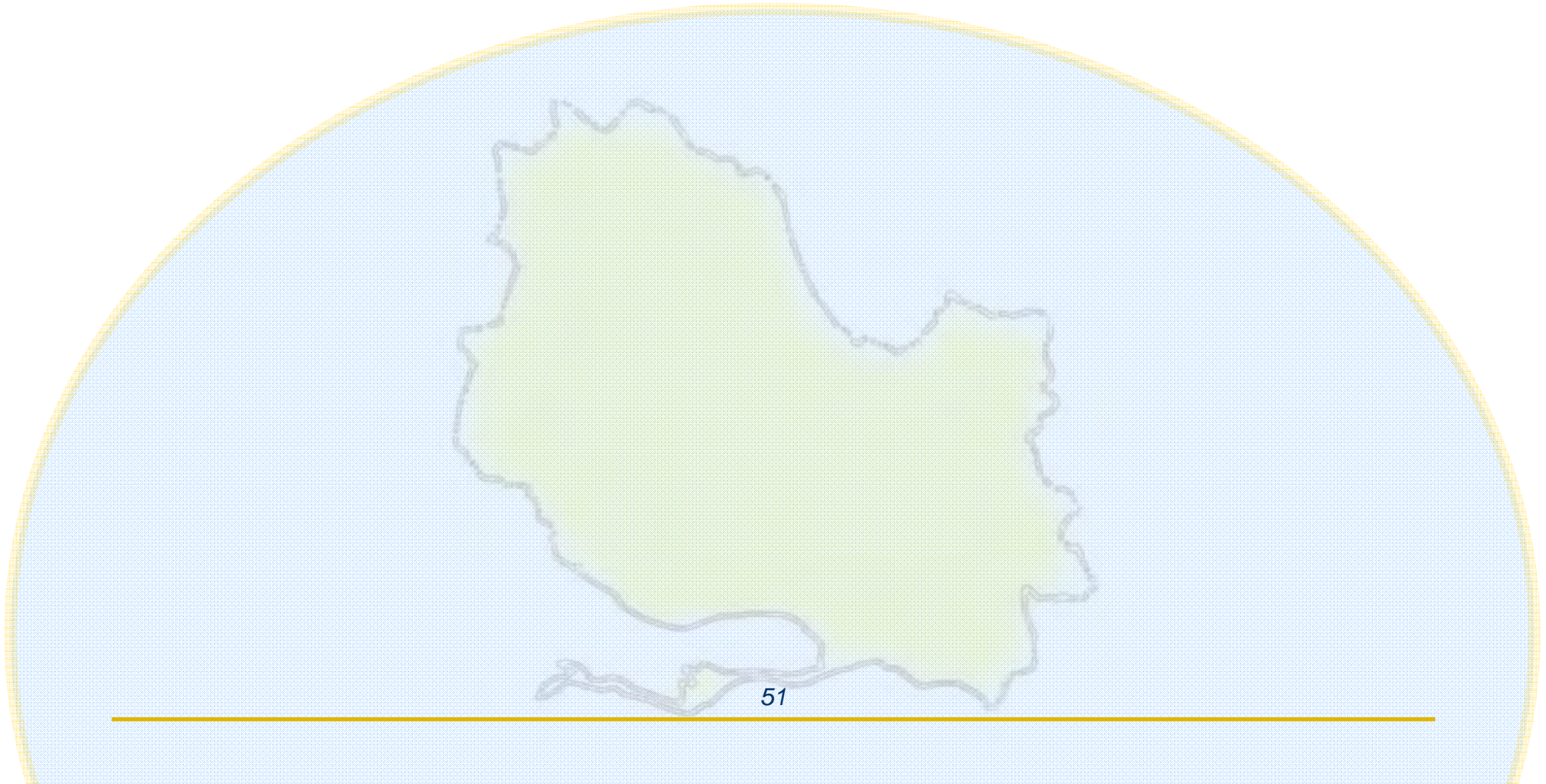
Through its development initiative, KSA has a unique opportunity not only to chart its own economic future but, also, to lead the rest of the country into a new competitive economy based on private capital and entrepreneurship. For this to occur, the KSA economy has to develop competitive clusters of industries. A cluster basically represents a collection of inter-related businesses and institutions in a given area of economic endeavour. Some of the economic areas in which viable competitive clusters should emerge are: tourism and tourism-related industries; arts and culture, including music; health; tertiary education; information technology.



Clusters are expected to provide the impetus for economic development in the following ways:

- increase the productivity of firms within the cluster;
- push innovation within the cluster;
- generate new businesses.

In today's global environment, it has become increasingly clear that doing business at a low cost is not a sufficient basis for competitiveness. Cities must also offer high-quality services and workers who can meet the demands of the information age. Cities can also enhance their competitiveness by developing institutional frameworks which function to enhance their advantages. All markets need an adequate institutional framework to perform properly. Under a weak or inadequate institutional framework, only a few can effectively participate. In this regard clarifying, simplifying and strengthening the institutional framework would enable a wider degree of participation in the markets and increase the benefits that flow from such participation.







### 4.3 Infrastructure

**The provision of sustainable and adequate infrastructure services in KSA is necessary to facilitate a better quality of life for its inhabitants. These services include infrastructure support systems such as: water supply and sewerage; storm water drainage (water resources management); telecommunication; and solid waste management.**





### 4.3.1 Current Situation

#### **Water Supply and Sewerage**

The water sector in the KSA is characterised by high levels of coverage for potable water (over 95%) but limited sewerage facilities (40%). Despite the relatively satisfactory potable water coverage, an accumulated deficit of new investment and poor maintenance over the years has resulted in highly depreciated and inefficient delivery and treatment systems. Due to inadequate metering and under-billing, approximately 30% of the water delivered is not billed, while an estimated additional 30% is lost through the delivery system.

Inefficiencies in delivery and billing, combined with poor operations and maintenance and rapid population growth in the KMA, have resulted in a situation of increasing water scarcity. To address this problem, in the 1980s the government began diverting 16 million gallons per day (mgd) of water from the neighbouring watershed of Yallahs in the parish of St. Thomas. However, even with this additional supply, demand at peak season exceeds supply and low-pressure and water lock-offs are common. Currently, in many parts of the KMA, water supply is restricted to a limited number of hours per day during the dry season. With historically poor collection for service, funds for maintaining and expanding distribution, collection and treatment systems have been inadequate.

The main systems that supply KSA are the Hope/Mona and Constant Spring reservoirs. A number of wells and a spring from the Rio Cobre system also supply KSA. There are about thirty-nine (39) other small water supply systems operated by the NWC that are fed by rivers and springs and supply the more remote areas of St. Andrew (**see Map # 9**). The sand, clays and gravel of the Liguanea Aquifer have been and continue to be an important source of potable and industrial water for KSA. However, the KMA faces a severe water shortage as a result of the contamination of the Liguanea Aquifer by treated and untreated sewage, and competition for available supplies from agriculture and new suburban development.

The Kingston and St. Andrew sewage treatment facilities collect in excess of 15 mgd of sewage (**see Map # 10**). However, they are inadequate in terms of designed capacity, level of treatment and working order. In addition, large parts of the city are not sewered, and untreated sewage plays a major role in the pollution of Kingston Harbour. Although the sources of contamination in the bay are numerous, the largest factor contributing to its current state of degradation is the discharge of untreated sewage. Most of the water utilised in the KMA – estimated at over 78 mgd – is dumped into the harbour with limited or no treatment. Other sources of contamination include sedimentation, industrial waste, shipping waste, solid waste from gullies, leachates from the Riverton landfill and other sources.

#### **Storm Drainage**

The Liguanea Plain has always been subject to sudden torrential flash floods. Kingston engineers responded to the problem with the construction of concrete channels (gullies). However, the conversion of rivers and streams to concrete flood channels makes them unable to carry out many of the services they exist to provide. In addition, KSA urban area is rapidly approaching the 90% - 100% runoff levels as a disproportionately high proportion of land space is paved, reducing the area through which rain water can soak into the ground. Paved roads, turfed surfaces, and concrete drainage channels all contribute to the loss of infiltration, into the Liguanea Aquifer, by rainfall and runoff.



Concrete gullies not only deprive the aquifer of recharge but also are one of the many factors that contribute to upsetting the sediment balance. Concrete channels cause sediments that would otherwise be spread across the Liguanea Plain, to be carried into the harbour and out to sea. Sediments that should build up the shoreline for protection from storms and hurricanes are thus not available. Gullies also end up as convenient places to dispose of garbage. In part, this is because only 60% to 70% of garbage is collected formally. Informal settlements which tend to spring up on gully banks often dispose of their garbage in the neighbouring gully. Cleaning out the garbage puts a burden on those responsible for public cleansing. If not removed, the accumulated refuse may block drainage, causing localised flooding, and eventually washing down to foul the harbour and beaches.

Resulting inadequate management of storm water, along with inadequate or inadequately maintained drainage systems in some instances, causes flooding and deterioration of road surfaces.

### **Solid Waste**

Under the National Solid Waste Management Act, 2001, four major wastesheds have been identified for the island. The Riverton Wasteshed comprises the parishes of Kingston, St. Andrew, St. Catherine, Clarendon and St. Thomas and is considered the metropolitan wasteshed, handling 396,285 tonnes of waste per year<sup>1</sup>. With the passing of the Solid Waste Act, a significant improvement has occurred in the collection and disposal of solid waste. The conversion of Riverton to a managed sanitary landfill is alleviating the most serious impacts although further improvements are required.

For decades, garbage has been burned or disposed of in streams, gullies and informal dumps. These practices continue, despite the improvements in collection and disposal described above. However, they have negative effects on air quality; leach chemicals into streams, groundwater and coastal waters; and block drainage channels, contributing to flooding as well as associated health risks. In Jamaica, approximately 2,726 tonnes of municipal waste is disposed of daily at authorised disposal sites, which include large regional and smaller parochial sites. It is significant to note that as much as 50% of the solid waste generated in the country is attributed to the KMA, of which a considerable portion is derived from public sector sources. One of the main obstacles to the delivery of a frequent and effective solid waste collection service is access to some communities within KSA.



*Negative garbage disposal practices are still common place in KSA despite improvements in collection and disposal.*

### **Telecommunications**

As stated in the Telecommunications Policy prepared by the Ministry of Commerce, Science and Technology, Jamaica will utilise telecommunications industry development as an engine of growth that will contribute to sustained revitalisation of the economy.

<sup>1</sup> McHargh, Mellisa. 2003. *Solid Waste Management Initiatives in Jamaica*. Kingston



Today, the island's telecommunications facilities are relatively advanced: Cable and Wireless has installed a fibre optic trunk network, which is linked regionally with the Eastern Caribbean Fibre System (ECFS). Local cable and satellite facilities provide alternative international transmission modes. Internally, digital exchanges as well as mobile and cellular services combine with the latest information technology applications to offer state-of-the-art services to the corporate sector locally and internationally.

Since the beginning of the sector liberalisation process in March 2000, the growth in cellular mobile subscribers has been spectacular, increasing from about 300,000 subscribers to 1.6 million today; a compound annual growth rate of 52%. Despite the development of the sector, the national network distribution has been incapable of meeting the demand for domestic landline service, especially in rural communities; unsatisfied demand which explains the unprecedented growth in the cellular network over the past three years. Also, none of the 51 regional cable television operators offer Internet access services and there is only one operator which offers high speed wireless access and only to the Kingston area. Prices, however, are about 60% of those of Cable and Wireless ADSL service.

It is not surprising therefore that penetration rates for Internet access in Jamaica have remained behind those found in more competitive markets, presenting a serious obstacle to the realisation of the government's objective: to develop a strong and effective information technology sector in Jamaica.

## **Energy**

The generation and distribution of electricity is the most important activity in the energy sector (*see Map # 17*). In 2000, approximately 4.8 million barrels of petroleum were consumed in generating electricity. Up to March 2001, the Jamaica Public Service Company Limited (JPSCo) was the largest state-owned enterprise, with exclusive responsibility for the generation, transmission and distribution of electric power in Jamaica. Under the privatisation policy for the energy sector, the GOJ divested 80% of its interest in the company to Mirant, a Fortune 500 company with headquarters in the United States. JPSCo is able to meet approximately 73% of the demand for electricity through its own power generating plants and supplements its demand through purchases of power from independent suppliers.

In 2002, the average electricity produced per day was approximately 9,600 MWh and approximately 50% was required in the KMA. Approximately 17% of energy generated in the year 2002 did not provide revenue to JPSCo, due to technical losses and unaccounted for electricity; with technical loss – resulting from energy being lost during the processes of generation, transmission and distribution – estimated at 9% of total electricity generation. Unaccounted for electricity occurs primarily as a result of illegal connections to the JPSCo network and theft of electricity by legitimate customers. This unaccounted for electricity is estimated at 8.0% of total electricity generation. The KMA is estimated to be responsible for approximately half of this value.

Importation of petroleum satisfies about 99% of commercial energy demand and continues to rise, despite Jamaica's abundance of sunshine and the possibility of using solar, wind and water power as sources of energy. Energy costs are a major component of Jamaica's comparatively high production costs and thus are a deterrent to sustained economic growth. JPSCo and NEPA, through initiatives such as the Demand Side Management Project, have been encouraging all consumers to purchase and use energy-efficient products and have been promoting energy management programmes.



Alternative energy systems that are being pursued include the following:

**Biogas:** Work in the biogas sector includes the construction of systems in schools, a factory, a housing complex and on a farm. A number of requests have been received from housing developers to utilise the biogas technology, specifically the Biodigester Septic System for on-site treatment of domestic sewage, to replace septic tanks and soak-away pits.

**Solar:** A pre-feasibility study is to be conducted on the use of photovoltaic panels to generate electricity in a large housing development in the Portmore area,

**Hydropower:** In 2000, eight hydropower plants totalling 24 megawatts (MW) of power were in operation, accounting for approximately 4% of JPSCo's annual electrical energy production. Plans to upgrade the plants and increase their number appear to have stalled. This may be due to the fact that negative environmental impacts of all but very small plants suggest the need for caution in pursuing this potential energy source.

**Wind:** The Petroleum Corporation of Jamaica (PCJ) has designed a 20 MW Wind Farm in Wigton, South Manchester and has entered into a Power Purchase Agreement with JPSCo to sell the energy generated to the company.

**Fuelwood:** PCJ is also responsible for a fuelwood demonstration project, which began in 1995 with 4.04 hectares (10 acres) of trees, and five species: *Prosopis*, *Acacia*, *Cassia*, *Leucaena* and *Casuarina*. The trees have now passed the five years assigned for grow-out; and harvesting, sampling and analyses have begun.

#### 4.3.2 Key Infrastructure Improvements

The overall desired objective of sustainable infrastructural development in KSA, is a better quality of life for its residents. Set out in Figure 3 is a summary of the sector-specific strategies and actions that must be pursued in order to achieve this objective.



**Figure 3: Matrix of Strategies in Support of Goal of a Liveable KSA**

<b>GOAL1: IMPROVE LIVING CONDITIONS FOR KSA RESIDENTS</b>	
<b>GENERAL OBJECTIVE # 1</b> Ensure the sustainable development of infrastructure.	
Sector Objective	Strategic Direction
Optimise the use of water in a safe and organised manner.	<p>Identify and implement the institutional framework in order to manage the water sector, covering such issues as increasing the availability of potable water, recharging the aquifer, implementing recycling programmes, storm water use and disposal, waste water recycling and disposal, management of gullies (e.g., solid waste control, minimum setbacks from gullies).</p> <p>Encourage in-fill in the inner core and limit extension of urban sprawl into the surrounding hills as this creates additional load on the water supply systems and also disparities in water rates: people living in the hills pay the same rate as those living on the plains even though NWC has to pump water several thousand feet above the reservoir.</p>
Improve the coverage of metered water supply in KSA.	<p>Install bulk and consumer water meters to provide quality information on water production as well as to improve the capacity to charge for services, leading to a reduction in the high level of unaccounted for water.</p> <p>Implement strategies to collect from customers who, over the years, have grown accustomed to non-payment.</p>



**GOAL1:  
IMPROVE LIVING CONDITIONS FOR KSA RESIDENTS**

<p>Implement measures to restore and enhance the quality and quantity of usable water and protect the aquifers, watersheds and other sources of water.</p>	<p>Protect and preserve areas with prime percolation capabilities and minimise the placement of potential sources of pollution in such areas.</p> <p>The city should discourage the development of septic systems, waste disposal facilities, industries utilising toxic chemicals, and other potentially polluting substances in reservoir, or high groundwater table areas, when polluting substances could come in contact with flood waters, permanently or seasonally high groundwater, flowing stream or creek waters, or reservoir water.</p> <p>The city should avoid establishment of excessive concentrations of septic systems in developed areas by encouraging alternative methods of liquid waste management, and collaborate with NWC for sewage network and maintenance/ management of sewage treatment plants.</p> <p>Expanding development into the surrounding hills should be avoided because of the difficulties of providing sewerage.</p> <p>Implement the polluter pay principle.</p> <p>Develop mechanisms to ensure compliance, including public education, incentives and sanctions.</p>
<p>Ensure minimum standards/levels of service for the public supply of usable water.</p>	<p>Increase the efficiency of NWC operations including reducing unaccounted for water and promoting the more efficient use of electricity associated with the delivery of water.</p>
<p>Ensure the availability of minimum necessary quantities of usable water and minimum standards of sanitation service to all:</p> <ul style="list-style-type: none"> <li>• In a cost effective &amp; efficient manner;</li> <li>• With due regard to health and environmental considerations;</li> <li>• At a price customers can afford.</li> </ul>	<p>Ensure collaboration between the NWC, Ministry of Water &amp; Housing, Ministry of Health, Office of Utilities Regulation and Consumer Affairs Commission to determine minimum standards for potable water.</p>



**GOAL1:  
IMPROVE LIVING CONDITIONS FOR KSA RESIDENTS**

<p>Provide for expansion of the sewerage network in areas with high population densities, having regard to health and environmental considerations.</p>	<p>Obtain funding for the design and construction of a wastewater collection and treatment system in the KMA.</p>
<p>Return as many gullies as possible to their natural state in order to improve carrying capacity of storm waters, recharge aquifers and help build up the coastline and wetlands.</p>	<p>Undertake hydrologic and hydraulic studies to determine the feasibility of establishing a system of green gullies.</p>
<p>Improve solid waste management service delivery and disposal.</p>	<p>Invite bids and lines of credit with other governments or private sector to acquire additional compactor units to replace existing non-functioning units and to supplement the aging fleet.</p> <p>Employ integrated planning and development strategies, e.g., synergistic streamlining of housing, road network layout, solid waste management capabilities and drainage.</p> <p>Provide a more formal facility at the port for the disposal of ship-generated waste.</p> <p>Identify site for location of new landfill.</p>
<p>Develop mechanisms geared towards cost recovery to supplement economic constraints which result in less money being available to fund solid waste management operations.</p>	<p>Institute tipping fees at all disposal sites islandwide on a phased basis for the disposal of commercial, institutional and industrial waste.</p> <p>Continue educating Jamaicans about the correct way to dispose of garbage and consider the introduction of recycling. Rigorously enforce laws about dumping. Re-examine and, if necessary, increase fines for dumping.</p>





**GOAL1:  
IMPROVE LIVING CONDITIONS FOR KSA RESIDENTS**

Promote reuse, recycling and other cutting-edge waste management technologies.	Explore the potential of using waste as a resource that can be capitalised on and develop new enterprises. Support research which converts waste products such as glass, plastics and cardboard into usable products. Support the use of landfills as a source for the generation of energy.
Institute on-going public education programme to promote the public's cooperation with the work being undertaken by the National Solid Waste Management Authority (NSWMA).	Sensitise the public through: environmental expos; media; health fairs; schools' environment programmes; community meetings; presentations to various groups.
Ensure the orderly development of the telecommunication sector in KSA.	The MOH, SMA, NEPA/TCPA should develop local emission standards with related land use regulations. Sensitive environments and areas within the line of sight of antennae, must be identified and protected by legislation.
Review land uses within the telecommunications sector.	Maximise economic benefits from the sector in order to further development by streamlining the development planning process to reflect national priorities. This includes both the land use planning and approval stages. KSA Development Order should identify specific locations for telecommunications equipment. Develop local emission standards together with related land use regulations in order to minimise health impacts.



**GOAL1:  
IMPROVE LIVING CONDITIONS FOR KSA RESIDENTS**

Promote the principle of sustainability by encouraging the implementation of an environmental management system (EMS) in the operations of telecommunications providers.	Develop a management plan for the sector which should seek to address all the issues that impact development planning, given the sector's potential to become an engine of growth for the economy.
Extend the wired and wireless networks to encompass the entire geographical and demographic spread of the KSA.	Ensure availability of high quality services across a range of telecommunication providers.  Liberalise the local telecommunications market so as to foster business facilitation and encourage new entrants and value-added services.
Encourage the introduction of new technologies and services as they become available to consumers.	Monitor events in the markets, as well as standards and composition of imports, to ensure quality service provision and consumer protection.
In addition to continued alternative energy research and development, demand side management, and public awareness, promote the orientation of developments and building design as other techniques to manage energy generation and use.	Standards for maximising natural cooling and lighting need to be incorporated into development standards.
Promote public/private partnerships in financing, implementing and managing infrastructure services.	Expand the scope of private sector involvement by adopting creative business solutions and innovative financial packages which will ensure profitability of these undertakings.  Government must shift its role from provider to enabler, with emphasis on the ability to act as regulator, catalyst and partner.



## 4.4 Social Services & Facilities





#### 4.4.1 Current Situation

For the purposes of this plan, social services are taken to mean services – public or private, but mainly governmental – which are used to improve the quality of life for the individual, a community or the nation as a whole. Examples of these are hospitals, clinics, markets, cemeteries, and schools (*see Map # 4*). Some of these social services are provided privately by NGOs, business corporations and volunteer groups, and can be partially supported by government funding and infrastructure. Most of these services are provided through social facilities, which are mostly physical infrastructure. However, it is important to note that in the face of globalisation, facilities are increasingly becoming less physical and more virtual, especially in the area of information dissemination.

Jamaica's Social Policy Framework and Action Plan 2002-2007 describes the government's strategy for building a sustainable social development model. It is designed to protect the poor and vulnerable while improving the quality of life through increased access to developmental programmes, social and economic opportunities and enhanced social harmony. Poverty reduction is the main plank of this strategy, to be achieved through a combination of measures to improve incomes, self reliance, and the quality of life of the poorest groups and communities. The poverty eradication strategy has three components. The first is a social assistance component with targeted income transfers under the government's Social Safety Net Programme. The second is the development of the income-earning capacity of the working poor by providing training opportunities, micro-enterprise support, and financial services, using community-based approaches. The third is the provision and upgrading of social infrastructure in poor areas.

Prior to the development of the Framework, coordinated efforts by the government to address the needs of the poor and vulnerable began with the implementation of the National Poverty Eradication Programme (NPEP) which was initiated in 1995, immediately following the World Summit for Social Development held in Copenhagen. The NPEP coordinates a wide range of poverty-related projects and programmes administered by various ministries and agencies. The aim is to marshal all the available resources and re-orient them to the vision of eradicating poverty through integrated community development.

The activities of the NPEP are guided by 'Jamaica's Policy towards Poverty Eradication', presented as *Ministry Paper 13/97*. The intention was (a) to promote economic and social development; (b) to reduce the number of persons below the poverty line in targeted communities by 50% over three years; and (c) to eradicate absolute poverty as measured by criteria which assess the individual's ability to meet basic human needs.

The Government of Jamaica established the Jamaica Social Investment Fund in February 1996, to help respond to the needs of the most vulnerable groups, which are currently under-served by existing programmes and institutional mechanisms. It is an autonomous government agency that reports directly to the Ministry of Finance and Planning.

JSIF solicits proposals from communities by widely disseminating information via radio and television. NGOs, CBOs and central government agencies facilitate the applications process by helping key actors organise the community to choose and apply for a project. The proposal usually includes a social appraisal outlining the problems faced by the community and assessing how this intersects with social and economic constraints within the community, and the role that a sub-project can play in improving living standards. JSIF screens the applications on the basis of its target criteria which mandate a focus on the poorest communities, and then undertakes a series of field visits to identify – through participatory and other research – a realistic sense of the needs of the community.



Like other Social Funds, communities are usually required to make a contribution to construction costs either in cash or in kind. Projects are supposed to be decided in broad consultation with the community and must fall within a menu of projects that JSIF will support. The projects are generally executed by contractors employed by JSIF, and then managed by the appropriate ministry, such as Education or Health. It is expected that the community, having a greater sense of ownership of the project, will participate in its maintenance and management; thus improving project sustainability. Projects financed have, for the most part, coincided with the identified priority needs of communities. JSIF has also built capacity in participatory approaches to community development, among its implementing partners, including Parish Councils, ministries, NGOs, CBOs and contractors.

JSIF has become a major source of financing for demand-driven interventions designed to upgrade social and economic infrastructure, extend social services and build capacity at the community level. However, the agency was not originally envisaged as a major funding source for infrastructure improvement, for ministries and other sector agencies. Since the inception of the fund, 512 projects have been approved at a cost of J\$2.2 billion, with JSIF's contribution being 89.7% and communities and sponsors providing the rest. More than one-half (273) of the projects approved fell in the social infrastructure category and included construction and repairs of schools, health centres and integrated community space. Economic infrastructure projects such as roads have accounted for 33.8% of approved projects since inception. Since 1996, approximately J\$1.5 billion has been expended on completed projects.

JSIF has been chosen as the executing agency for the National Community Development Project (NCDP), which is being funded by a loan recently signed between the Government of Jamaica and the World Bank. The project was officially launched in February 2003 and is to be implemented over five years. The project seeks to enhance the sustainable development of communities by providing greater community selection of labour-intensive infrastructure development projects and strengthening the local capacity to implement such projects, with the active participation of the target beneficiaries.

### **Education**

In December 2004, a Task Force appointed by the Prime Minister completed its report for the revamping of Jamaica's education system. The major findings of the task force are:

- at Grade 4 (age group 9 to 10) only 37% of the students show full mastery of literacy requirements;
- at Grade 6 (entry level for high school) only 58% of the children have mastered the requisite subjects;
- at the secondary level, in the Caribbean Examinations Council (CXC) exams, only 33% of the students pass Math and just under 50% pass English;
- fewer than 20% of students who leave school have the requisite qualification for meaningful employment and/or entry to post-secondary programmes.



*The Ardenne High School in KSA.*



The aim is, by 2015:

- to lift Grade 4 readiness to 90%;
- to have 85% of Grade 4 students meeting the literacy requirements;
- to move average scores in the five core subjects to 85%, from around the 50% at which they now hover;
- to lift to 60% the cohorts who receive passes in at least five CXC secondary subjects, including Math and English;
- to have most or all secondary school students involved in co-curricular activities.

In order to achieve this, the Ministry of Education, Youth and Culture is to become more policy-driven and less bureaucratic. This would include decentralising management, giving more authority to schools and their boards, making teachers more accountable by linking their pay to performance and having them spend more time in classrooms and less on holidays.

The process would also involve the training and retraining of teachers – only 20% of whom have university education and teacher training, although 83% of the more than 22,000 public system teachers are graduates of teachers' colleges; and re-framing and monitoring curricula.

A proposed project to address these needs calls for major expenditure on school plant and a big hike in the education budget. The Prime Minister has appointed a sub committee of the Task Force to examine the costs of the project (J\$520 billion) and to make proposals for funding. A transformation team has been appointed to examine a number of issues including conducting an inventory of educational facilities in order to upgrade school plant.

The research work undertaken on social services, for the SDP, identified a number of issues in KSA not dissimilar to those identified in the more global Task Force Report. Early childhood enrolment (3-5 years) for the Kingston Metropolitan Area (KMA) in 2002 stood at 95.6% compared with the targets set by the Ministry of Education, Youth and Culture; a slight decline from 2000. There was an 80.6% attendance rate for primary and secondary schools in the KMA in 2002, which falls short of the 90% target. Teacher student ratios in some primary schools are way over the 1:35 target, while others have acceptable ratios. In terms of achievement, there need to be significant improvements at all levels: Grade 4 test, Grade Six Achievement Test (GSAT), CXC and Caribbean Advanced Proficiency Examination (CAPE). Possible contributors to the poor achievement at all levels are: uneven levels of teacher training, lack of resources, overcrowding, lack of interest by parents, and violence.

The Jamaica Social Policy Evaluation (JASPEV) report indicates that, with regard to education and skills, the primary problem in education is no longer access but quality. This appears to be a fair claim, since the number of schools has increased considerably in the past 10 years. Hence the question of quality remains to be seriously tackled and is tied to many other issues relating to Jamaica's education system, such as gender biases, violence, socio-economic biases, learning difficulties, overcrowding, community crime, poor teaching and streaming. The December 2004 report of the Education Task Force has identified these issues, among others, as requiring urgent attention and has developed intervention strategies to deal with problems facing the education system.



Other problems which affect the education system in KSA are listed below:

- Gender biases have real effects on achievement at all levels;
- Poor communities have less access to education, especially at the tertiary level. This is possibly because of the prohibitive costs of education at all levels;
- Attendance rates are poor for many secondary and primary schools;
- Overcrowding of schools and poor student teacher ratios must be addressed.

## **Health**

Health services in Jamaica are provided by more than 23 hospitals and 343 health centres (*Economic and Social Survey, 2003*). The South East Regional Health Authority (SERHA) serves approximately 1.2 million people in KSA and manages 90 health centres and nine hospitals. The overall health status of the island has been summed up by the *Economic and Social Survey of Jamaica* (ESSJ) as follows:

- The 0-10 age cohort accounted for 20.7% of the hospital population. The issue of babies born with low birth weights was most pronounced in the SERHA with 11.9% of the children born in this region suffering from this problem.
- The 10-19 age cohort (adolescents) made up 20.1% of the population. Programmes geared towards this group revolved around reducing risk taking behaviour, building self esteem and promoting a healthy lifestyle.
- The 20-59 age cohort accounted for almost 49% of the population in 2003. The major issues affecting this group were HIV/AIDS and injuries. Males 20-44 were twice as likely to present at Accident & Emergency (A&E) for intentional and unintentional injuries. In contrast, females accounted for 70% of visits to the health centres, 67% of all curative visits and 94% of visits to family planning clinics.
- The 60 years and over cohort represented 10.3% of the population in 2003. The ESSJ 2003 revealed that elderly persons found it easier to register and access benefits under the Jamaica Drug for the Elderly Programme (JADEP) which will eventually be phased in under the National Health Fund (NHF). The NHF, launched in 2002, is part of government's attempt to help Jamaicans meet the costs of medication and treatment for chronic diseases.

## **Social Infrastructure**

### **Markets**

Commercial centres generally benefit from the proximity of markets and sidewalk vending. However, overcrowded and unsanitary market conditions threaten their financial health. Currently, there are 18 markets being operated by the KSAC of which 12 are located in Downtown Kingston (*see Map # 4*). Taken as a whole, they have a maximum capacity of 6,000 vendors. In 2002, as part of the Local Government Reform process, the markets in the downtown business district were refurbished; however, the markets in KSA continue to operate at a loss. This lack of profitability, in turn, makes it difficult for the KSAC to provide adequate infrastructure and services needed for maintaining the markets.



In addition to the 18 markets in KSA, vendors are also accommodated in designated lots, holding areas and designated market streets. Checks of existing data on the markets in the KSA reveal that, to date, no Jamaican agency systematically collects data related to estimating income expended at the markets, the origins of the vendors selling in the markets, the source of products sold in the markets, the number of customers served, the communities serviced by individual markets, the link between markets in and outside KSA, and the number of vendors that fall outside of the official market system. The absence of data also makes it difficult to plan the logistics of solid waste provision. The ratio of waste quantification to collection unit/frequency, for example, is difficult to assess.

Without this information, it is impossible to either adequately judge the effectiveness of the KSA market network or make well-informed recommendations for its improvement. Nonetheless, it is obvious that markets have to be brought to a position of profitability so that adequate maintenance and basic services can be offered to both vendors and buyers. Rakodi (2004) points out that the markets in KSA are operating at a loss which, in turn, constrains their operations. Given this fact, there is an obvious need to explore avenues for ensuring the profitability of the markets, which could include the efficient collection of market fees; secure paid parking for buyers at markets; operating well maintained, paid bathroom facilities for customers; and exploring mechanisms for incorporating the informal vendors into the formal market system.

### **Cemeteries**

KSA is home to several cemeteries (*see Map # 4*), including the government owned and operated May Pen Cemetery and the privately administered Belvedere Cemetery, Port Royal Cemetery, August Town Cemetery and Bedward Cemetery. The May Pen Cemetery, located along the Spanish Town Road, is the largest cemetery in the KSA. It suffers from a number of problems including poor fencing, poor condition of the access roadway, overgrowth of vegetation, sewage problems, lack of public sanitary convenience, and repairs needed for the chapel and change rooms. The problems facing privately administered cemeteries are less severe than the problems of those administered solely by government.



*Kingston Harbour is important for boating*

No agency systematically monitors cemeteries to determine the capacity of the cemeteries and whether cemeteries in KSA are close to capacity. Burial needs of KSA are being met also by cemeteries in the parish of St. Catherine. In the future, the demand for cemetery space in KSA is likely to compete with demand for housing and commercial land. It may be timely to undertake a comparison of burial and cremation costs and impacts in the context of sustainability and cultural practices/preferences. There is also need to examine mechanisms which can facilitate community ownership/ partnership in the administration and care of cemeteries, if these are to be operated in a sustainable fashion.

### **Community Centres**

Community centres help in community development, which the United Nations defines as “the process by which the efforts of the people themselves are united with those of government authorities to improve the economic, social and cultural conditions of the communities, to integrate these communities into the life of the nation, and to enable them to contribute fully to national progress”

Based on 1992 data from the Social Development Commission (SDC), there were 76 community centres in KSA: 60 in St. Andrew and 16 in Kingston. Of importance, community centres are also used for recreation and sporting activities. The facilitation of such activities is of great significance to the social well being of community members.





A number of community centres in the KSA are in need of repairs in order to make them usable. NGOs, which use the facilities to conduct programmes aimed at building social capital in these communities, often find facilities in a poor state of readiness; a factor that can lead to late start-up or cancellation of needed community programmes.

### **Recreation and Open Space**

There exist, in KSA, a rich array of places where residents can go for recreation and sporting activities (*see Map # 15*). This aspect of Kingston's resource base is insufficiently appreciated and cries out for enhancement. Kingston's waters, particularly around the cays and along the mangroves, would provide much interest for eco-tour groups. The Kingston Harbour itself does not provide any recreational swimming, diving or snorkelling opportunities, except around Port Royal. However, the Port Royal Cays and barrier reef, outside of the harbour, offer more attractive snorkelling and dive locations. Kingston Harbour is also important for sailing and boating and is home to over 100 recreational craft and motorboats.

Kingston also boasts several other recreational opportunities, including the Hope Botanical Gardens, a Go-Kart track, an archaeological museum, Sabina Park cricket grounds and the Rockfort Mineral Bath (*see Map 6*).

The KSA is also the home of Jamaica's first national park, the Blue and John Crow Mountains National Park. However, although it was established as a national park in 1991, the area is still not adequately protected. In addition, KSA is home to the Palisadoes-Port Royal Protected Area, which was declared following an intensive and broad-based effort among Port Royal citizens and stakeholders in the area. Long Mountain, part of which is a Forest Preserve and which was identified in the 1968 Kingston Development Order as a public open space, is being extensively humanised by legal and informal housing developments. In addition, in the Hope area, informal settlement appears to be expanding and threatening the environs of the Hope Botanical Gardens and Zoo.

The areas identified in the Kingston Development Order as public or private open spaces tend to be scattered, representing unplanned opportunities, rather than a coherent effort to develop a framework of open space within and around which to build. Many of the areas are privately owned and not accessible, although some of them provide valuable visual open space. There is also concern about the protection of critical elements of an open space framework, due to encroachment on areas with important habitats, as well as scenic, recreational, safety and watershed values, all around the city.

In terms of green space, over the past decades, Kingston has enjoyed a reputation as a green city. However, the city's green image was not based on the amount of public green or open space, but rather on the basis of its generally low densities, large lots, the profusion of trees in



*Jamaica's first National Park, the Blue and John Crow Mountains, is partially located in KSA.*



*National Heroes Park, Kingston.*



private yards and street-side hedges. Significant changes have occurred over the past decade as roads have been widened, security concerns have increased, and properties in residential neighbourhoods have changed use. As a result, more streets are now lined with concrete walls, trees have been cut down or are less visible than formerly, and the overall visual quality and level of comfort in streets and other public areas has deteriorated.

Despite this gradual loss of open space and green areas, Kingston has seen significant steps towards its beautification in the past two years. With the example of Emancipation Park, more citizens now perceive the possibility that the city could be a more beautiful, urbane and generally rewarding environment. Further opportunities to green Kingston include National Heroes Park. In addition, Kingston needs more small, corner parks. Michael Manley Park on Old Hope Road and Holruth Park on Trafalgar Road are examples, although such pocket parks could be even smaller and preferably not fenced.

An interconnected urban forest for Kingston is a long term vision for the gullies. Based on the feasibility of returning the current concrete channels to their service as natural streams, major gullies could be opened up and new ones added. The major new service would be the opportunity to use the land for trees and other crops, tended by municipal gardeners and foresters, providing income for KSA. The idea is already working in some unlikely urban settings, such as Croydon, a now heavily urban former London suburb, where sustainable use of existing and new elements of urban forest, from street trees to plantations on city-owned land, is proving economically viable and a source of significant employment.

### **Social Safety Nets**

The provision of social welfare is seen as necessary for the survival of any society and, as such, has to be an integral part of the SDP for KSA. The need for this service has been accentuated in recent times because of an economic downturn that has seen the loss of jobs in the formal sector and the rationalisation of social services offered by the government. In response to these realities, over the past three years, Jamaica has been undertaking a comprehensive programme of Social Safety Net (SSN) reforms that have resulted in improvements in benefit levels, service delivery, cost efficiency and targeting of the poor through a Beneficiary Identification System.

In addition to the above, the KSAC also administers a Poor Relief Programme. The main forms of poor relief to residents of KSA are:

- Outdoor assistance: The payment of a monthly allowance to indigent persons;
- Indoor assistance: The maintenance of indigent persons at the parish infirmary (KSAC Golden Age Home);
- Shelter Management: Day care or night shelter for homeless and street people. To date there are two government-operated night shelters, in Golden Spring and Gordon Town.

### **4.4.2 Strategic Directions and Actions**

Improving liveability in the KSA is also aimed at ensuring that residents have access to adequate health care, education and other services. Numerous examples have shown that upgrading under-serviced neighbourhoods can empower communities and raise the welfare of low-income households. Figure 4 is a summary of the sector-specific strategies and actions that must be pursued in order to achieve this objective.



**Figure 4: Matrix of Strategies in Support of Goal of a Liveable KSA**

<b>GOAL 1: IMPROVING LIVING CONDITIONS FOR KSA RESIDENTS</b>	
<b>GENERAL OBJECTIVE # 1</b> Ensure that social services and social safety nets are available for all groups, and take account of gender and other differences in needs.	
Sector Objectives	Strategic Direction
Increase the level of achievement at all levels of the education system.	Put in place systems to collect information on issues such as gender differences, effects and levels of violence, and poor achievement at all levels of the school system.  Devise mechanisms to get more boys involved in the education system so as to improve achievement levels.
Establish schools at high standards so that students go to the nearest school in their community knowing that they will get a solid education.	Conduct an evaluation of public and private schools in KSA.  Ensure that all schools are equipped with a wide curriculum and modern tools, such as libraries and computer centres.  Ensure that teachers are well trained, well paid, well respected and equipped with modern teaching methods and tools.
Improve literacy among the citizens of KSA.	Ensure quality education for all, at primary level.  Ensure that all citizens have access to high quality, affordable education at all levels.  Put mechanisms in place to ensure greater access to tertiary level education, in poor communities, so that these persons are given opportunities for social mobility through education.
Improve marketable skills among the citizens of KSA.	Emphasise technical and vocational training for those both in and out of school.
Increase emphasis on early childhood development.	Provide adequate resources to improve teaching and learning in the formative years.



**GOAL 1:  
IMPROVING LIVING CONDITIONS FOR KSA RESIDENTS**

<p>Ensure all citizens of KSA have access to proper health care; including the elderly, 'shut-ins', the mentally challenged and persons with disabilities.</p>	<p>Improve access to reproductive health services and reduce pregnancies among adolescents.</p> <p>Increase and improve facilities in the KSA for those with HIV/AIDS.</p> <p>Provide more and better facilities and programmes for the elderly in KSA.</p> <p>Provide more shelters for the homeless and street children.</p> <p>Provide programmes for the assessment, care and rehabilitation of the homeless.</p> <p>Institute an efficient system of fee waivers whereby the poor are ensured free access to care.</p> <p>Develop partnerships between government and citizens in meeting the needs of the vulnerable in KSA.</p> <p>Provide universal access to all public buildings in KSA.</p>
<p><b>GENERAL OBJECTIVE # 2</b></p> <p>Improve community-based mobilisation and participation to address common concerns, develop a better understanding of problems, build community spirit and strengthen commitment for communal efforts to improve conditions.</p>	
<p><b>Sector Objective</b></p>	<p><b>Strategic Direction</b></p>
<p>Increase community centre programmes which bring people together to address common concerns, help them to develop a better understanding of their problems and build community spirit.</p>	<p>Undertake a programme to repair those community centres in need of repair and equip centres with modern technology such as IT.</p> <p>Develop and promote parenting programmes as part of initiatives at the community level.</p> <p>Support the development of community-based training and initiatives such as that currently being undertaken by HEART.</p> <p>Provide more recreational facilities and green areas in communities to foster greater community interaction.</p> <p>Increase public education.</p>



<b>GOAL 1: IMPROVING LIVING CONDITIONS FOR KSA RESIDENTS</b>	
<b>GENERAL OBJECTIVE # 3</b> Improve social infrastructure.	
Sector Objective	Strategic Direction
Accelerate programme of market reconstruction, together with clearer demarcation of vending areas within commercial/mixed nodes.	Relocate and rebuild markets to serve as centres for economic activity.  Undertake a study to determine where additional markets are required, as they will become centres of economic activity.  Put in place mechanisms to collect information on markets related to estimating income expended at markets, origins of vendors, etc.  Rebuild the downtown craft market to encourage Jamaican shoppers and prepare for cruise passenger arrivals.
<b>GENERAL OBJECTIVE # 4</b> Preserve and develop recreation facilities and 'green spaces', which can serve a growing population at contemporary standards.	
Sector Objective	Strategic Direction
Protect the natural character of suitable open spaces and place high priority on maintaining open spaces for unique natural qualities and scenic resources.	Identify and make open lands, already in public ownership, accessible to the public for compatible recreational uses.  Encourage watershed management districts to expand existing programme for recreational opportunities in watersheds and riparian zones, where recreational use would not conflict with watershed protection objectives.
Increase and improve the parks in KSA.	Undertake an inventory of sites suitable for the development of small 'pocket parks', particularly in inner city neighbourhoods.  Proceed urgently with plans to 'green' National Heroes Park and other parks.
Improve maintenance of the city's historic cemeteries to represent elements of the city's visual and passive open space.	Undertake a comparison of burial and cremation costs and impacts in the context of sustainability and cultural practices.  Provide mechanisms which can facilitate community ownership/ partnership in the administration and management of cemeteries.



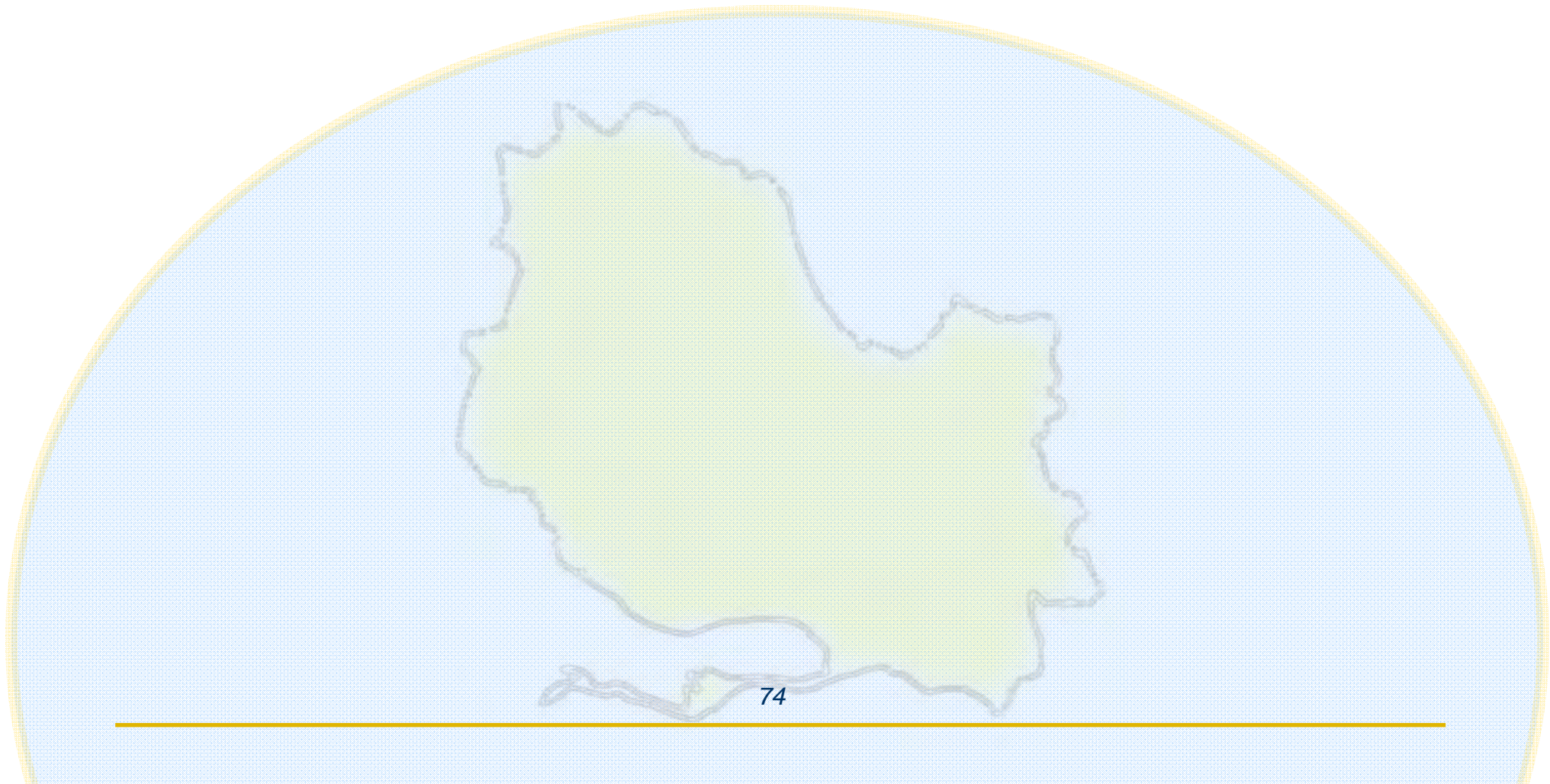
Promote the sustainable development of the Blue and John Crow Mountains National Park.

Provide support for the passing of legislation and regulations to improve protection of the National Park.  
Support programmes for aggressive reforestation in the Blue and John Crow Mountains.  
Build recognition that the organisations managing the park need to receive consistent programmatic support for many years to achieve sustainability.





## 4.5 Transportation





### 4.5.1 Current Situation

Historically, Jamaica has developed an unusually high ratio of road miles to population, putting a strain on national/local finances for infrastructure construction and maintenance and other municipal services. However, transportation planning decisions over the past decade and a half have reinforced the pattern, encouraging automobile ownership and use, encouraging urban sprawl and opening up new areas of the country for development; often not based on any assessment of suitability for development. Transportation and land use policies play a critical role in KSA's development. The region's current transportation system is unsustainable, with a number of significant problems that will become worse if trends continue.

#### **Ports**

The Norman Manley International Airport is the major gateway linking the KSA with destinations worldwide while the Kingston Harbour is the most important point in the marine transportation system. Although neither the Port of Kingston nor the Norman Manley International Airport fall under the responsibility of KSA, both entities are in its jurisdiction. There should therefore be a policy to ensure that usage falls within the appropriate guidelines for sustainable development. The international airport is the destination of most business visitors to Jamaica and the seaport is the destination for almost all of the cargo bound for consumption here.

With regard to the seaport, the heavy usage poses issues of facility degradation and environmental risk. The issue is how to balance capacity expansion without further upsetting the already fragile ecological environment, and how to retard the degradation that has already occurred. It is clear that KSA should have some type of input – whether cooperating or coordinating responsibility – regarding the future use and development of the ports. This need has become even more apparent with the possibility of the relocation of the Norman Manley Airport to Vernamfield in Clarendon.

#### **Roads**

The Kingston urban area has a high density of streets relative to population density and a hierarchy of streets that is not always easy to read. Both factors affect the efficiency and convenience of the street system (**see Map # 3**). The major problems facing road transportation in KSA are summarised as follows:

- Narrow main arteries;
- Congestion with irregular public transportation services;
- Numerous intersections and shopping streets – Kingston and its suburbs have over 3,000 street intersections at which traffic was regulated by means of stop signals;
- Poor storm water drainage, which results in tremendous damage to road surfaces;
- Inadequate road maintenance which has exacerbated deterioration of road surfaces;
- Poor road surfaces, which often interrupt the safe and free flow of traffic;
- High costs of building and maintaining road and parking facilities, borne by government and businesses;
- Increasingly inconvenient sidewalks that deter pedestrian movement and limit potential use of buses;
- High proportion of some household incomes devoted to owning and operating automobiles.





Traffic congestion causes significant delay on urban and suburban roads and is increasing, creating a cost to individuals and reducing economic productivity. Congested roadways also increase noise and air pollution and create barriers to pedestrian travel. People who for any reason cannot afford to own or drive an automobile often have poor travel options due to a combination of increasingly automobile-dependent land use patterns, poor public transit service, and barriers to non-motorised transportation such as walking and cycling. People with physical disabilities face additional barriers because walking facilities and transit vehicles are not designed to accommodate their needs. This creates barriers to employment and productivity and is inequitable.

### **Parking**

Parking in KSA includes *off-street* – public and private – and *on-street* parking which is largely regulated by the KSAC. A study on parking, commissioned by the Traffic Management Unit of the National Works Agency (NWA), recommended that parking in the commercial areas of Downtown Kingston and New Kingston be rearranged to increase parking efficiency while reducing congestion, to improve traffic flow throughout the respective areas.

Two major proposals have been made for providing parking facilities for the public transportation fleet: the Half Way Tree Transportation Centre and the Downtown Kingston Transportation Hub. Half Way Tree is a significant transportation node for the Kingston Metropolitan Region. Of the 69 routes in the Kingston Metropolitan Transport Region, 34 pass through Half Way Tree – representing approximately 50% of the total number of routes in the KMR. The bus park will be constructed to accommodate a maximum of 45 buses.

The Downtown Kingston Transportation Hub will see the consolidation of ten existing terminals in Downtown Kingston to create a large managed public parking facility. The hub will be located to the north of Kingston Harbour on a wide expanse of property to be made available through the amalgamation of eleven lots which amounts to approximately 939,391 square feet. The hub will be multi-nodal and will also provide commuter rail services; and the possibility of a ferry service is being examined; the latter already discussed as part of the BID proposals. NEPA has raised a number of concerns regarding the overall efficiency in the design of this hub; for example, as it impacts on the provision of private parking spaces for employees of the complex, accessibility by the commuters, traffic flow as it relates to the transport centre and the wider transportation system, and landscaping.

The National Housing Trust is constructing a car park in New Kingston while the UDC owns and maintains a number of car parks in Downtown Kingston. There is no system in place to collect accurate data on revenue generated from KSAC parking facilities. The NWA-commissioned study will also provide information on parking fees and the expected revenue from KSAC designated parking areas.

### **Safety and Security**

Traffic accidents cause a large number of deaths, injuries and property damage. A National Road Safety Policy was put forward for the entire island in 2003. It provides a basis for working towards attaining the vision of a safe traffic environment. Another threat to road quality and safety and security on the roads of KSA is that of civic demonstrations and road blockages.

### **Dependency on Imported Energy**

Jamaica depends on imported petroleum for most of its energy, which represents a major portion of total import value, and so constrains other types of investments and economic development. Roadway vehicle energy consumption has doubled during the last decade, causing a steady growth in total national energy use. As stated in Section 2, between 1991 and 1999, road transportation energy consumption increased from 15% to 25% of petroleum consumption, causing a significant growth in total energy imports. This growth rate is likely to continue if per capita automobile ownership and use continues to increase.



Nearly 40% of the world's energy now comes from petroleum, and another 21% comes from natural gas. Together, these finite natural resources supply about 60% of the world's energy. If oil and natural gas consumption continue to double every 15 to 20 years, as it did for the 100 years preceding 1973, the earth's entire original endowment of these resources will be 80% depleted in another 30 years or so. As early as 1970, new oil and gas discoveries had dramatically declined and have remained low. In the 1980s, expert estimates were revised downward; considering known reserves and estimated undiscovered deposits, USA oil will be depleted in about 10-12 years at current pumping rates and new finds will make little difference on a worldwide scale.

Energy use and emission trends point to significant economic, political and social problems for future generations. Without intervention, the buildup of greenhouse gases could reach twice the pre-industrial level as early as 2030. Resultant global warming is likely to raise sea levels – threatening increased coastal flooding and accelerating coastal erosion. The main road to the town of Morant Bay in St. Thomas is threatened with encroachment by the sea; a threat that did not exist when the roadway was built.

## **Public Transportation**

### **Rail, Sea and Air Links**



*On-street parking in New Kingston.*

In 1987, the railway, one of Jamaica's greatest assets with respect to sustainable transportation, was allowed to go out of use for the movement of commuters, passengers and a wide range of raw materials and goods. In 1993, the Motor Vehicle Import Policy initiated a sequence of immense and largely unintended effects in terms of increased congestion, vehicle emissions and release of CFCs, waste oil, visual pollution, noise, disposal of car carcasses, and the need for road improvements; along with diminished support for public transportation. Increased road use may have contributed to the ending of commuter air service to Negril.

In 1961, a British Royal Commission on Traffic in Towns concluded that it would never be possible, on a sustained basis, to satisfy the demand for accommodation of traffic by adding more concrete; traffic would always expand to fill, and then exceed capacity. There are proposals to reinstate the railway transport system in an effort to provide affordable transportation between KSA and the rest of the island. The Transport Centre being developed as part of the BID has included a commuter rail service terminus as part of its plans.

The Kingston-Port Royal ferry service was recently terminated despite efforts to keep it afloat. Fortunately, a growing understanding of the sustainability benefits of non-vehicular transportation has generated private sector interests in the ferry service. There has also been support for a Kingston to Portmore ferry service, although this would be constrained by the number of wharves in the area.

### **Road Transportation**

One of the unfortunate side effects of expanded automobile ownership has been reduced support for public transportation. The result has been increased transportation costs and congestion, affecting all segments of society, and a lack of broad support for the bus system, leaving it vulnerable to crime.



A pattern that can be expected, based on lessons learned in more developed metropolitan areas, is that congestion will build to the point where significant restrictions on driving become necessary – whether in the form of very high parking fees or a congestion tax. Such measures tend to be brought in only after major expenditure on improvement of the circulation system. In a country like Jamaica, with limited land space and a high energy import bill, it is important to reduce the daily travel of individual/private vehicles. The KSAC, in conjunction with Central Government, must develop a sustainable plan for public transportation which will ultimately reduce the consumption of fuel.

From the point of view of social cohesion, harmony and economic well-being, good public transportation can have a powerful effect. Working in Jones Town, Kingston Restoration Company Limited (KRC) found that public transportation promoted urban stability:

*“The community’s first priority was to make the area safer and to get public transportation running again. The area’s only bus service had been suspended and taxi drivers were afraid to go into the area because of fear of violence. The community asked KRC to negotiate the return of the bus service, promising that if it did so the safety of the bus operators would be guaranteed. The success of the bus service encouraged taxi drivers to return and serve the community. Access to transport has made a huge difference, enabling people to gain and maintain employment in the City Centre. It has also stimulated business within the community itself as traders can now bring goods from outside to sell. From being a district with no public transportation, Jones Town is now considering the introduction of traffic calming measures, so great is the volume of traffic”<sup>2</sup>.*

The Jamaican Urban Poverty Study points to constraints such as access to public utilities and transportation, as among the most important constraints contributing to the inability of the urban poor to realise their human capital potential. The paper singled out the transportation system for special mention, as an aspect of the city’s social infrastructure that has had a negative impact on poverty reduction and the overall productivity of the labour force.

Competition from legal and illegal taxis continues to threaten the noble effort to build a decent and convenient bus system; one of the principal means of reducing congestion, improving access to jobs for the entire population, supporting healthy commercial centres and promoting urban stability. KRC’s work in Jones Town shows that access to transport has enabled people to gain and maintain employment in the city centre and stimulated business within the community, prompting a decline in shootings and a rise in house prices. Sustainable transport development in the KSA requires greater support for more efficient use of streets and public transportation through higher densities, mixed-use neighbourhoods and nodes, and greater pedestrian orientation.

#### 4.5.2 Key Transportation Improvements

There are many ways to make KSA transportation and land use patterns more sustainable. These strategies can be implemented using existing technologies and institutions. Virtually all provide multiple benefits, that is, they increase transportation system efficiency, reduce consumer



*One of ten existing bus terminals in Downtown Kingston.*

<sup>2</sup> KRC quoted in Jamaica National Environment Action Plan (JANEAP) 1999-2002.



costs, improve accessibility for non-drivers, and help support economic and community development objectives. Although none of these strategies will solve all of the region's transportation problems by itself, their impacts are cumulative and synergistic, whereby total impacts are greater than the sum of individual impacts.

A coordinated programme that incorporates these strategies can significantly reduce transportation problems and provide many benefits. These strategies are set out in Figure 5.

**Figure 5: Matrix of Strategies in Support of Goal of a Liveable KSA**

GOAL IMPROVE LIVING CONDITIONS FOR KSA REGOASIDENTS	
GENERAL OBJECTIVE # 1 Provide transportation facilities and services which are efficient and allow residents convenient access to employment, municipal services, and other urban activities on a sustainable basis.	
Sector Objective	Strategic Direction
Incorporate sustainable development planning practices into transportation decision-making.	Increase capacity of transportation in KSA through the provision of commuter rail service. Integrate transportation services with the ports and the airport. Consider economic, social and environmental impacts in transportation and land use planning. Integrate transportation and land use planning. Prepare and enunciate integrated transportation policy. Employ mobility management strategies to increase transportation system efficiency. Create partnerships between stakeholders (including other government agencies, businesses and residents) to implement innovative management solutions.
Incorporate asset management best practices in all roadway, transit and pedestrian facility plans.	Ensure better roadway and equipment maintenance standards, and strict enforcement of overweight vehicle regulations. Undertake training programmes on asset management among KSAC staff in order to change culture and improve practices.



<b>GOAL</b> <b>IMPROVE LIVING CONDITIONS FOR KSA REGOASIDENTS</b>	
<p>In congested areas, give priority to public transit, freight and public service vehicles and ride-share (car pool) vehicles.</p>	<p>Dedicate certain lanes and parking areas for these vehicles.</p>
<p>Continue to implement public transit improvements, including better buses, more frequent service, more terminals with improved services, and frequent-user discounts.</p>	<p>Encourage the development of innovative transit services, such as executive express, commuter van-pooling and tourist services.</p> <p>Provide security and comfort improvements, e.g., shopping, banking and amusement arcades at transit stops, particularly in the downtown area.</p> <p>Improve walking conditions among transit stops.</p> <p>Establish marketing programmes that present transit rider-ship as an attractive and convenient way to travel for middle-class commuters.</p> <p>Provide 'park and ride' facilities.</p>
<p>Improve parking management so as to reduce traffic and parking problems, and give vehicle owners an incentive to use alternative modes for some trips, and provide significant revenue for local transportation programmes.</p>	<p>Develop a parking management plan for KSA.</p> <p>Enforce restrictions for on-street and sidewalk parking.</p> <p>Eliminate on-street parking wherever it conflicts with traffic management (e.g., removing parking if the lane is needed for general traffic or bus-ways).</p> <p>Where on-street parking is allowed in commercial areas, price it at rates comparable to other nearby private parking.</p> <p>Regulate on-street parking duration (such as 1-hour limits) and use (such as allocating some spaces to transit buses, delivery vehicles and loading/unloading).</p> <p>Regulate and price the most convenient spaces to encourage turnover, so that they are available to higher priority uses such as delivery vehicles, service vehicles, shoppers and clients.</p> <p>Develop a parking management programme that uses best practices for pricing methods and enforcement.</p> <p>Select pricing methods that are convenient and effective, such as 'pay and display' or electronic meters that accommodate credit cards and pre-paid debit cards.</p>



<b>GOAL</b> <b>IMPROVE LIVING CONDITIONS FOR KSA REGOASIDENTS</b>	
	<p>Maintain high standards of training and professionalism for traffic and parking enforcement officers to prevent corruption and waste.</p>
<p>Improve non-motorised transportation.</p>	<p>Establish and provide sufficient resources to implement a non-motorised development plan, which identifies barriers and prioritises improvements for walking and cycling.</p> <p>Improve pedestrian security by ensuring that walkways are visible to nearby shops and residents, and by having security patrols where necessary.</p> <p>Repair, replace and expand sidewalks, paths and crosswalks where needed.</p> <p>Rebuild sidewalks based on 'universal design' standards, so that they accommodate wheelchairs and other special needs.</p> <p>Improve cycling conditions by identifying and correcting special hazards such as potholes along the road shoulder, creating a network of cycling lanes and paths, providing bicycle parking and changing facilities (particularly at major employment centres), and promoting safe cycling as a form of recreation and transportation.</p> <p>In Downtown Kingston and other suitable areas, make a concerted effort to develop attractive pedestrian areas with wide, shaded sidewalks, sidewalk cafes and attractive storefronts.</p> <p>Establish and enforce rules to prevent activities such as parking and vending from blocking sidewalks and paths; instead, identify suitable locations for such activities that do not impede pedestrian travel.</p> <p>Implement traffic calming and traffic speed controls where needed.</p> <p>Provide traffic safety education and law enforcement as needed to protect the safety of walkers and cyclists.</p>
<p>Reform land use policies to encourage more development within the existing urbanised area (particularly in the downtown area), to reduce urban fringe development, and to create mixed-use.</p>	<p>Establish local re-development plans that establish a community development vision, identify infrastructure and public service needs and coordinate re-development activities.</p> <p>Use public investments (such as new parks, schools and affordable housing) to support in-fill development.</p> <p>In areas designated for in-fill development (such as the downtown), impose a special tax on abandoned or underutilised properties, and offer a property tax discount (such as 5 to 10-year tax holiday) to property owners who re-develop buildings on the local development plan.</p>



<b>GOAL</b> <b>IMPROVE LIVING CONDITIONS FOR KSA REGOASIDENTS</b>	
	<p>Structure development fees, utility rates and municipal taxes to reflect the higher public service costs of urban fringe development and the lower costs of in-fill development.</p> <p>Support public transit and non-motorised transportation, particularly in urban centres, since these modes are important for in-fill development and urban villages.</p>
<p>Use incentives (such as special funding and rewards) or regulations to establish special transport management programmes.</p>	<p><u><i>Commute Trip Reduction</i></u></p> <p>Employers to encourage their employees to use alternative commute modes.</p> <p>Employers, either individually or through transportation management associations, can hire transportation managers to coordinate commuter services.</p> <p>Create coordinated commuter services, e.g., by providing ride-sharing matching services.</p> <p>Support flex-time and telecommuting.</p> <p>'Cash out' free parking, so employees who are offered free parking can instead choose a transit subsidy or cash.</p> <p><u><i>School Transport Management</i></u></p> <p>Reduce urban school peak traffic through neighbourhood car and van pooling; support use of public transit; and improve walking and cycling conditions around schools.</p> <p>Parents and local officials to work together to overcome barriers and ensure that such services are safe, convenient and affordable.</p> <p><u><i>Tourist Transport Management</i></u></p> <p>Promote local ferry services to tourists.</p> <p>Coordinate cruise ship location and transport services.</p> <p>Provide coordinated 'airporter' service.</p> <p>Improve taxis and integrate taxi services with the airport.</p>

**GOAL****IMPROVE LIVING CONDITIONS FOR KSA REGOASIDENTS**

Improve security and public safety concerns in the transport sector.

Maintain good lighting along roads, in pedestrian areas and transit centres.

Establish and enforce traffic rules that protect pedestrians and cyclists, such as increased enforcement of 'yield to pedestrians in crosswalks' laws.

Make safety and security planning an integral component of transport planning and community development.

Encourage shifts from automobile to public transit travel.

Use traffic calming and pedestrian improvements to create more attractive streets.

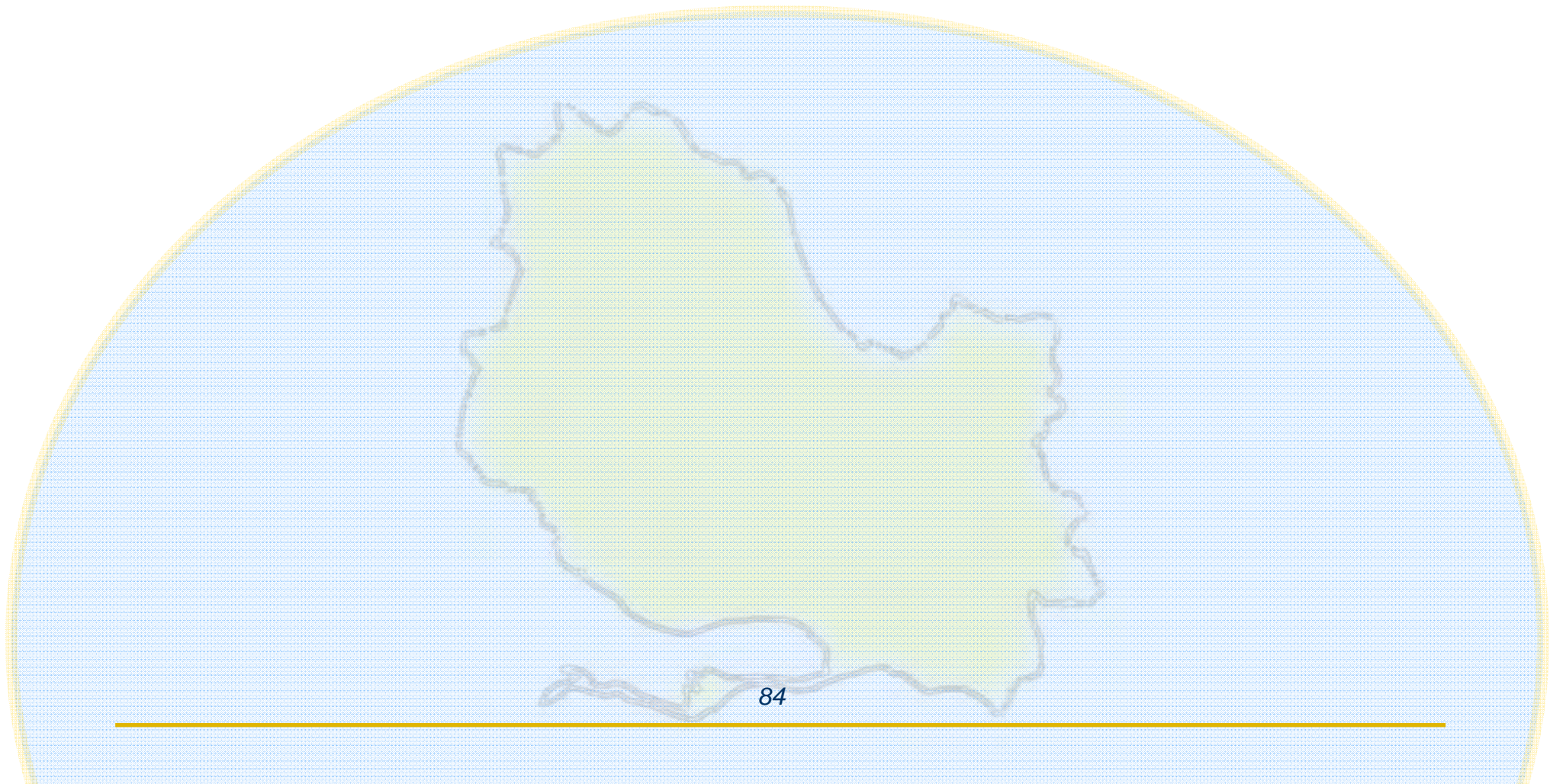
Build roads with safety features such as crash avoidance barriers.

Reduce vehicle emissions.





4.6 Housing





### 4.6.1 Current Situation

KSA faces severe housing problems today. According to the 2001 Population Census the housing stock stood at 182,750 dwelling units compared with 152,423 units in 1991, an increase of 19.9%. In the parish of Kingston, the housing stock moved by only 6.0% from 26,023 units in 1991 to 27,597 in 2001. St. Andrew, on the other hand, saw an increase of 22.7% over the period. This resulted in a substantial lowering of the average number of persons per dwelling in St. Andrew, from 4.3 in 1991 to 3.6 in 2001. The decline in the number of persons per dwelling was not as sharp in Kingston, falling from 3.8 in 1991 to 3.5 in 2001. What is not clear from the census data, however, is the proportion of new housing in the informal sector compared to the formal sector. Anecdotal evidence suggests that a large proportion of new housing built between 1991 and 2001, in KSA, was in the informal sector.

KSA suffers from significant housing shortfalls. In 2001, while almost all households (98.3%) had access to piped water supply, 26.7% of these had access to an outside tap only. Inequality in terms of access to drinking water was most pronounced in the downtown and western belt of the city. In 1991, 51.17% of households in the Downtown Development Area Cluster (DAC) and 41.04% of households in the Three Miles DAC had water piped into their yard only.<sup>3</sup> Approximately 70.3% of households in the KMA had exclusive access to water closets in 2001, indicating that a substantial number of households (just under 30%) had to share these facilities. Informal settlers located on marginal lands also suffer from lack to a piped water supply, resulting in a number of public health and sanitation concerns.

In 1987, it was estimated that 15,232 dwelling units in the KMA – about 8% of the housing stock – were in such bad repair that they could not reasonably be renovated.<sup>4</sup> The rate at which the housing stock is growing obsolete is high, due to a lack of housing maintenance and repair programmes. This, in turn, is contributing to a worsening of the deficit, which means that high rates of replacement are needed.

The housing stock in KSA consists of a mix of dwelling types: separate housing/detached, part of house, semi-detached and apartment and townhouse. In 2001, the vast majority of dwelling units in the KSA were separate house/detached units followed by part of house (34.1%), semi-detached (6.7%) and apartment and townhouses (6.0%). It is important to note that detached units accounted for a greater proportion of dwellings in rural areas and other towns (88.7%, 78.9%) than in the KMA (52.0%)<sup>5</sup>. The highest proportion of apartments and townhouses were found in the KMA in 2001, reflecting the pressures of urban growth and the subdivision of larger lots to provide housing mainly for the upper and middle segments of the housing market through in-fill in the city.

The trend in Jamaica's housing stock over the period 1991-2001 saw the proportion of detached units declining steadily since 1993. There were increases, over the same period, in the categories: semi-detached, part of house, and apartments and townhouses. These movements again reflect the influence of demands in the major urban centre, KMA, on the housing market (*JSLC 2001*).

<sup>3</sup> 1991 Population Census. This data from the 2001 Population Census is not yet available.

<sup>4</sup> Jamaica Shelter Sector Strategy Phase 1 - Final Report 1987

<sup>5</sup> Jamaica Survey of Living Conditions (JSLC) 2001.



More than half (57.3%) of households nationally own the dwellings they live in, compared with 42.3% in the KMA. Rental housing was highest in the KMA (35.4%) compared with other towns (25.1%) and the rural sector (13.1%). This reflects the need for expanding the rental market in urban centres and, in particular, the KMA. At different stages of the life cycle, households may find it convenient to rent. However, because of a severe housing shortage in the KMA, those needing to rent may not always find appropriate housing and may therefore be forced to double-up. One possible indicator of doubling up given by the JSLC, is the continued percentage of households living in part of house, 34.1% in 2001 up from 29.2% in 2000.

Within the KSA, there is a large proportion of occupiers of land and shelter who have no means of legal ownership. These informal settlers reside on marginal lands located within flood prone areas such as river and gully banks or on very steep slopes subject to landslides. The lack of security of tenure among this group prevents the promotion of viable communities with strong social capital, as most householders are reluctant to undertake improvement of their homes. Efforts by government to provide security of tenure for informal settlers in the KSA have met with little success. Under the Local Improvement Community Amenities Act, the Ministry of Water and Housing has the responsibility for acquiring lands and regularising the tenancy of the occupants of these properties. To date, some 192 properties have been acquired by the Ministry but only 14 have been regularised, as inadequate funding has stymied the provision of infrastructure.

Most of KSA's households have extremely limited resources to devote to housing investment. In 2002, the National Housing Trust (NHT) estimated the housing market in the parish of Kingston at 16,962 persons. Of this number, just slightly less than 10% formed the effective demand. Rising unemployment rates in the parish, among other factors, had created a situation where as much as 30.4% of the population which contributed to the NHT, were no longer compliant. The NHT's housing market for St. Andrew consists of approximately 65,402 persons. Effective demand for the parish is estimated at 9,646 persons (14.75%).

#### 4.6.2 Strategic Directions and Actions

A number of strategies are required to deal with problems of housing in the KSA. These include increasing affordability of housing, improving access to finance, enhancing construction capacity, facilitating access to land and eradication of poverty. Policy initiatives to be undertaken in the housing sector are set out in Figure 6.



*A number of houses in KSA are in a state of disrepair and cannot be reasonably renovated.*



*Detached house in rural St. Andrew.*



**Figure 6: Matrix of Strategies in Support of Goal of a Livable KSA**

<b>GOAL: IMPROVE LIVING CONDITIONS OF KSA RESIDENTS</b>	
<b>GENERAL OBJECTIVE # 1</b> Increase the supply of affordable and decent housing through the creation of a policy environment that would enable vulnerable groups of the society to take part in the shelter and land market.	
<b>Strategic Objective</b>	<b>Strategic Directions</b>
Improve financing to the housing sector.	Increase the supply of financing to the sector by relaxing rules and regulations to allow greater private sector participation in joint venture programmes (public/private partnerships). Extend traditional micro-finance programmes for enterprise development into housing.
Assist the poor to obtain access to finance that they need to invest in housing.	Support a variety of non-formal financial institutions in order to facilitate housing investment and reduce poverty. Provide funding to groups needing home improvements, rather than individuals. Provide credit in the form of tools and materials, through community and sponsor groups. Provide credit to assist in infrastructure development. Put state funds for housing sector support and poverty reduction to greater effect by partnering with local communities. Encourage low-income and self employed groups to voluntarily save for housing. Encourage and mobilise the self-help resources of the poor, as manifested in the informal construction process, in a more structured manner.
Improve access to legal and affordable shelter in order to reduce squatting in KSA.	Establish mechanisms to determine the extent and nature of squatting in KSA. Put in place policies that facilitate the poor gaining access to land with reasonably secure tenure. Facilitate the poor in gaining access to social services. Recognise the diversity of and strengthen relevant tenure forms. Promote rental housing, both private and informal.



<b>GOAL: IMPROVE LIVING CONDITIONS OF KSA RESIDENTS</b>	
	<p>Secure funding to regularise tenure arrangements for properties declared under the Local Improvement Community Amenities Act.</p> <p>Set up an Urban Community Loan Fund capitalised with a grant from Central Government and aimed at assisting the urban poor to purchase land and develop/improve housing.</p> <p>Use the Urban Community Loan Fund for direct housing loans; loans for land; network strengthening to help groups negotiate for land; infrastructure grants to increase neighbourhood quality and enhance enterprise development; loans for enterprises to increase income; support for savings to increase local and community assets and to assist private investment.</p>
Improve land supply for housing.	<p>Designate an adequate amount of land for residential use to encourage housing development that will meet the needs of all income groups.</p> <p>Promote residential opportunities in the city's redevelopment areas and expand the supply of low and moderate income housing in those areas.</p> <p>Encourage in-fill development on vacant or under-utilised sites in residential areas.</p> <p>Actively work with willing property owners to assemble under-utilised parcels within redevelopment areas, to create more viable sites for future housing development.</p>
Promote the maintenance, protection and, if necessary, the rejuvenation of city neighbourhoods and residential areas.	<p>Undertake a detailed neighbourhood analysis to identify existing and potential problems and numbers of substandard and deteriorating and dilapidated structures, by DAC.</p> <p>Establish methods of community conservation with involvement of community organisations.</p> <p>Remove, as soon as legally possible, all existing housing that is surveyed and considered to be unsuitable as safe and adequate shelter and not economically feasible for rehabilitation.</p> <p>Undertake repairs, as soon as legally possible, to all existing housing that is surveyed and considered to be suitable as safe and adequate shelter and whose rehabilitation is economically feasible. Costs will be recouped from owners of these units.</p>



**GOAL:**  
**IMPROVE LIVING CONDITIONS OF KSA RESIDENTS**

Ensure that all housing development, existing or proposed, has adequate services and facilities.

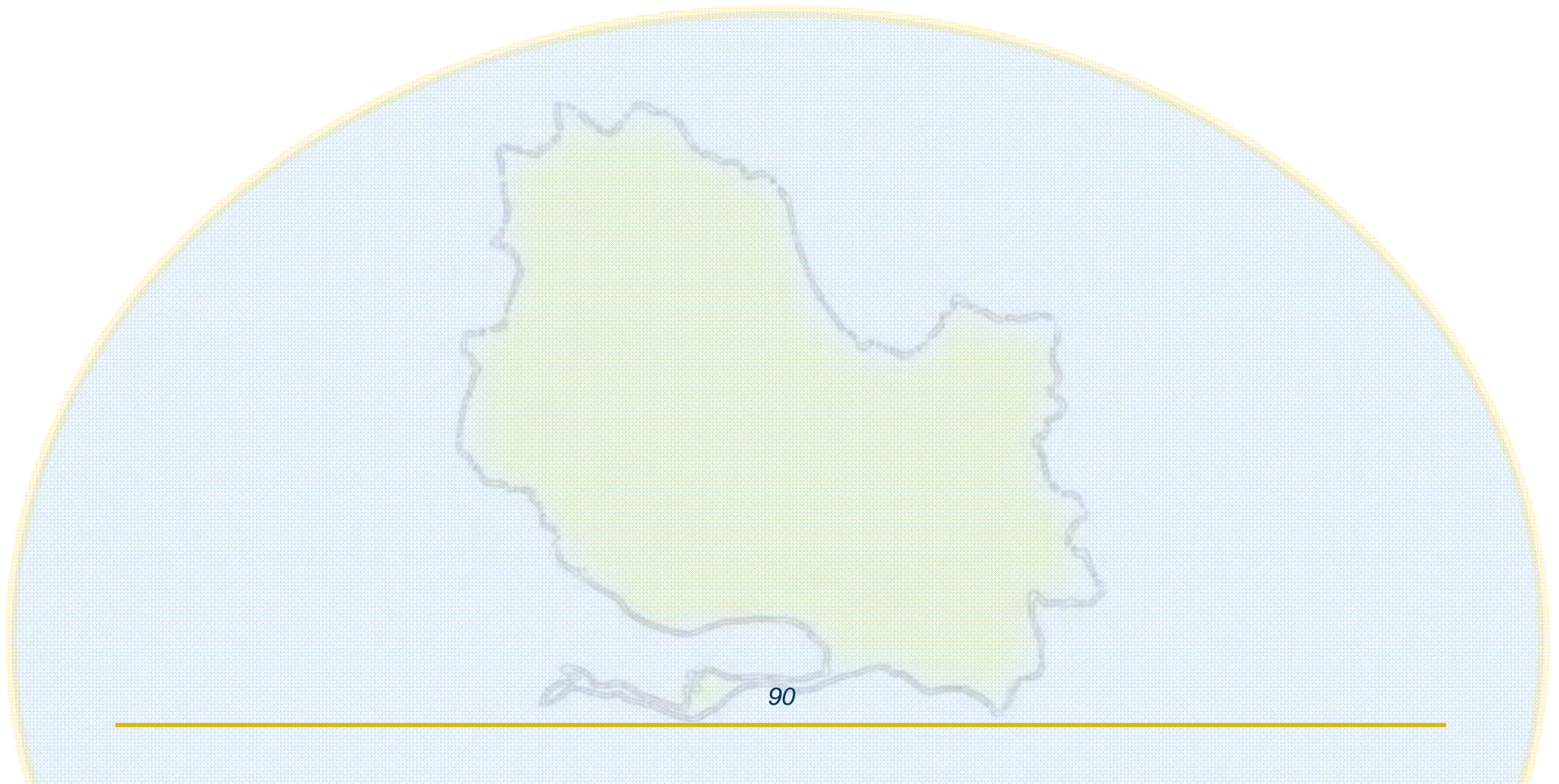
Continue improvement of public services and facilities in areas experiencing deterioration, in order to encourage reinvestment by the private sector and promote a residential environment that fosters community pride and provides safe and sanitary living conditions.

Provide a wide range of services and facilities in large-scale residential developments, in accordance with the relative size of the development, so as to meet the needs of their residents.





## 4.7 Disaster Management





### 4.7.1 Current Situation

#### **Natural Hazards**

The KSA is vulnerable to a multitude of natural hazards (*see Map # 14*). Located in a tectonically unstable and hurricane-prone part of the world, the region is made up of steep and unstable slopes; unconsolidated, liquefaction-prone sediments compose flatter lands; and low-lying coastal areas are susceptible to flooding from storm surges and sea level rise.

The island lies in the Atlantic hurricane belt and is occasionally subject to severe tropical weather systems including tropical waves, tropical depressions, tropical storms and hurricanes. Flooding frequently results from heavy rainfall in major watersheds, which can produce 300-500mm (12-18") in 24 hours (*see Map # 5*). The occurrence of tropical storms, characterised by flood-producing rainfall of high intensity and magnitude, makes this landscape even more hazardous. Associated hazards include flooding by high waves and storm surges, as well as damage due to gale force winds, choppy seas, and even earth-induced earthquakes – unusual but possible when there is release of water pressure. The region has seen more frequent hurricanes in recent years.

Geological instabilities prevail over large sections of Kingston. Major fault zones are found to the north-east and north-west of the city. Statistically there is a high risk of destructive earthquakes occurring in Jamaica. The most recent major earthquake affecting KSA occurred on January 13, 1993. Earthquakes in the geologically-active Caribbean Sea can generate powerful tsunamis, some of which are more devastating than the earthquake itself. The 1692 Port Royal earthquake generated a 1.8m wave that travelled across the harbour, overturning ships. The 1907 event set up seiches of 2.5m in Kingston Harbour.

As discussed in Section 2, the hill-slopes surrounding the Liguanea fan are prone to landslides (*see Map # 16*). Many residential areas and much infrastructure in KSA are located on large ancient landslides. It is a common observation that most of the new landslides occur on slopes that had previously failed. Management of landslide hazard, although important, is a difficult and challenging task given the low perception of the hazard, lack of overall organisational support, and limited financial resources.<sup>6</sup>

Vulnerability to natural environmental hazards is greatly exacerbated by socio-economic conditions, including deforestation of slopes; vegetation alteration; development along gully banks; diminished health of fringing and protective reefs, seagrass beds and mangroves due to pollution; and the reduction of sediment transport to reinforce the coast. As a result, roads, bridges, culverts, homes and other infrastructure components are frequently destroyed, while even weak earthquakes can bring heavy damage and destruction.

A major conclusion of Ahmad (1996) is:

*"...the existing land use regulations do not reflect the vulnerability shown to characterise many areas, and that insufficient control is being exercised over the pace and level of development in these areas. The need exists for creative and well thought out land use policies that seek to balance the high demand for land with the risks associated with living in hazard-prone areas."*

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<sup>6</sup> Ahmad, R. (1996) 'Hazard and Environmental Geology of Kingston and St. Andrew'. Contribution to Caribbean Disaster Management Project (CDMP).





While this is true, the prevalence of hazardous or potentially hazardous conditions, together with Jamaica's record on enforcement, suggests that there is need for much greater emphasis on best practices with respect to the location of development – and, by extension, multi-use/protective open space – and methods of construction.

Recent experiences in the KSA, as a result of Hurricane Ivan in September 2004, offer an opportunity to examine lessons learned. In this regard, some observers have pointed to corruption and a lack of manpower and professional training as reasons behind inadequate enforcement of the building code. There is a call for the International Building Code (IBC) to be adopted as the base code in Jamaica. Even so, there is a wider context as well, relating to the pattern of urbanisation and land use controls in the KSA. A substantial proportion of urbanization, legal and illegal, is occurring in areas susceptible to multiple hazards. Unfortunately, the vulnerability of those living in informal communities is made worse by their poverty, their state of health, their food supply and their social and physical infrastructure.

### **Climate Change**

The acceleration of climate change due to human activities is an acknowledged trend that will continue to alter global weather patterns. The main issues relating to climate change in Jamaica are (1) increased rise of the sea level; (2) increased levels of risk to human health; (3) higher frequency and severity of storms and floods; and (4) increased levels of salt water intrusion. At the regional level, it is not yet certain whether global warming has led to more or more frequent or larger warming episodes such as *El Niño*. The global effects of *El Niño* demonstrate how vulnerable societies are to changes in global climate.

The 1997-1998 *El Niño* phenomenon was the strongest on record in the region and, it is believed, had an impact on the climate of Jamaica through decreased rainfall, higher temperatures and a decreased number of hurricanes in the region during that period. These climate changes resulted in millions of dollars of agricultural losses and severe impacts on domestic water supplies, requiring the transport of water to the most affected areas.

#### **4.7.2 Strategic Directions and Actions**

Set out below, in Figure 7, are the policy measures aimed at enhancing disaster mitigation in the KSA.



**Figure 7: Matrix of Strategies in Support of Goal of a Liveable KSA**

<b>Goal:</b> <b>IMPROVE LIVING CONDITIONS OF KSA RESIDENTS</b>	
<b>GENERAL OBJECTIVE # 1</b> Support mitigation measures and reduction of accidents and disasters.	
Sector Objective	Strategic Directions
Improve databases dealing with hazard management, e.g., riverine and storm surge maps, and maps of areas prone to landslides, earthquakes and bush fires.	<p>Continue analysis of type and level of existing urban development in hazard-prone areas and assess existing land use regulations for these areas.</p> <p>Provide accurate documentation of existing hazard-damaged areas.</p> <p>Support the preparation of maps delineating hazard areas and a more complete inventory to include explosive, toxic and pollution hazards associated with industry, by area potentially affected. Restrict construction of critical life-line facilities in these areas.</p> <p>Work together with the Insurance College of Jamaica to help determine risk with regards to flood intensity and potential.</p>
Improve the development approval process so that consideration of natural hazards is fully integrated in the process and encourage a broader range of public participation	<p>Ensure that vulnerability reduction measures are implemented at the onset of the development process and not in an isolated manner.</p> <p>NEPA to incorporate hazard mapping in the KSA Development Order after discussing, with relevant agencies, the application of policy guidelines and strategies as they relate to land use, density and design of developments in high risk areas.</p> <p>Ensure that vulnerability reduction measures are incorporated in development projects, and thus minimise these costs at the outset of the project.</p> <p>Public agencies to adopt a flood plain management programme so as to reduce flood plain drainage potential due to new (preventative) and existing (remedial) developments.</p> <p>Include vulnerability analysis as part of the EIA process.</p> <p>Develop and implement public education programmes which simplify the hazard mapping process and emphasise the importance of using it as a tool to protect life and property.</p> <p>Prepare and distribute guidance material.</p>



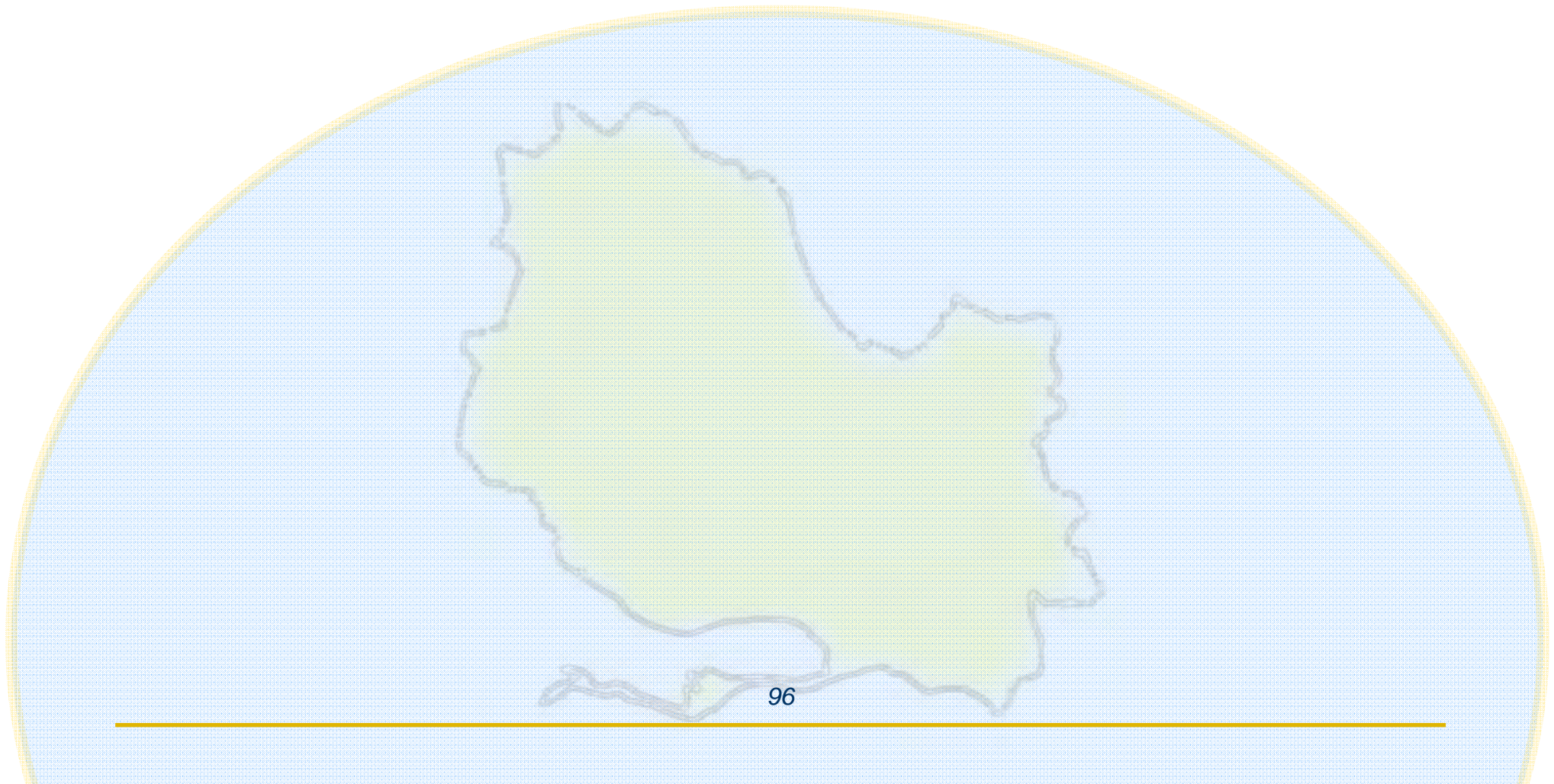
<b>Goal:</b> <b>IMPROVE LIVING CONDITIONS OF KSA RESIDENTS</b>	
<p>Promote application of appropriate tools for planning and management in areas associated with hazard risks.</p>	<p>NEPA to undertake a review of current standards for hazard protection as set out in its Development Manual, as a first step in preparing enhanced guidelines for public and private developers.</p> <p>NEPA to discuss land use requirements and standards with public and private sector agencies so as to collectively address the issues and develop appropriate policies and guidelines.</p> <p>NEPA to include more detailed requirements for hazard-prone areas in the Development Manual.</p> <p>NEPA to ensure that zoning restrictions are applied to ensure public safety, community development and the integrity of special areas.</p> <p>Undertake continuous training in the interpretation of hazard maps, for officers of NEPA, KSAC and all Government agencies charged with the application of these maps.</p> <p>Improve defensive measures against debris flow and flooding in KSA.</p> <p>Reduce loss of vegetation cover disturbed by ever-increasing development activities in the watersheds.</p> <p>Eliminate unstable cuts and fills that could act as debris sources or initiation points.</p>
<p>Make laws and regulations more effective.</p>	<p>Undertake a review of existing legislation which impacts on hazard mitigation and the roles and responsibilities of all agencies involved and make recommendations as to how these can be improved.</p> <p>Promulgate the International Building Code (IBC) as a legal document.</p> <p>Improve the Inspectorate system of the KSAC to provide the level of service needed to enforce the IBC and other regulatory mechanisms.</p> <p>Strengthen the planning and regulatory process that guides development in KSA.</p> <p>Put in place mechanisms for the constant dialogue and exchange of information between technicians, politicians and the public.</p>



<b>Goal:</b> <b>IMPROVE LIVING CONDITIONS OF KSA RESIDENTS</b>	
	<p>Undertake specialised training including workshops, seminars, education programmes and conferences for public officials who design, implement, monitor and enforce laws and regulations.</p> <p>Strengthen institutional capacity for collecting compliance data, regularly reviewing compliance, detecting violations, establishing enforcement priorities, and periodic evaluation of the effectiveness of compliance and enforcement programmes.</p>
<p>Improve upon the protection of the residents of KSA from all natural and man-made hazards.</p>	<p>Continue to work with ODPEM, UWI and other educational institutions to support hazard mitigation in the KSA.</p> <p>Support the development of information dissemination opportunities on hazard mitigation.</p> <p>Ensure that trade effluent regulations which have been developed are gazetted.</p> <p>Ensure that guidelines and codes of practice for the various industrial sectors are developed on a timely basis.</p> <p>Support the development of an 'Inventory on Hazardous Waste'.</p> <p>Support the promulgation of legislation governing medical wastes management.</p>
<p>Provide effective emergency response capability for KSA, to all natural and man-made disasters.</p>	<p>Reduce the potential impact of disasters on KSA's critical support services and facilities by ensuring that evacuation plans are in place and are monitored and updated on a regular basis.</p> <p>Undertake a programme of repairing and replacing fire hydrants in KSA.</p>



## 4.8 Environment and Development





### 4.8.1 Current Situation

#### **Coastal and Marine Waters**

The 16km-long Liguanea shoreline has been significantly altered by human occupation. The most extensive physical change was the drainage of the wetlands at the western end of Kingston Harbour to create land for the Portmore dormitory housing development in St. Catherine and construction of the causeway, restricting the flushing of Hunt's Bay. The north-western section of the Kingston Harbour, once a mangrove-lined shoreline housing the Greenwich fishing centre, has been transformed by construction of a container terminal and industrial port.

The central and eastern portions of the Kingston shoreline had recreational value before the harbour became severely polluted. The downtown portion of the shoreline has undergone substantial reconstruction, although its actual configuration remains relatively unchanged. A long section, once lined with shipping piers, was opened up for visual and passive recreation use some decades ago and has since been subject to further improvements. More recently, construction of the Kingston Harbour Coast Road has involved substantial shoreline fill and the reconstruction of the Rae Town fishing village.

The Palisadoes Tombolo greatly extends the accessible shoreline and opportunities for recreational and commercial activities. Extensive physical changes have occurred with the clearance of terrestrial vegetation at Plumb Point and the filling of mangroves for the International Airport. However, as an established protected area, any further significant physical changes will require a high level of scrutiny.

#### **Kingston Harbour**

Kingston Harbour is heavily polluted as a result of the inappropriate disposal of sewage in the harbour. The two main sewage treatment plants – Greenwich and Western – are old, dilapidated and overloaded (*see Map # 8*). Hence, their effluent shows little improvement on raw sewage. In addition, there are numerous sources of smaller quantities of poorly treated sewage which are discharged by small package sewage treatment plants and which enter the harbour from gullies and drains. A large amount of sewage also enters Kingston Harbour by underground seepage from the numerous soak-away pits that serve the majority of Kingston. Sewage accounts for some 60% of the organic loading to the harbour.

Industrial activities along the north shore of Kingston Harbour contribute significantly to the pollution load, both organic and chemical. Unfortunately, there is not yet a clear picture of how much pollution these activities contribute. Agricultural run-off and solid waste are also contributors to harbour pollution. The Rio Cobre, which drains the agricultural lands in northern St. Catherine and also picks up urban waste from Spanish Town and Portmore, contributes 20% to 40% to organic pollution of the harbour. The Riverton City dump and the gullies which discharge into the harbour have fouled the Palisadoes, the Port Royal mangroves and Port Royal itself with garbage, creating an eyesore and threatening marine plants and animals. Of particular concern is the situation on Refuge Cay, where nesting pelicans and other birds create a significant bird-watching attraction which is threatened by the extent of the solid waste.

The fisheries in and around Kingston Harbour have a major economic impact – an estimated value in 2002 of J\$242 million, providing a livelihood for 3,386 registered commercial fisheries<sup>7</sup> – with eight fishing villages and landing sites around the harbour. The fisheries also indirectly support

<sup>7</sup> Andre Kong, Fisheries Division, Ministry of Agriculture



pot makers, boat builders, net makers, boat loaders and off-loaders, fish scalers and vendors. The pollution of the coastal waters and over-fishing contribute to pressure on fish stocks. Some damage to the fish stocks is due also to poor fishing practices. The use of dynamite is not uncommon; a destructive practice which leads to reef and mangrove damage. Drag-netting, using beach seines, trawls or long lines, has damaged seagrass and incipient corals while charcoal burning has led to some mangrove destruction. (See Annex 2 for a vision of Kingston Harbour).

### ***Eco-systems – Natural Capital and Services***

The KMA is surrounded by a more extensive and diverse array of natural resources/natural capital than the majority of capital cities (*see Map #s 12 & 13*). This natural capital provides for a wide range of economic activities, existing and potential. It also, if respected and used carefully, provides services critical to the health, safety and well-being of Kingston's residents. Much of the original forest framework surrounding the urban area has been removed or altered by agriculture, pine plantations and human settlement/urban development (*see Map # 11*).

There is much competition for meagre resources on the steep, fragile, acid and easily eroded southern slopes of the Blue and John Crow Mountains. These include land use conflicts between coffee and small scale agriculture. At lower elevations, natural forest is being cut for commercial scale timber and replaced by large scale agriculture. Elsewhere in the buffer zone, small patches of natural forest are being burned and cleared for small hillside farms or being cut selectively, with the removal of species of greatest use and value. The major threats, both to the Blue and John Crow Mountain National Park and the downstream environment, are deforestation, erosion, siltation, nutrient overload, chemical contamination, and poorly planned development.

### ***Built Environment***

The distinctive architecture of Jamaica emerged from the mingling and adaptation of several traditions – the thatch roof, earthen house from Africa and also from rural England, Spanish buildings which probably incorporated verandas, and the classical Georgian townhouse originally reproduced at Port Royal. The styles and forms were heavily adapted to the climate and to the need for defence. What emerged, from 1750 on, mixed elegance and practicality – wide breezy verandas and classical porticos.

Many Kingston examples of this style have been destroyed, others are hard to recognise under 'modern accretions' and still others languish and deteriorate; their value – as historical records, as potential tourist attractions and as models for a future renaissance in Kingston architecture – still generally unrecognised. There is the view that the preservation of cultural and historic buildings and economic development are incompatible, because of the cost involved in restoration, and the fact that converting and maintaining historic buildings require extra care and attention to detail. Added to this, in nearly all instances, historic buildings have to be fitted to meet present standards and needs.



*The Kingston Parish Church is one of KSA's historic structures and displays a distinctive Spanish/Victorian architecture.*



*The Kingston Harbour is grossly polluted from a number of sources of poorly treated sewage.*

Although historic and cultural structures may not be suitable for every type of use, they are especially attractive for certain types of activities such as tourism, housing, shopping and entertainment from which several benefits may be obtained. Historic and cultural buildings can contribute significantly to foreign exchange earnings through tourism. Well-maintained historic sites encourage visitors, bringing money into the area and increasing property values. This scenario also augers well for local employment, for wherever there is an expansion in the tourism industry, there is also job creation.

In recognition of these issues, the National Heritage Trust has declared downtown Kingston as a national heritage zone. Discussions are now underway to resolve certain issues raised by the private sector.

As a very small country with relatively low projected population growth, Jamaica needs to set clear limits to growth, based upon the best potential of each region of the country. Cities that have allowed suburban sprawl to extend urbanisation for several decades are now seeing a return to the centre by people tired of the constant traffic jams. Jamaica can anticipate and short-circuit this trend by focusing

on plans and regulatory and/or incentive mechanisms to create much higher density, mixed-use neighbourhoods in the city.

The arguments and evidence in favour of a focus on urban intensification and revitalisation of neglected neighbourhoods, is very strong. Paralleling the return to urbanity, there is a growing recognition that poorly planned, single-use, automobile-oriented developments, both in the suburbs and in town, are irresponsible. Increasing numbers of developers of planned communities, throughout the USA, are recognising the importance of easy-to-use public transportation, people-oriented architecture and mixed-use building design. Yet others are focusing on rejuvenation of neglected neighbourhoods and re-development of central areas.

#### 4.8.2 Strategic Directions and Actions

A great deal of progress has been achieved over the past decade in terms of improved environmental stewardship and management systems. Agency collaboration is beginning to occur and is an important means of increasing the effectiveness of specific programmes, regulations and standards. The process of formulating the Sustainable Development Plan provides an unprecedented opportunity for achieving informed and sustained participation in stewardship and management of the environment among a wide range of actors. Set out below, in Figure 8, are the strategic directions for managing the natural and built resources of the KSA.



*One of the eight fishing villages/landing sites around the Kingston Harbour.*





**Figure 8: Matrix of Strategies in Support of Goal to Conserve and Effectively Use Resources of KSA**

<b>Goal:</b> <b>CONSERVE AND EFFECTIVELY USE THE RESOURCES OF THE NATURAL, CULTURAL AND BUILT ENVIRONMENT.</b>	
<b>GENERAL OBJECTIVE #1</b> Promote an urban form which provides accessibility of jobs and housing in mixed-use developments that foster communities and have minimal adverse environmental impact.	
Sector Objective	Strategic Direction
Increase focus on urban intensification and revitalisation of neglected and deteriorating neighbourhoods.	<p>Undertake a survey of business owners in residential areas to determine what these enterprises expect, want and need.</p> <p>Provide the framework and standards for a range of aspects that need to be incorporated in new and redeveloped neighbourhoods, including:</p> <p>Street improvements &amp; drainage; sidewalks; bike lanes; bus stops; street trees; walls; parking areas; location &amp; design; public transportation; parks.</p> <p>Encourage best practices in housing design for neighbourhood rehabilitation/ redevelopment, preferably through local architects or competitions.</p> <p>Move zoning and development control away from single use and single density zoning.</p> <p>Use performance standards that require the applicant or developer to prove conformity with the principles of the plan.</p> <p>Adopt a systems approach to Kingston Harbour and waterfront development.</p> <p>Enhance the harbour and adjacent shorelines as visual, passive and active recreation opportunities to be retained in or returned to open space.</p> <p>Establish an 'urban fence' which reflects values placed on the long-term productivity and environmental health of the KSA. (<i>see Section 2.4.3</i>).</p> <p>Release land within the fence on a phased basis, based on infrastructure expansion plans and water availability.</p>

**Goal:****CONSERVE AND EFFECTIVELY USE THE RESOURCES OF THE NATURAL, CULTURAL AND BUILT ENVIRONMENT.**

<b>GENERAL OBJECTIVE #2</b>	
Encourage the reduction of sources of pollution and waste.	
<b>Sector Objective</b>	<b>Strategic Direction</b>
Promote environmentally sound land management practices.	<p>Replace the rehabilitated sewage treatment plants with tertiary sewage treatment by using best available technology.</p> <p>Examine the feasibility of levying taxes using the 'polluter pays' principle on environmentally damaging products/ activities, as well as the banning of some from use; to reduce the pollution of all water bodies.</p> <p>Promote Integrated Pest Management (IPM) to reduce reliance on chemical pesticides in agriculture, accompanied by the promotion of organic production, particularly in coffee production.</p> <p>Build into all new and re-development projects, provision for garbage separation, transfer and composting.</p>
Reduce air pollution in KSA.	<p>Support the continued monitoring of air quality in the KSA so as to reduce or eliminate air pollutants.</p> <p>Examine the feasibility of converting the Rockfort cement plant to a completely closed system and examine the opportunities for co-processing using the high temperatures generated by the plant.</p> <p>Support the generation of updated data on automobile emissions and their air quality impacts.</p> <p>Improve public education and opportunities for recycling and composting so as to reduce trash burning which releases toxic chemicals in the air.</p>
<b>GENERAL OBJECTIVE #3</b>	
Ensure the enhancing of the shoreline, protecting and creating wetlands and managing sediment deposition.	
<b>Sector Objective</b>	<b>Strategic Direction</b>
Protect ecological systems which produce goods and services.	Protect agriculture and watershed land from further costly sprawl and, at the same time, reduce sediment imbalance.



**Goal:**

**CONSERVE AND EFFECTIVELY USE THE RESOURCES OF THE NATURAL, CULTURAL AND BUILT ENVIRONMENT.**

<p>Open up land for green gullies while supporting increased densities, over time.</p> <p>Rebuild green gullies with vegetated, permeable channels, using stepped gabion basket walls and check dams, to manage storm water flows.</p> <p>Protect flood plains e.g. the Hope River from unlicensed sand mining which is weakening the shoreline's natural protective system.</p>	
<p><b>GENERAL OBJECTIVE #4</b> Support replanting of forests for restoration of habitats, replenishment of water supplies, and reduction in sediment and debris flow.</p>	
<p><b>Sector Objective</b></p>	<p><b>Strategic Direction</b></p>
<p>Achieve a green and healthy environment through a focus on improved forest management.</p>	<p>Recommit to protection of undisturbed forest and regeneration of degraded, disturbed forest through:</p> <ul style="list-style-type: none"> <li>- replanting with the pre-existing mix of trees;</li> <li>- conservation by utilisation to provide livelihoods, while replacing bamboo and other invasive species with hardwoods;</li> <li>- enforcing and expanding Forest Reserve and Protected Area designations.</li> </ul>
<p><b>GENERAL OBJECTIVE #5</b> Discourage negative practices that destroy the environment.</p>	
<p><b>Sector Objective</b></p>	<p><b>Strategic Direction</b></p>
<p>Reduce damage to the visual quality of hills and mountains in KSA.</p>	<p>Regulate legal and illegal quarries.</p> <p>Encourage the use of alternative construction materials.</p> <p>Improve public education on the problems associated with sand mining.</p>
<p>Encourage practices that will improve the appearance of the built environment.</p>	<p>Re-introduce the 'Recycle for Life' programme and a 'polluter pays' cess on plastics manufacturers, bottlers and consumers to support materials recovery.</p>

**Goal:****CONSERVE AND EFFECTIVELY USE THE RESOURCES OF THE NATURAL, CULTURAL AND BUILT ENVIRONMENT.**

Promote more efficient and environmentally sustainable energy systems.

[*See objective in Economic Section on developing alternative energy sources*]

**GENERAL OBJECTIVE #6**

Promote greater integration of the economy and the environment.

**Sector Objective****Strategic Direction**

Utilise KSA's unusual natural and cultural riches as tourism assets.

Focus greater attention on eco-tourism.

Use the opportunities offered by Port Royal to build tourism in KSA.

[*This section must be read in conjunction with the Economic Section which seeks to 'promote of tourism facilities, services and related uses'*]

**GENERAL OBJECTIVE #7**

Ensure that cultural heritage assets are protected and accessible to all.

**Sector Objective****Strategic Direction**

Develop a greater appreciation of KSA's historical and cultural resource base.

Maintain or reflect the functional and historic character of old Kingston.

Preserve and pass on the historical heritage of KSA which is of local, national and international value, without strangling the living, modern city.

Set the focus on preservation of historic 'objects' by listing monuments of outstanding value for protection.

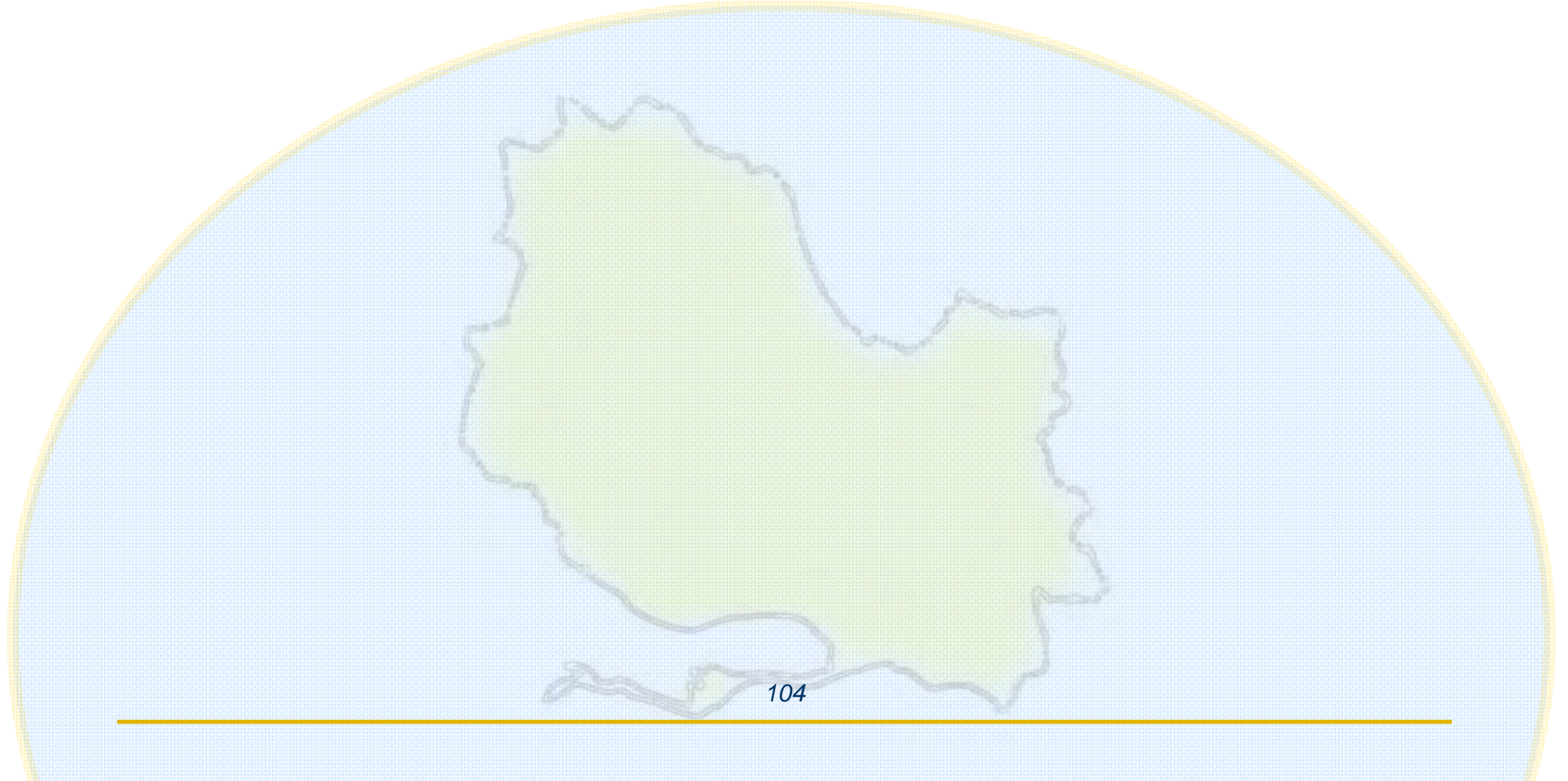
Establish an inventory and listing of 'valuable' buildings and building classes on special inventory maps, with designated value classifications – to guide town planners in their work.

Develop heritage resources according to internationally accepted criteria and standards of authenticity.

Involve community residents in creating comprehensive tourism plans based on heritage resources.



## 4.9 Reduction of Crime and Violence





### 4.9.1 Current Situation

Violence, once regarded as an issue of criminal pathology is now recognised also as a development problem, particularly in urban areas (*UNCHS 2001*). There are many causes of urban violence and UNCHS (2001) has identified the causes at four inter-related levels: individual, inter-personal, institutional and structural. At the individual level, overcrowded conditions and a lack of privacy prevalent in low-income communities contribute to violent behaviour. UNCHS (2001) points to children's exposure to violence perpetrated by their parents, particularly gender-based violence, possibly influencing their propensity to commit similar violence. At the inter-personal level, many conflicts between neighbours and communities revolve around scarce resources. Shared water is one of the biggest causes of violence, as people, particularly women, are exposed to greater risks when hygiene infrastructure has to be shared (*UNCHS 2001*).

At the institutional level, the strength of the police and the judicial system increases the probability of apprehension and punishment, and reduces the incentive to commit crime. However, if past incidence of crime in society is high and if policing is inadequate or corrupt, crime and violence may rise (*UNCHS 2001*). At the structural level, inequality is now recognised as an important determinant of violence. UNCHS (2001) points to the fact that organised criminal groups linked to global networks are increasing, with a tendency to link into other illegal activities such as extortion rackets. The availability of firearms, facilitated by worldwide organised crime groups, multiplies the risks of urban violence and represents a fundamental threat to security (*UNCHS 2001*).

Figures for fiscal years 1999/2000 and 2000/2001, show that major crimes in KSA account for close to or above 50% of the national total of major crimes, islandwide. The major aims of the police are directed at crime reduction. However, staffing constraints across the KSA limit the ability of the police to achieve these goals. The police: citizen ratios in Kingston and St. Andrew, when compared to the rest of the island, show that police personnel in KSA divisions are responsible for populations half the size of the populations among divisions in the rest of the island. Yet despite this, the police have not been able to appreciably reduce major crimes.

Robotham (2004) identifies a number of contributory factors for crime in KSA and Jamaica. These, he breaks down into two broad groups: (1) background causal factors; and (2) specific situational factors of which the availability of guns is a major one. With regard to major background factors, Robotham identifies demography, urbanisation, economics, politics and inequality. He argues that as the 15-29 age group is responsible for a significant percentage of crimes committed, solutions must be found that will improve their socio-economic circumstances. He points out that the 15-29 age group represents 24% of the total population, with males making up approximately 49% of this group.

Urbanisation is regarded as a causal factor because of the deplorable conditions that exist in many urban communities in Jamaica, particularly in the KSA. Robotham (2004) points out that the at-risk group (15-29) was compacted into dense, overcrowded urban neighbourhoods with inadequate social services. Economic issues centre around the high unemployment rate and low educational level of the 15-29 age group. Figueroa and Sives (2004) argue that politics is one of the most important causal factors for crime in Jamaica and identify the garrison infrastructure as an important aspect of the problem. They point out that the garrison is a place where crime and politics interact and provide a protected environment for criminal enterprise. Thus, any attempt to solve crime in Jamaica must start with political reform.

Recent published data in the *Jamaica Survey of Living Conditions* (JSLC) 2002 suggest a substantial increase in income inequality in Jamaica. This trend is likely to continue in the near future, given the high levels of domestic debt that have the effect of redistributing income upwards from poorer and middle class groups to the wealthier strata in society (*Robotham 2004*). A primary reason for the increasing income inequality is



government’s macro-economic policy and the constant struggle to find a balance between interest rates and the exchange rate. Essentially, to protect the value of the Jamaican dollar and to maintain a stable exchange rate, government is forced to keep interest rates high, which provides an opportunity for the wealthy class to earn high returns which have to be paid for by taxes and other government revenues.

UNCHS (2001) argues that the impacts of violence on a city’s capital can be assessed by determining the erosive effects on physical capital, human capital, social capital and natural capital. UNCHS also refers to the ‘perverse’ effects violence can have on social capital through the formation of gangs. In many poor neighbourhoods, young people who lack strong family and community support form mutually reinforcing groups: *“In some neighbourhoods these groups form the main context of socialisation for children who join as young as 12 or 13. Often gangs are at war with other gangs involved in robbery, theft, drug distribution and assault. In some communities gangs protect their neighbours, committing crimes elsewhere; in others they prey on their neighbours, creating a climate of fear”* (UNCHS 2001). Reducing gang violence in KSA is important for increased investment and economic growth.

#### 4.9.2 Strategic Directions

Crime fighting initiatives in KSA have shifted significantly from approaches that focus on the control of violence, to those that emphasise peaceful conflict resolution through negotiation, community policing and rebuilding of social capital. Figure 10 sets out the strategic directions to be pursued toward urban violence reduction.

**Figure 9: Matrix of Strategies in Support of Goal of a Safe Living Environment**

<b>Goal:</b> <b>ESTABLISH A SAFE, SECURE LIVING ENVIRONMENT FOR ALL</b>	
<b>GENERAL OBJECTIVE # 1</b> Promote a coherent security strategy and crime prevention plan based on prevention, law enforcement and mutual cooperation and support.	
Sector Objectives	Strategic Directions
Support the reduction of crime and violence through the promotion of respect for diversity, individual rights, trust and communication.	Establish partnership structures at the local level involving elected representatives, officials, police officers, magistrates, social workers and NGOs in order to analyse the causes of crime, the efficiency of action already taken and future programmes of action.  Support innovative judicial procedures designed to improve poor communities’ access to conciliation, legal and human rights services.

**Goal:****ESTABLISH A SAFE, SECURE LIVING ENVIRONMENT FOR ALL**

	<p>Introduce various types of conflict-transformation tools, including the development of manuals on 'Conciliation Techniques'.</p> <p>Reduce fear, crime and blight by creating healthy relationships between communities and strengthening each community's internal assets.</p> <p>Provide integrated approaches to urban violence reduction.</p>
<b>GENERAL OBJECTIVE # 2</b>	
Foster security and crime fighting initiatives that include up-to-date, comprehensive, quantitative and qualitative data.	
<b>Sector Objectives</b>	<b>Strategic Directions</b>
<p>Increase the capacity of the police and judicial systems to deal effectively with crime in KSA.</p>	<p>Support the establishment of detailed crime statistics, plotting of places and times of offences, origin of offenders, etc.</p> <p>Support victim surveys and up-to-date reports from victim associations, social workers and specialist education workers.</p> <p>Provide up-to-date equipment used in analysing crime</p>
<b>GENERAL OBJECTIVE # 3</b>	
Foster greater cooperation between the police and the local community.	
<b>Sector Objectives</b>	<b>Strategic Directions</b>
<p>Rebuild social capital through formal and informal mechanisms.</p>	<p>Promote conflict resolution skills via schools, community centres, and other community institutions, e.g. churches.</p> <p>Increase community policing strategies.</p> <p>Focus attention on building social capital, particularly among the youth, e.g. police youth clubs.</p> <p>Improve the provision of social amenities, particularly recreation facilities.</p>





**Goal:**

**ESTABLISH A SAFE, SECURE LIVING ENVIRONMENT FOR ALL**

**GENERAL OBJECTIVE # 4**

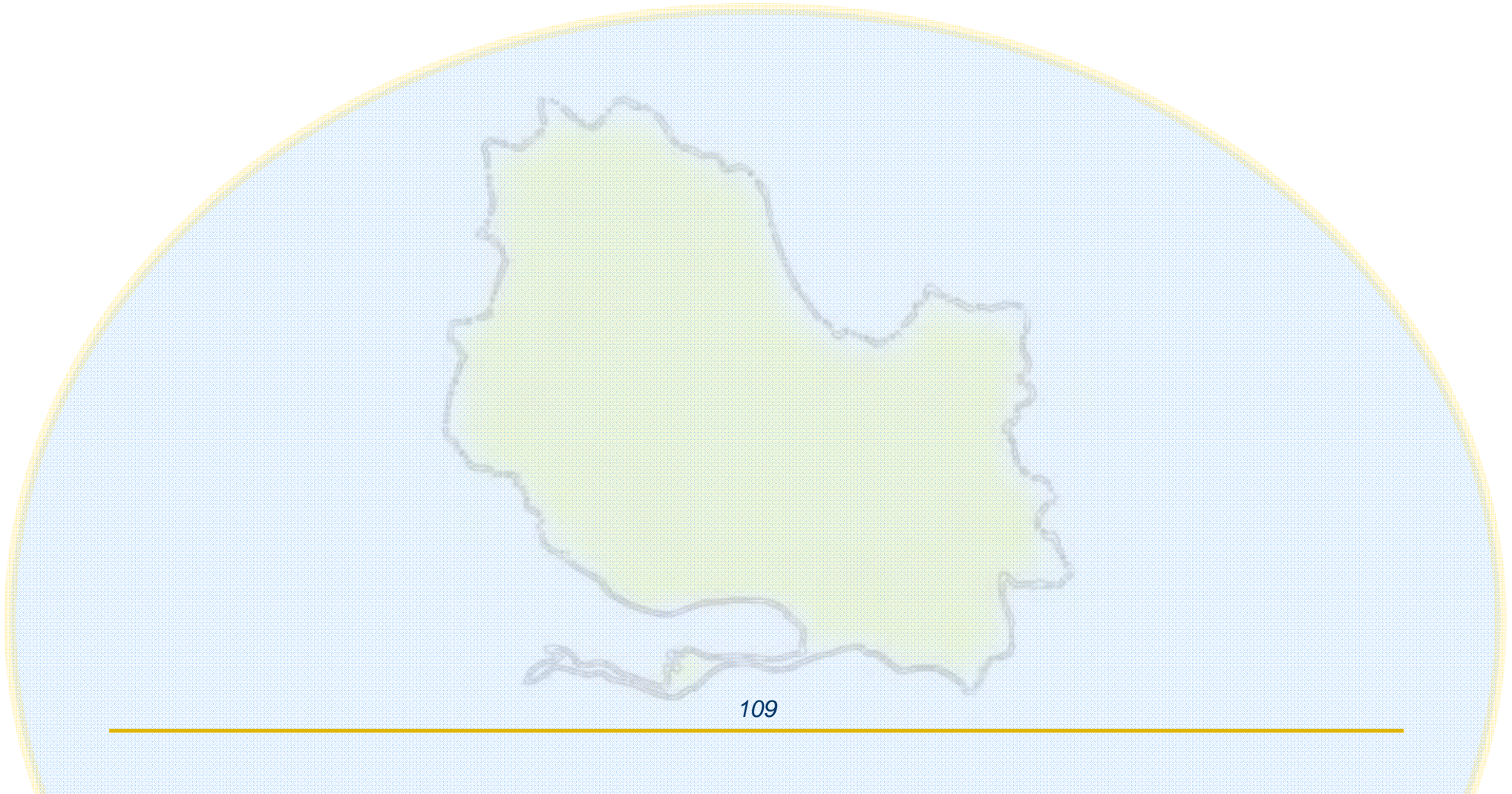
Provide greater victim support.

Sector Objectives	Strategic Directions
<p>Promote greater accessibility to the justice system in order to reduce crime.</p>	<p>Support measures that would include the establishment/expansion of public or associative victim aid units to provide guidance for victims.</p> <p>Ensure that complaints addressed to the police and courts are routinely followed up and information given and action taken.</p> <p>Support measures to make giving testimony easier.</p> <p>Ensure a public justice system that is respected and applied fairly.</p>

**GENERAL OBJECTIVE # 5**

Recognise crime prevention in KSA as a priority and thus provide increased financial and human resources.

Sector Objectives	Strategic Directions
<p>Establish a safe city and ensure a significant reduction in crime so that investment and development may be promoted.</p>	<p>Establish/broaden the municipal police force.</p> <p>Establish more police posts in strategic locations.</p> <p>Promote greater coordination of 'designing out crime' programmes.</p> <p>Use urban design features to maximize visibility in pedestrian, cycling and transit areas.</p> <p>Change/adjust planning regulations to allow planning agencies, through the approval process, the power to guide and – where necessary – enforce new requirements for 'designing out crime'.</p> <p>Focus on and reduce overcrowding in certain parts of the city.</p> <p>Remove derelict structures.</p>





## 4.10 Local Governance

The Government of Jamaica has recognised that effective and successful administration of its functions – policies, plans and programmes – hinge on the establishment of an enabling environment which facilitates a participatory and consultative decision-making process involving local authorities, citizens, stakeholders and partners. In light of the government’s commitment to promoting and encouraging good governance it has embarked on a process of Local Government Reform, the objective of which is to create a strong and viable system of decentralised local administration through which local authorities, acting in partnership with communities and civil society, will assume greater responsibility for local self-management and sustainable local development.





### 4.10.1 The Local Government System

The local government system in Jamaica is based on a two-tier system of government comprising central government at the national level, and the local government authorities at the sub-national or parish level. The local authorities consist of twelve Parish Councils and the Municipal Authority of Kingston which is called the Kingston and St. Andrew Corporation (KSAC), based on the incorporation of the parishes of Kingston and St. Andrew. These 13 local authorities are part of the system of representative democracy in the country and are created by law. The Parish Councils Law, Chapter 271, and the Kingston and St. Andrew Corporation Law, Chapter 192, give legal status to the existence of these councils. The KSAC is the only municipal council with city functions clearly defined, while parish councils are ordinary corporations.

In 2003, under the new Municipalities Act of 2003, Portmore was granted municipal status and vested with the full powers of a local authority. A municipality is defined as a town or district that has its own local government.

Councillors are elected directly by secret ballot and the laws which govern these elections are the same as those governing the national electoral procedures. Local government elections are expected to take place every three years, except in extraordinary circumstances when Parliament may extend the life of the councils for a specific period. The mayor of the capital city, of a parish, is elected by his/her colleagues from among the membership of the council at the first meeting in the life of that council; and acts as chairperson of the council. According to law, the council must meet monthly to discuss and take decisions on the business of the council and reports received from committees. The councils carry out their functions through the committee system (**see Section 6 for a discussion on the capacity constraints of local government**). Council also meets to make regulations and by-laws which are important for the smooth running of the parish. Local councils are created by specific laws enacted by the national parliament and cannot act outside of the law or go beyond the power of the law. **This is a very inflexible system and, in fact, the functions performed by the councils are narrowly prescribed in law and can be changed at any time by central government.**

There are 25 laws which define the powers and duties of the councils. Some of their major responsibilities such as public health and poor relief have separate laws. Some of these laws have been revised or are being revised. Many of the functions of the council are shared with national government ministries and institutions, with shared functions including maintenance of the road network, disaster preparedness, planning and the provision of minor water supplies. The councils also perform a number of regulatory functions. In carrying out its functions, local government is often treated as a junior partner in its relationship with central government. For example, it is the council that decides which roads will be fixed in the parish, but only central government may decide that motor vehicle licence fees will be used for road repair.

Specific responsibilities of the councils include:

- developing, managing and maintaining public facilities such as parochial roads; gullies and drains other than minor drainage systems associated with main roads; 907 minor water supply systems; 89 public markets and arcades; 14 infirmaries and homes for the care of the poor; public cemeteries; bus terminals and parking facilities; public sanitary conveniences; public parks and beautification projects; animal pounds; cultural/recreation centres in most parish capitals; and public beaches.
- provision of local services such as poor relief and welfare for the outdoor poor; public cleansing including street sweeping and garbage collection; provision of social water through community standpipes and trucking water to drought stricken areas; coordination of disaster preparedness and management; street lighting; street names and numbering.



- regulatory powers in respect to building and planning approvals and development control; licensing of trades and businesses; street parking; control of vending.
- coordination of inter-agency collaboration among NGOs, CBOs and government agencies which operate in the parish and are engaged in the delivery of local services in local development.
- support of national policies/development programmes at the local level.

The local authorities' role in local government has undergone three marked transitions since independence. In the immediate post-independence period, local authorities assumed responsibility for a wide range of local services, including parochial infrastructure, physical planning, public health and sanitation, fire protection and local welfare administration. The authorities' service delivery responsibilities were accompanied by the power to set and raise locally guaranteed licences, user fees and service charges, and to use the proceeds from property taxes and motor vehicle licences, which were set and collected by central government.

At the time of independence, in the 1960s, the 13 local authorities derived approximately 75% of their revenue from local fees and taxes. Even though central government had control of their finances, the local authorities operated at surplus, and they were very effective in providing local services and maintaining local infrastructure for which they had responsibility. In 1974, central government removed the property tax as a source of income from the realm of local government and replaced it with a general assistance grant. With the removal of the property tax as a source of revenue, the KSAC and the parish councils no longer had an independent source of funding to respond effectively to growing expenditure needs in the parishes. They had to rely on a long list of minor local sources such as abattoirs, cemeteries and markets, from which they were expected to collect their own revenues. As a result the corporation and the councils became increasingly dependent on central government for their financing. This in turn limited the ability of the local authorities to provide necessary services.

By not clearly delineating what should constitute the legitimate core revenue bases, and by excluding such traditional items as property taxes and motor vehicle license fees from the parish tax base, central government classified grants to the local authorities for recurrent expenditure into the following categories: General Assistance Grants – comprised of proceeds from spirit licenses, 50% of the revenue from motor vehicle licenses, and grants in lieu of rates on government property; Specific Grants – comprised of an amount based on 100% of local expenditures on public health, 75% of poor relief, and 50% of water supplies maintenance; Non-Recurrent Grant – an amount to meet the budgetary deficits of the council.

In terms of resource use, expenditure by local authorities is classified as capital or recurrent. Recurrent expenditure covers costs such as administrative staff, overheads, operation and routine maintenance of the various services provided by the KSAC and the parish councils. Capital expenditure refers to building or installing new infrastructure or undertaking comprehensive reconstruction works. During the 1970s, central government financed all of the local authorities' capital expenditures. The dependency on ministries and statutory bodies for funds for capital works led to an under-development of capital budgetary practices by the KSAC and the councils. The capital budget was not in any way linked to the recurrent budget and, often, a capital budget was not prepared for capital works programmes. In addition, there were no links between the capital budget and development planning. Capital grants were all earmarked for particular programmes such as minor water supplies and beautification projects.



As the dependency by the KSAC and the councils on central government increased, their performance deteriorated. Several studies were commissioned to examine the issue and devise appropriate solutions; at least seven of these studies identifying inadequate financing and lack of autonomy as the major factors responsible for the deficiencies of local government<sup>8</sup>. These studies recommended that local authorities should be provided with adequate and independent sources of revenue, and given greater autonomy in managing their own affairs. However, very few of the recommendations made in these reports were adopted or implemented. The end result was the continued decline of local government and, in 1985, central government dismantled the local government system, citing poor performance as the major rationale for its action. The former functions and responsibilities of the local authorities were transferred to central ministries and their agencies. This re-assignment of responsibilities was accompanied by drastic reductions in staffing and equipment of many councils. Several parish councils and the KSAC were required to transfer most of their road-maintenance and workshop machinery and equipment to the central government ministries and agencies. This left the local authorities with significantly reduced capacity to address local needs, particularly during the hurricane season.

In addition to re-assigning the responsibilities and functions of local government, 90% of the revenue to fund local activities was redirected through central government. These changes essentially converted local government into an agency of central government, with responsibility for managing some minor government social programmes, but without adequate resources or incentives for effective implementation.

It was thought that a centralised system would provide for improved planning and utilisation of scarce skilled labour, eliminate duplications, and promote economies of scale and efficiency that would benefit the country as a whole. In reality, however, the results were quite different. During this same period the country was undergoing a series of structural adjustment programmes; the effects of international recession were exacerbated by the collapse of the market for bauxite and alumina – the country's main export. Because of the resource constraints and organisational problems, the expanded role of central government agencies did not develop as envisaged. Centralisation also diminished accountability of the service provider to the local population, reducing the principal incentive for the adequate provision of basic services.

#### 4.10.2 The Local Government Reform Programme

The decline in the quality of services and the condition of parochial infrastructure, as well as the drop in the collection of local revenues, led to a 1993 decision to once again decentralise many public sector responsibilities through a reformed local government. The principal objectives of the Local Government Reform Programme, as outlined in Ministry Paper 8/93, are to broaden the democratic process; empower local citizens to play a greater role in the management of their own development; and improve the quality, cost-effectiveness and responsiveness of local services, regulatory functions and elected officials.

In order to achieve these overall development objectives, the LGRP seeks *inter alia* to: "...restore to the Parish Councils and the Kingston and St. Andrew Corporation (KSAC) the functions and responsibilities which have been eroded since the early 1980s; establish new financing arrangements which will allow the flow of adequate and independent sources of revenue to the Councils and grant them control over such revenue; upgrade the institutional capability of the local authorities; carry out a comprehensive revision of outdated legislation; and identify a better distribution of delivery of services between central government, local government, NGOs, CBOs and the private sector." (*Ministry Paper 8/93, 1993*).

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<sup>8</sup> Among these were: Association of Local Government Authorities of Jamaica (ALGA), *Report and Proposals on the Reform of Local Government in Jamaica* [date?], Rodrigues, M. R., 1970. *Report to the Government of Jamaica on the Reform of Local Government*, Brownstone, M., 1973. *Report to the Government of Jamaica on the Reform of Local Government*, Mills, G. E. et al., 1974. *Report on the Reform of Local Government*.



Ministry Paper 7/03 outlines the Government's commitment to attaining a strong and vibrant local government in which all citizens enjoy real opportunities to fully and directly participate in and contribute to the management and development of local communities. Further, it considers local government and community development as complementary processes to achieve the objective of empowering citizens towards the exercise of greater self-management.

Ministry Paper 7/03 identifies the present development landscape as consisting of 745 communities. These are grouped into approximately 72 distinct clusters of communities based on mutual dependency and linkage and are referred to as development areas. The discussions now taking place in the local authorities have focused on how these 72 development areas could be better managed.

In this regard, the Ministry of Local Government, Community Development and Sport has outlined the following five policy provisions:

1. Requirement that local authorities create municipal management mechanisms to provide more effective management for discrete urban and rural areas (development areas) which have emerged over time within parishes across the country. These mechanisms would reflect, but are not limited to, one of the following forms and would be established based on the approval of the respective local authority:
  - Municipal status;
  - Town and area councils;
  - Business improvement districts.
2. Specific definition and rationalisation of the roles and functions of central government. This includes the establishment of clear rules of engagement and coordination between the two.
3. The establishment of dedicated financial resources to support the work of the local authorities. This will include the specific commitment of central government and the conditions that would trigger that support.
4. All management mechanisms must create space for the participation and representation of civil society on all local structures:
  - Parish development committees;
  - Community development committees.
5. The initiation of national discussions to determine whether the existing 13 local authorities should be rationalised or consolidated in response to the proposed new municipal structures and also in order to achieve economies of scale and greater efficiency.

Several initiatives have been undertaken as part of the LGRP. Most of the functions which were taken away from the councils have now been returned; and financial and legal reforms have been instituted to ensure local government revenue autonomy. In this regard, the granting of greater responsibility to parish councils and the KSAC in the setting and adjustment of license fees and user charges, in respect of the services and regulatory functions for which councils are responsible, has resulted in increases in the percentage share of revenues collected from these sources. Council staff – both technical and managerial – is being upgraded through improved salaries and training.



Major outcomes of the LGRP include the establishment of the Parochial Revenue Fund (PRF), which constitutes the major component of the new arrangements for financing local government. All revenues from property taxes, spirit licenses, trade licenses and 66.6% of revenue from motor vehicle licenses are lodged into the PRF account instead of going into the formerly centralised Consolidated Fund; thus providing the councils with a designated source of income. Of the property taxes collected in the parishes, 90% is repatriated. However, 10% is retained in an Equalisation Fund to go to the smaller parishes whose property taxes are limited. With regard to motor vehicle license fees, 25% is returned to the parish of origin and the other 75% placed in a pool and distributed according to the total mileage of parochial roads in each parish.

The point must be made, however, that even with the establishment of the Parochial Revenue Fund, most of council revenues – property taxes, motor vehicle, spirit, and trade licenses – are collected by the Inland Revenue Department of central government and later transferred to the KSAC and parish councils. This still leaves the councils dependent on central government for the collection of their revenue. In 1999, amendments to the Spirit Licences Act enabled the implementation of new arrangements with the Inland Revenue Department to improve revenue collections from spirit and trade licenses and to transfer, to the parish councils and the KSAC, responsibilities for the overall management of these sources. This is expected to significantly increase revenue flows from these sources and to give the councils a focal role in overseeing this exercise.

As a consequence of the implementation of the above-mentioned reform measures, parish councils and the KSAC generated 54% of their budgeted expenditure from these sources in Financial Year 1998/99. This compares to the pre-reform period when councils generated only 5% of their revenue, while 95% came in the form of central government grants (*McHardy, 2002*). Improvement in revenue flows to the PRF resulted from maximisation of own revenues and improved property tax collection – which moved from J\$479 million in 1988/89 to a record \$645 million in 2001/02.

In a World Bank evaluation study of Municipal Development Projects, conducted in the Philippines and Brazil, the Bank found that tax collection per capita increased in participating municipalities. However, some participating municipalities did much better than others and the weaker performance was brought about by less rigorous control of tax collection performance.<sup>9</sup>

In Jamaica, revenue collected by the Parish Councils is controlled by them, i.e. general revenues and commercial services, moved from approximately \$80 million in 1997/98 to \$131.7 million in 2001/02. Additionally, professionals were contracted by local authorities to manage their commercial portfolios. This resulted in commercial service revenues increasing from \$90.5 million in 1998/89 to over J\$124 million in 2001/02.

Another major outcome of the LGRP has been the establishment of a participatory mechanism, the Parish Development Committee, in all parishes. The aim of setting up PDCs is to promote local development through partnership of the local authorities, with other state agencies such as PIOJ and NEPA, the private sector, civil society, national utility service providers and community-based organisations. The purpose of this initiative is the promotion of participatory local governance. PDCs will encourage, among other things, the preparation of long-term strategic plans for their respective parishes, enhancement of business competitiveness, and economic development for job creation.

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<sup>9</sup> World Bank Municipal Development Projects: Financing Local Development and Building Institutions in *Precis*, World Bank Operations Evaluation Department, Spring 1999, Number 179, Washington DC.





### 4.10.3 Strategic Directions and Actions

Under the LGRP, the GOJ has gradually restored a number of functions and powers to the parish councils and continues to delineate and clarify their roles and responsibilities. Functions which have been returned to the local authorities include parochial roads, canals and drains, micro-water supply, poor relief, public markets, and enforcement of public health and parking permits. Appropriate roles for the KSAC remain to be clarified in several other areas, such as traffic management, physical planning and environmental protection. On the revenue side, there has been some progress in returning, to local authorities, the power to raise and collect fees on a number of goods and services. Government has also established the Parochial Revenue Fund.

Good governance implies inclusion and representation of all groups in KSA on the one hand and accountability, integrity and transparency of government actions on the other. Capable urban management means that the corporation must be in a position to fulfil its public responsibilities with appropriate skills and knowledge and provide opportunities for participation by the residents of KSA. Pursuing a shared vision of KSA means that regular formal interaction between the corporation and residents is continuously pursued. Residents also need to be prepared and to demand their rights of constructive engagement in the decision-making process, particularly when it affects their community. The effort to develop a new administrative structure, within the KSAC, has begun and is being supported through training and capacity building.

However, in spite of progress made in these areas, much remains to be done such as ensuring that the KSAC has a stronger revenue base, as well as greater responsibility to manage its budget, set and collect revenues and enforce compliance. Some of the necessary changes will require legal and institutional reforms. Figure 9 sets out the strategic directions and actions required for improving good governance and management in KSA.



*Good governance implies inclusion and representation of all groups in KSA.*



**Figure 10: Matrix of Strategies in Support of Goal of Good Governance and Management**

<b>Goal:</b> <b>SUPPORT STRONGER, MORE EFFECTIVE SYSTEM OF LOCAL GOVERNANCE</b>	
<b>GENERAL OBJECTIVE # 1</b> Advocate for clarity on roles, responsibilities, resources for local government.	
Sector Objective	Strategic Directions
Promote efficiency and competency of the KSAC in fulfilling essential responsibilities.	Establish clear frameworks for intra- and inter-governmental assignment and delegation of functions, responsibilities, revenues and expenditures. Establish mechanisms for objective, independent review of performance of the KSAC. Support development and application of management tools and best practices. Support strong capacity to ensure the delivery of services through a variety of mechanisms.
Build improved municipal governance through the development of a financially strong city government.	Establish regulatory and institutional infrastructure for developing capital market instruments for KSA (bonds). Establish and support viable financial institutions willing and able to bear municipal credit risk. Support inter-governmental finance system that is predictable and promotes appropriate incentives. Establish and implement appropriate public-private partnership frameworks particularly for funding infrastructure. Ensure that taxes generated in the city are used in the city. Ensure equity in distribution of city funding. Encourage regular public consultation and oversight in budget and decision-making. Support transparent and efficient management of expenditures, revenues, and municipal assets; publicly disclosed and audited. Support associations of municipalities for sharing best practices, technical assistance, training and city twinning. Provide grant and limited loan funds in exchange for the signing of MOUs containing investment plans and targets for improved management performance.



**Goal:**

**SUPPORT STRONGER, MORE EFFECTIVE SYSTEM OF LOCAL GOVERNANCE**

**GENERAL OBJECTIVE # 2**

Strengthen the capacity to monitor delivery on the SD Plan.

Sector Objective	Strategic Directions
<p>Widen the devolution of functions and corresponding authority to the KSAC and local communities.</p>	<p>Ensure adequate links to the central level in order to promote greater coordination in the delivery of public services.</p> <p>Increase the information flow between central government and local government, particularly with regard to policy decisions affecting the city.</p> <p>Promote greater participation in decision-making and greater mobilisation and organisation of civil groups.</p> <p>Provide opportunities for residents of KSA to debate and arrive at commonly held policy and project objectives, before these are passed by Parliament.</p> <p>Support greater community involvement in the KSAC decision-making process and policy formulation of the council.</p> <p>Support greater autonomy for the KSAC.</p> <p>Strengthen the capacity of the KSAC to plan local development activities and coordinate interventions in different sectors.</p>
<p>Support broader and easier public access to information and analysis about KSA.</p>	<p>Increase public access to information about local government decisions (e.g., policies, regulations, projects, contract awards).</p> <p>Support processes that require the systematic screening of a wide range of alternatives to a proposed action, to achieve decisions that are transparent, defensible and replicable.</p> <p>Support greater coordination and communication among government agencies and all groups in society that need to be engaged in planning for, and implementing, sustainable development.</p> <p>Support greater collaboration between sector agencies, KSAC and CBOs.</p> <p>Ensure that activities by sector agencies consider community wishes.</p> <p>Support more structured public awareness programmes on sustainable development for citizens of KSA.</p>



## Goal:

**SUPPORT STRONGER, MORE EFFECTIVE SYSTEM OF LOCAL GOVERNANCE****GENERAL OBJECTIVE # 2**

Strengthen stakeholder capacity to participate in and contribute to planning and decision-making.

Sector Objective	Strategic Directions
<p>Focus training on new roles, skills and attitudes that will arise from implementation of the SDP.</p>	<p>Develop capacity-building strategies which are integrated with urban development and management strategies.</p> <p>Commit resources necessary for capacity building.</p> <p>Undertake capacity-building activities in a manner that integrates human resource development, organisational change and improvement of institutional, legal and financial frameworks.</p> <p>Introduce measures to widen the supply of capacity-building services and encourage them to become more responsive to demand.</p> <p>Coordinate activities of institutions charged with capacity-building so as to strengthen linkages between actors in urban development and ensure complementarity, increased choice and productive competition.</p> <p>Give high priority to monitoring, evaluation, impact assessment and research in terms of improving tools and ensuring dissemination using traditional and new media.</p> <p>Develop local capacity-building strategies to ensure relevance and articulation of new needs by existing and new actors.</p>



PERMANENT DELEGATION OF JAMAICA TO UNESCO

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office of the ambassador/permanent delegate

11 November 2014

Ms. Regina Durighello  
Director,  
World Heritage Unit  
International Council on Monuments and Sites  
49-51 rue de la Fédération  
75015 Paris, FRANCE

Dear Ms. Durighello,

**World Heritage List 2015: Blue and John Crow Mountains**

I refer to your communication dated 10 October 2014, requesting further information to assist ICOMOS in its evaluation under the cultural criteria of the Blue and John Crow Mountains which have been nominated for the World Heritage List for 2015.

I am pleased to transmit the attached communication from the Ministry of Culture of Jamaica.

Yours sincerely,

Vilma McNish  
Permanent Delegate to UNESCO



REPLY OR SUBSEQUENT  
REFERENCE TO THIS  
COMMUNICATION SHOULD  
BE MADE TO THE  
PERMANENT SECRETARY  
AND THE FOLLOWING  
REFERENCE QUOTED:

No MYSC.495/9/2

**Ministry of Youth & Culture**  
**4-6 Trafalgar Road**  
**Kingston 5**  
**Jamaica, West Indies**  
**Tel: 876- 978-7654**  
**Fax: 876-978-2948**

November 10, 2014

Ms. Regina Durighello  
Director -World Héritage Programme  
International Council on Monuments and Sites (ICOMOS)  
11rue de Seminaire de Conflans  
94220 Charenton-le-Pont,  
France

Dear Ms. Durighello:

**Re: Blue and John Crow Mountains (Jamaica) – additional information**

We thank you for your letter dated October 10, 2014 and for the opportunity to further assist with the evaluation process of the Blue and John Crow Mountains by providing the additional information required.

Kindly find the attached information requested. We remain available to respond to any further queries/clarifications requested on the nomination.

Yours sincerely,

Sherrill O'Reggio Angus (Mrs)  
Permanent Secretary

copy: H- E. Mrs. Vilma Kathleen Me Nish, Ambassador Extraordinary and Plenipotentiary of  
Jamaica to Belgium, Permanent Delegate, Permanent Delegation of Jamaica to UNESCO  
Mr. Mauro Rosi, UNESCO World Heritage Centre  
Mr. Vivian Chin, Jamaica National Heritage Trust  
Dr. Susan Otuokon, Jamaica Conservation and Development Trust

*Attachments.*

JAMAICA'S RESPONSE  
FOR THE  
NOMINATION OF THE  
CULTURAL AND NATURAL HERITAGE  
OF THE  
BLUE AND JOHN CROW MOUNTAINS



## Jamaica's Response to ICOMOS' Queries

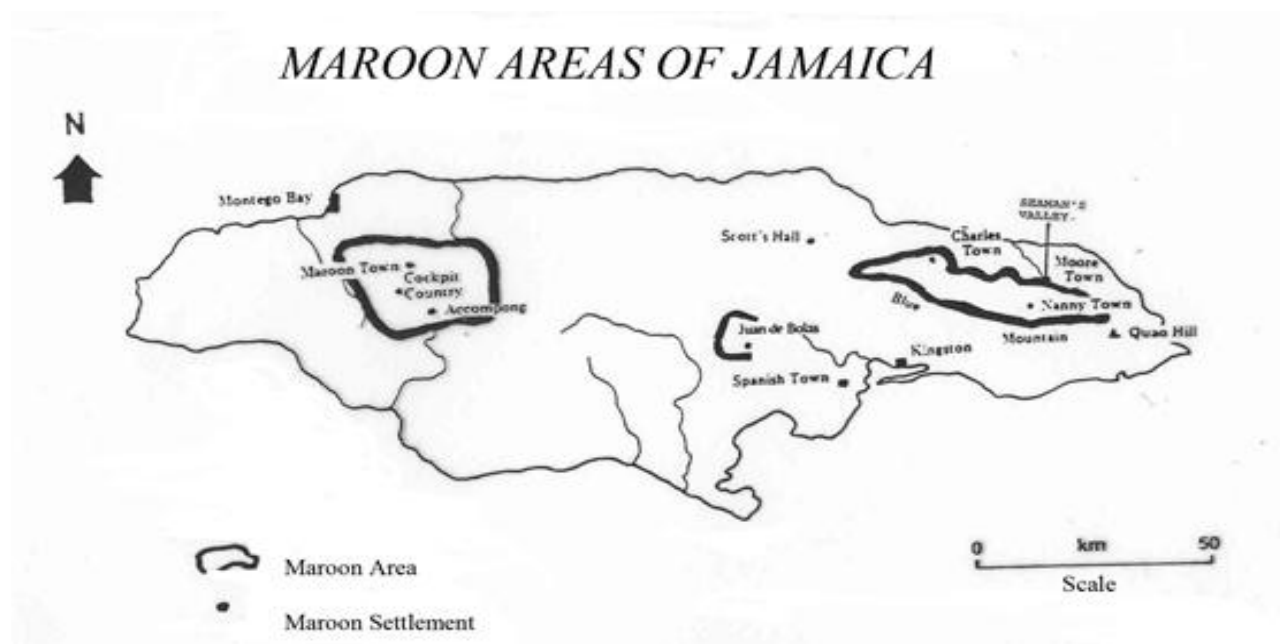
### Question 1: Comparative Analysis

The inscription of the Blue and John Crow Mountains would contribute to a balanced and representative World Heritage List. The property stands out universally from other Maroons sites nationally, regionally and internationally.

#### NATURAL

#### Comparison with Cockpit Country

Jamaica has two groups of Maroons occupying two distinct locations and environments on the Island. Maroons living on the eastern side of the Island in the Blue and John Crow Mountains refer to themselves as the Windward Maroons. Those occupying sections of the Cockpit Country on the western side of the country classify themselves as the Leeward Maroons. Though sharing fundamental similarities like those communities elsewhere in the Americas and the Caribbean they are quite distinct in many respects and are fostered by geography and geology.



Map showing the Maroons site in Jamaica (K. Agorsah)



## Jamaica's Response to ICOMOS' Queries

COMPARATIVE FACTORS	Comparison of the Blue and John Crow Mountains and the Cockpit Country	
	Blue & John Crow Mountains (Windward Maroons)	Cockpit Country (Leeward Maroons)
<b>Geology</b>	Blue Mountains: volcanic, metamorphic and sedimentary in origin (including the oldest formations in the island); generally no limestone – mainly shale. John Crow Mountains: sedimentary in origin with limestone substratum	sedimentary in origin with limestone substratum
<b>Hydrology</b>	numerous fast-flowing streams and rivers	no surface run-off (rivers or streams)
<b>Elevation</b>	250 – 2,256m above sea-level	500 – 900m above sea-level
<b>Rainfall</b>	2,000 – 6,250mm/year	1,250 - 2,750mm/year
<b>Annual temperatures</b>	19.5°C	24°C
<b>Forest ecosystems</b>	Blue Mountains: montane forest ecosystems including Mor Ridge, High Altitude Scrub and Montane Summit Savanna. John Crow Mountains: wet limestone forest ecosystems	no montane nor wet limestone forest ecosystems present
<b>Biodiversity</b>	All 29 of Jamaica's extant endemic species including the Black-billed Streamer-tail Hummingbird. Many of the other vertebrates and invertebrates are shared with the CC. Plant species very different in comparison to CC. Average 50% endemism.	28 of 29 bird species.  Similar animal species to BJCM but different plants.
<b>Boundary</b>	Boundary of the Protected National Heritage which includes and encompasses the other boundaries	The Forest Reserve boundary has been defined however there is a national level debate regarding expansion of this boundary.
<b>Area under legal protection</b>	48,650 ha (National Park & Forest Reserve – NP/FR) 55,845.59 ha (Protected National Heritage) – overlapping with NP/FR	22,327 ha (Forest Reserve)
<b>Legal Designation</b>	Forest Reserve: 1950 National Park: 1993	Forest Reserve: 1950

## Jamaica's Response to ICOMOS' Queries

<b>Protection &amp; Management</b>	Protected National Heritage: 2013	
	Co-Management Agreement exists between government agencies and a Delegation Agreement with an NGO for National Park management. Active implementation of Management Plans including current 2011 – 2016. Memorandum of Understanding regarding cultural heritage in place	No formal collaborative management system in place. Management within context of wider North-West Region of the Forestry Department. First Management Plan prepared 2012.
<b>Maroon sites</b>	23~ Maroon sites	3 – Maroon sites

Differences between the two properties are:

- (i)** The two sites are geologically different with the Blue Mountains and the Port Royal Mountains being almost completely volcanic and metamorphic in origin (including the oldest formations in the island) and with mainly shale soils, whereas the Cockpit Country is almost completely sedimentary in origin with limestone substratum.
- (ii)** The geological differences affect the hydrology of the two sites with there being almost no surface run-off (rivers or streams) in the Cockpit Country whilst the Blue Mountains has numerous fast-flowing streams feeding into ten main watershed units as compared to four for the Cockpit Country.
- (iii)** The elevations of the two properties are completely different, with the Cockpit Country ranging from about 500 – 900 metres above sea-level, whilst the BJCMNP ranges from 250 – 2,256 metres above sea-level.
- (iv)** This means that the Blue Mountains (with its unique geology and high elevation) has montane forest ecosystems not found in the Cockpit Country or anywhere else in Jamaica. Further, research by several noted botanists has identified unique Mor Ridge forests and forest on serpentine as indicated in the nomination dossier.
- (v)** Rainfall in the Cockpit Country ranges between 1,250 to 2,750 mm/year whereas in the BJCMNP it ranges between 2,000 – 6,250mm/year. In the Blue Mountains at elevations above 900 metres above sea-level, mist covers the southern slopes about 30% of daylight hours and the northern slopes up to 70% of daylight hours.
- (vi)** Annual temperatures in the Cockpit Country average 24°C as compared to 19.5°C in the Blue Mountains.

The possible boundary for a Cockpit Country protected area is currently being deliberated within the context of a Cockpit Country/Martha Brae Watershed, as indicated in Local Forest Management Plan Cockpit Country Forest Reserve and Surrounding Forest Estates prepared by the Forestry Department in 2012. However, the Cockpit Country Forest Reserve is 22,327 ha and is located at the core with numerous but much smaller Forest Reserves around it. On the other hand, the BJCMNP whilst declared on the boundary of the Blue Mountain Forest Reserve of 41,940 ha in addition to several other Forest Reserves, has been designated as a National

## Jamaica's Response to ICOMOS' Queries

Park by the Natural Resources Conservation Authority and its management by the JCDT as an IUCN Category II protected area has been agreed and supported by the Forestry Department.

Considering both sites historical and cultural background it has been long deliberated whether both site should have been submitted as a serial nomination. After protracted consultation with specialists from various disciplines at the University of the West Indies and government agencies the state party reached the decision not to pursue this path at this time. The current issues associated with the Cockpit Country, outlined in table above, would compromise the nomination being put forward. It is the intension of the state party to add Cockpit Country as a serial nomination at a later date.

### Comparison with other sites

In the 2013 IUCN and UNEP-WCMC gap analysis on Terrestrial Biodiversity and World Heritage identified the Blue and John Crow Mountains as the only site in Jamaica and one of only five irreplaceable protected areas for biodiversity conservation of global significance, in the Caribbean (Bertzky et. al., 2013)

The biodiversity of Jamaica at the country level summarised in the World Atlas of Biodiversity (Groombridge and Jenkins, 2002) is shown in Table 4 below. Similar statistics are provided for selected Caribbean Islands (Cuban, Greater Antillean and Lesser Antillean Provinces) and countries which have properties used in the comparative analysis. Taxonomic groups covered are mammals, birds, reptiles, amphibians and vascular plants (ferns to flowering plants). The data provided has the following assumptions:

The four vertebrate groups are of equal importance:

1. Plants are of equal importance to the vertebrates combined
2. Richness and endemism are reasonable well correlated across the taxonomic groups covered
3. Vertebrates and plants provide a valid surrogate for biodiversity in general

Because interest lies in relative biodiversity rather than absolute values the data was normalised – the most important country has a value of 1 and the least important a value close to 0. Estimates for combined richness and endemism are averaged to give a diversity index (DI). Because species richness tends to increase with area and proximity to the humid tropics, DI is strongly affected by country area and geographical position, but it also takes into account levels of endemism (affected by factors such as topography, tectonic history and geography). The relative levels of biodiversity per unit area calculated using an Arrhenius equation describing the species –area relationship ( $\log S = g + z \log A$ ) where S- number of species, A= area, z = slope of the line and g another constant. The regression produces the expected biodiversity value of each country for its area and the distance of each country point from the line gives a measure (AI) of how much more (+ve) or less (-ve) diverse a given country is than expected.

## **Jamaica's Response to ICOMOS' Queries**

The tables below shows that with respect to the expected diversity index (AI) using the Udvardy, 1975 classification Jamaica is comparable to two the other islands of the Greater Antillean Province namely; Haiti and the Dominican Republic with Puerto Rico have much lower index. Jamaica is distinct from Cuba (Cuban Province) and Dominica, St Vincent and Grenada (Lesser Antillean Province) within the Neotropical Realm. Ecuador and Guatemala also of the Neotropical Realm are in two distinct provinces while, Malaysia falls within the IndoMalayan Realm and Australia its own realm.

Looking at its size Jamaica has a notable number of vascular plants with a significant number of endemic species though not as many plants in total or endemics as Haiti of the Dominican Republic (together referred to as Hispaniola). With respect to birds it has similar numbers of breeding birds to Cuba and the Dominican Republic and shares similar numbers of endemic species as Cuba a much larger island with both higher DI and AI indices.

## Jamaica's response to the ICOMOS Queries

**Table showing Biodiversity at Country level in Jamaica and selected countries**

COUNTRY	AREA (km)	DI	AI	MAMMALS TOTAL	MAMMALS ENDEMIC	MAMMALS NO. THREATENED	MAMMALS % THREATENED	BIRDS BREEDING TOTAL	BIRDS ENDEMIC	BIRDS NO THREATENED	BIRDS % THREATENED	PLANTS TOTAL	PLANTS ENDEMIC
<b>Jamaica</b>	11 425	0.051	0.619	24	2	5	21	113	26	12	11	3 308	923
<b>Cuba</b>	114 525	0.12	0.829	31	12	11	35	137	21	18	13	6 522	3 229
<b>Dominican Republic</b>	48 440	0.076	0.625	20	0	5	25	136	0	15	11	5 657	1 800
<b>Haiti</b>	27 750	0.071	0.71	20	0	4	nd	75	1	14	19	5 242	1 623
<b>Puerto Rico</b>	8 960	0.333	0.259	16	0	2	13	105	12		8	2 493	235
<b>Dominica</b>	751			12	0	1	8	52	2	3	6	1 228	11
<b>St Lucia</b>	619			9	0	1	11	50	4	5	10	1 028	11
<b>St. Vincent</b>	389			8	1	2	25	108	2	2	2	1 166	-
<b>Grenada</b>	345			15	0	0	0	50	1	1	2	1 068	4
<b>Ecuador</b>	461 440	0.353	1.519	302	25	31	10	1 388	37	60	4	19 362	4 000
<b>Guatemala</b>	108 890	0.142	1.014	250	3	6	2	458	1	6	1	681	1 171
<b>Malaysia</b>	332 965	0.254	1.28	300	36	47	16	501	18	37	7	15 500	3 600
<b>Australia</b>	7 682 300	0.608	1.268	252	206	63	25	649	350	32	5	15 638	14 074

## Jamaica's response to the ICOMOS Queries

<b>Natural Heritage Comparative Analysis</b>					
<b>Comparative Factor</b>	<b>Blue &amp; John Crow Mountains National Park -Jamaica</b>	<b>Alejandro de Humboldt National Park - Cuba</b>	<b>Sangay National Park - Ecuador</b>	<b>Kakadu National Park - Australia</b>	<b>Greater Blue Mountains Area - Australia</b>
<b>Altitude</b>	250 -2256 m (Blue Mountains) 250 – 1140 m (John Crow Mountains)	-220 m to 1,175 m	800 -5,140 m	Sea level - 520m	20 m to 1215 m
<b>Area</b>	48,649.93 ha	66,700 ha land 2,641 ha water 69,341 ha total 34,330 ha buffer zone	272,000 ha	1,980,400 ha	1,032,649 ha
<b>Land Tenure</b>	State and Private –  The lands in the BJCMNP have been vested in the Commissioner of Lands in trust for the Government of Jamaica, on behalf of the people of Jamaica. In the parishes of St. Andrew and Portland, very small parcels of land within the park's	State – represented by the Ministry of Science, Technology and Environment (CITMA)	State owned	Kakadu Aboriginal Land Trust and Jabiluka Aboriginal Land Trust own about one-third of the land, but lease it to the Director of National Parks and Wildlife in whom the remaining area is vested  All designations	State - Crown land administered under the New South Wales National Parks and Wild life service

## Jamaica's response to the ICOMOS Queries

	boundary are privately owned			exclude an enclave containing the Ranger and Jabiluka mining lease area	
<b>Legal Protection</b>	Total – National Park and Forest Reserve	Total – National Park	Total	Total	Total – reserved under legislation
<b>Zoning</b>	Zoning for management is as follows: <ul style="list-style-type: none"> <li>• Community buffer</li> <li>• Recovery</li> <li>• Preservation( split between an inner core and a 500 m buffer)</li> </ul>		Defined by area status and management. Zones include: <ul style="list-style-type: none"> <li>• Intensive Use</li> <li>• Special Use</li> <li>• Natural Recuperation</li> <li>• Primitive (Scientific)</li> <li>• Primitive</li> </ul>		8 areas with 7 being adjoining protected areas forming a buffer zone of 86,2000 ha. Within each park is a protected wilderness (these total 554,822 ha)
<b>Integrity/ Disturbance</b>	<ol style="list-style-type: none"> <li>1. Some problems on perimeter especially southern side of ridge with forest incursion due to agriculture</li> <li>2. Informal settlements</li> </ol>	<ol style="list-style-type: none"> <li>1. Anthropogenic influences in valley of Santa Maria and Nibujón rivers and La Melba town.</li> <li>2. Cross paths for mining exploitation in</li> </ol>	<ol style="list-style-type: none"> <li>1. Subtropical lowland forest on eastern boundary converted to cattle pasture and agriculture</li> <li>2. Spontaneous and organised settlement of</li> </ol>		<ol style="list-style-type: none"> <li>1. Pest and alien species</li> <li>2. Fire</li> <li>3. Land degradation</li> </ol>

## Jamaica's response to the ICOMOS Queries

	<p>(squatting).</p> <p>3. Some areas affected by invasive plant species such as <i>Pittosporum undulatum</i>, <i>Polygonum chinense</i> and <i>Hedychium sp.</i>.</p> <p>4. Fire</p>	<p>the Piloto Tableland</p> <p>3. Located within Cuchillas del Toa Biosphere reserve</p>	<p>lower slopes of Andes causing vegetation loss and erosion</p>		
<b>Ecosystems</b>	<p><u>Montane</u>: many variants described namely:</p> <ul style="list-style-type: none"> <li>• Mor Ridge Forest</li> <li>• Mull Ridge Forest</li> <li>• Wet Slope Forest (Montane Mist Forest in Asprey &amp; Robbins Classification)</li> <li>• Gully Forest</li> <li>• Very Wet Ridge Forest</li> <li>• High Altitude Forest</li> <li>• Dry Slope Forest</li> <li>• Elfin Woodland</li> </ul> <p><u>Limestone</u>: 3 variants</p> <ul style="list-style-type: none"> <li>• Dry Limestone</li> </ul>	<ul style="list-style-type: none"> <li>• Low altitude rain forest</li> <li>• Submontane rainforest</li> <li>• Montane rainforest</li> <li>• Low cloud forest (sclerophyllus rainforest)</li> <li>• Xeromorphic sub-thorny shrub on serpentine</li> <li>• Pinewood of <i>Pinus cubensis</i></li> <li>• Mesophyllus vergreen forest</li> <li>• Semidiciduous forest</li> </ul>	<p>Paramo</p> <p>Cloud Forest</p> <p>Lowland subtropical rainforest</p>	<ul style="list-style-type: none"> <li>• Mangrove</li> <li>• Samphire</li> <li>• Lowland rain forest</li> <li>• Paperbark swamp</li> <li>• Seasonal flood plain</li> <li>• Sandstone rain forest</li> <li>• Eucalyptus dominated open forest</li> <li>• Woodland</li> </ul>	<ul style="list-style-type: none"> <li>• Subtropical</li> <li>• Dry</li> <li>• Warm-temperate</li> <li>• Cool –temperate</li> </ul>



## Jamaica's response to the ICOMOS Queries

	<ul style="list-style-type: none"> <li>Scrub Forest</li> <li>• Upper Wet Limestone Forest</li> <li>• Lower Wet Limestone Forest</li> <li><u>Forest over Serpentine</u></li> </ul>	<ul style="list-style-type: none"> <li>• River-rain forest</li> <li>• Microphyllus evergreen</li> <li>• Coastal xeromorphic shrub</li> <li>• Xeromorphic thorny shrub on serpentine</li> <li>• Mangrove forest</li> <li>• Knoll vegetation complexes</li> <li>• Sandy Rocky coasts</li> <li>• Coral reefs</li> <li>• Cays</li> </ul>			
<b>Noteworthy Flora</b>	<ul style="list-style-type: none"> <li>• <i>Pilea</i></li> <li>• <i>Lepanthes spp</i></li> <li>• <i>Psychotria danceri</i></li> <li>• <i>Chusquea abietifolia</i></li> <li>• <i>Schefflera stearnii</i></li> <li>• <i>Miconia pseudorigida</i></li> <li>• <i>Laplacea vilosa</i></li> <li>• <i>Wrecklea flavorvirens</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Pinguicucola lignicola</i></li> <li>• <i>Podocarpus spp</i></li> <li>• <i>Dracaena</i></li> <li>• <i>Buxus sp.</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Polylepis sp</i></li> <li>• <i>Buddleia incana</i></li> <li>• <i>Miconia salicifolia</i></li> <li>• <i>Myrtus communis</i></li> <li>• <i>Cordia alliodora</i></li> <li>• <i>Nectandra sp.</i></li> <li>• <i>Ocotea sp.</i></li> <li>• <i>Ochroma lagopus</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Eucalyptus sp</i></li> <li>• <i>Melaleuca sp</i></li> <li>• <i>Barringtonia sp</i></li> <li>• <i>Mimosa pigra</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Gymnoschoemus sphareocephalus</i></li> </ul>
<b>Noteworthy Fauna</b>	<ul style="list-style-type: none"> <li>• <i>Geocapromys brownii</i></li> <li>• <i>Peripatus sp.</i></li> <li>• <i>Neritina punctulata</i></li> <li>• <i>Anolis reconditus</i></li> <li>• <i>Sphaerodactylus sp.</i></li> <li>• <i>Nesopar nigerrimus</i></li> <li>• <i>Geotrygon versicolor</i></li> <li>• <i>Vireo osburni</i></li> <li>• <i>Ariteus flavescens</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Campephillus principalis bairdi</i></li> <li>• <i>Chondrohierax wilsoni</i></li> <li>• <i>Solenodon cubanus</i></li> <li>• <i>Aratinga euops</i></li> <li>• <i>Eleutherodactylus Iberia</i></li> <li>• <i>Polyimya picta</i></li> <li>• <i>Centruroides</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Tremarctos ornatus</i></li> <li>• <i>Tapir pinchaque</i></li> <li>• <i>Tapir terrestris</i></li> <li>• <i>Panthera onca</i></li> <li>• <i>Odocoileus virginianus</i></li> <li>• <i>Mazama rufina</i></li> <li>• <i>Rupicola peruviana ecuatorialis</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Dugong dugon</i></li> <li>• <i>Macroderma giga</i></li> <li>• <i>Rhinonictoris aurantia</i></li> <li>• <i>Xeromys miodes</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Ornithorhynchus anatinus</i></li> <li>• <i>Tachyglossus aculeatus aculeatus</i></li> <li>• <i>Macropus giganteus</i></li> <li>• <i>Phasocarctos cinereus</i></li> <li>• <i>Vombatus ursinus</i></li> <li>• <i>Petaurus vloans</i></li> <li>• <i>Hoplocephalus bungaroides</i></li> </ul>

## Jamaica's response to the ICOMOS Queries

	<ul style="list-style-type: none"> <li>• <i>Pterourus homerus</i></li> </ul>	<ul style="list-style-type: none"> <li><i>anchorellus</i></li> <li>• <i>Rhopalrus junceus</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Vultur gryphus</i></li> </ul>		
<b>Species Diversity</b>	<ul style="list-style-type: none"> <li>• 1162 species of flowering plants</li> <li>• 13 gymnosperms</li> <li>• 260 species of ferns</li> <li>• 101 lower plants (bryophytes, liverworts, mosses)</li> <li>• 53 breeding species of birds</li> <li>• 25 endemic species of birds</li> <li>• 2 species summer migrant birds</li> <li>• 40 species winter migrant birds</li> <li>• 10 species of frogs –all island endemics and 5 endemic to the property</li> </ul>	<ul style="list-style-type: none"> <li>• 905 flowering plants</li> </ul>		<ul style="list-style-type: none"> <li>• 1600 plant species</li> </ul>	<ul style="list-style-type: none"> <li>• 1500 flowering plant species</li> <li>• 346 bryophytes</li> </ul>
<b>Endemism</b>	<ul style="list-style-type: none"> <li>• 275 vascular plant species and 14 varieties of flowering plants in the park are endemic to</li> </ul>	<ul style="list-style-type: none"> <li>• 905 endemic flora species of Cuba with 343 endemic to the region</li> </ul>			<ul style="list-style-type: none"> <li>• 114 taxa found exclusively or predominantly in the region</li> <li>• 127 nationally rare and threatened plants</li> </ul>

**Jamaica's response to the ICOMOS Queries**

	<p>Jamaica</p> <ul style="list-style-type: none"><li>• 21 species of endemic ferns found in the Blue Mountains</li><li>• 11 of Jamaica's 21 endemic frogs found in BJCMNP and 5 of this 11 found only in the park and nowhere else in the island</li></ul>				
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## Jamaica's response to ICOMOS' Queries

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### World Wildlife Fund Classification and Global 200 List

The Blue and John Crow Mountains is classified under Jamaican Moist Forest within the Tropical and Subtropical Moist Broadleaf Forest biome in the Neotropical Realm using the World Wildlife Fund ecoregion classification. It should be noted that the classification does not separate out montane forests occurring between 900 – 1500 m asl which would make sections the Blue and John Crow Mountains distinct. This distinction is found in Tanner's (1976) description of the forest types which describe type localities for Mor Ridge and Very Wet Ridge Forests. Alejandro de Humboldt falls within the Cuban Moist Forest biome. Both forests fall within the Greater Antillean Moist Forest Global Ecoregion where the Blue and John Crow Mountains are singled out for the number of endemic vascular plants. The presence of Arrow-headed Warbler (*Dendroica pharetra*) and Jamaican Woodpecker (*Melanerpes radiolatus*) which are endemic to island and its forest is also noted ([http://www.panda.org/about\\_wwf/where\\_we\\_work/ecoregions/greaterantillean\\_moist\\_forests.cfm](http://www.panda.org/about_wwf/where_we_work/ecoregions/greaterantillean_moist_forests.cfm))

The Greater Blue Mountains, Australia; Kinabalu Park, Malaysia and Tikal National Park, Guatemala are not represented on the Global 200 list. The Central Suriname Forest Reserve, Suriname and the Sangay National Park, Ecuador are however included on this list. The Global 200 list is an attempt to identify a set of ecoregions whose conservation would achieve the goal of saving a broad diversity of the Earth's ecosystems. These ecoregions include those with exceptional levels of biodiversity, such as high species richness or endemism, or those with unusual ecological or evolutionary phenomena. The inclusion of The Blue and John Crow Mountains by special mention within the Greater Antillean Moist Forest Ecoregion is worthy of nomination as it has been recognised as an important area to be conserved, to lose the assemblages and species would represent a significant loss of global biodiversity.

The relative size of Jamaica in general and the Blue and John Crow Mountains in particular against the backdrop of its geological history and formations, the resulting vegetation formations, ecosystems and species diversity of flora and fauna is outstanding against such places as Australia, Ecuador, Cuba and Malaysia.

It is believed that a western population exists in the forested areas of the Cockpit Country, but as early as 1949, C.B Lewis (as referenced in Emmel and Garraway, 1990) documented the fact that the Cockpit specimen seems to be slightly smaller than the eastern variety and to be particularly darker on the wing than those he had seen in the eastern section of the island which includes the park area.

## Jamaica's response to ICOMOS' Queries

### CULTURAL

Marronage, from the Spanish word "Cimarron", is a phenomenon that began in the Caribbean following the European colonization there after 1492. Marronage was firstly the act of resistance of the indigenous Aboriginal people to enslavement. Over the next three and half centuries hundreds more such maroon communities were to emerge as slaves took their chances and ran away from mines and plantations of European colonizers in a bid for freedom and independence. The societies they created ranged in size from small bands to powerful kingdoms with thousands of members and spanned more than 1,000 square miles (Price 1979).

Three types of Marronage have been identified Urban, Petit, and Grande. Urban Marronage consisted of enslaved people fleeing to a densely populated urban area and passing oneself off as a free person. Often the Maroon would become attached to a master tradesman or artisan or hire themselves out as a job worker.

Petit Marronage or that type of flight was temporary in nature and motivated by the persons desire to see a relative or lover on a separate estate, or the need of the enslaved population to bury their dead.

Grande Marronage, on the other hand, was of a different order and magnitude. The individuals who fled did so with the conscious desire to achieve their freedom and had no intention of returning to the enslavement of the estates. As a result they banded together to create independent communities of their own in the wilderness.

In Jamaica, typical Grande Marronage communities came to be composed largely of Africans who were literally just off the ships, persons destined to take up agricultural labour on the plantation, and generally the least acculturated of the enslaved people. The Maroons of the Blue and John Crow Mountains are the classical representation and prototype of Grande Marronage.

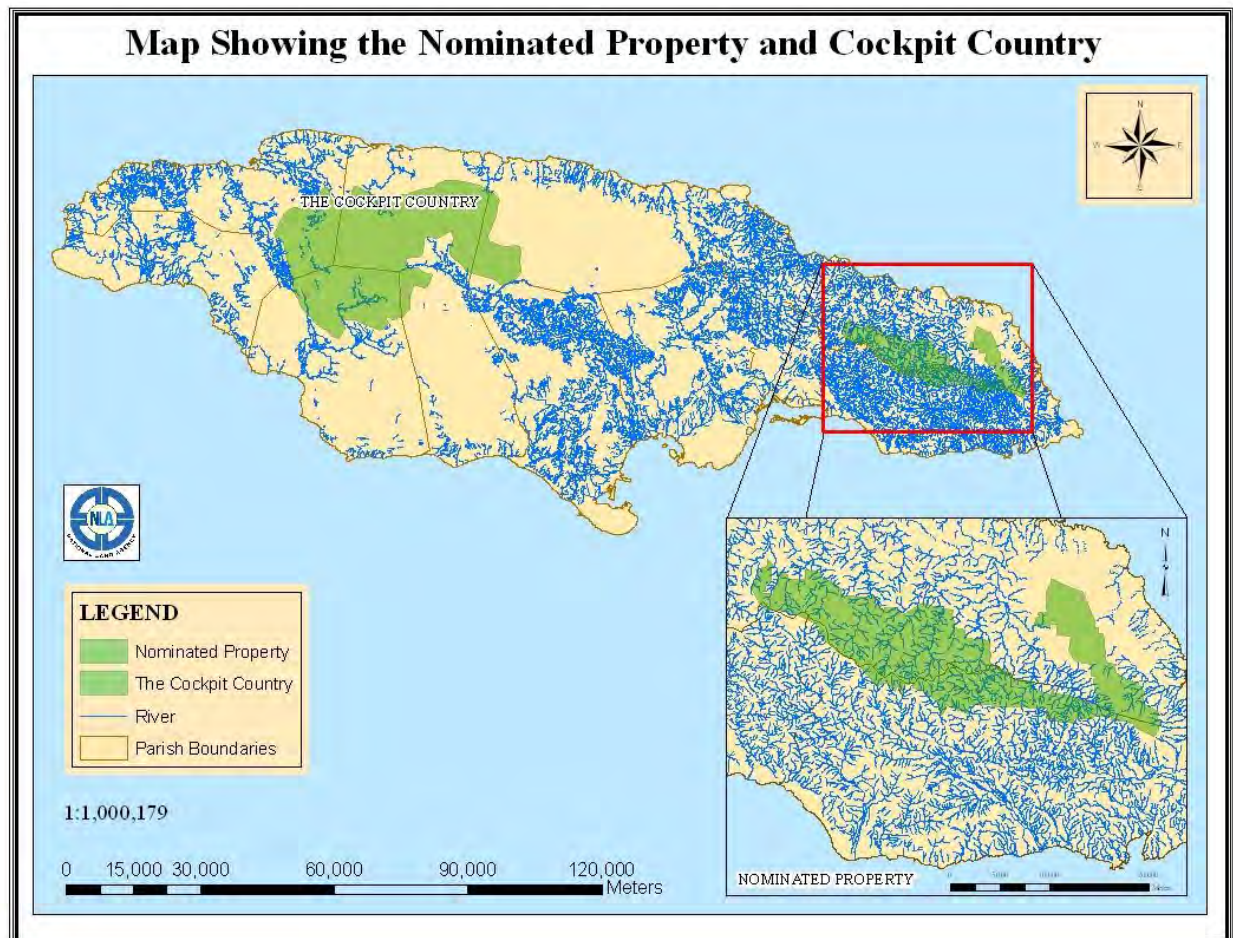
### *Comparison to Cockpit Country (Jamaica)*

There are two distinct Maroon groups in Jamaica, the 'Windward' Maroons of the Blue and John Crow Mountains, and the 'Leeward' Maroons of The Cockpit Country who used the natural environment as their defensive mechanism. By comparison, the site of the Windward Maroons containing the Nanny Town Cultural Heritage Route is more recognized than the Maroon sites of the Cockpit Country. The latter does not demonstrate the complex network of trails and routes that were used by Windward Maroons to transport enslaved Africans to a place of freedom in the enclaves of the Mountains.

## Jamaica's response to ICOMOS' Queries

Differences in the physical environment have also impacted culinary choices and practices. The Windward Maroons, through access to rivers, traditionally relied on fishing to fuel their diet. In the case of the Leewards, farming was more practical and so their food ways were somewhat different and less reliant on fresh fish and other water-based foods. The very popular busu (fresh water mollusk), janga (cray fish) and mullet dishes are distinctly associated with the Windward Maroons and played a fundamental role in their daily sustenance in the isolated and inaccessible communities. Both sets of communities engaged in hunting but it is the Windward Maroons who are noted for jerk, a method of preparing and preserving meat which historians advise was likely adapted from the remnants of the Taino population in the east.

Upon close observation of this difference in surface water, this shows a striking correlation between Maroon settlement patterns in the areas. The Blue and John Crow Mountains have a higher density of Maroon settlements than the Cockpit Country. There are over twenty Windward Maroons sites compared to only three Leeward Maroon sites.



## **Jamaica's response to ICOMOS' Queries**

Political organisation was also constituted somewhat differently between the Windward and Leeward Maroon communities. While both sets of communities were governed by local councils, in the case of the Leeward Maroons and Accompong in particular the leader of the council, or Colonel, was selected through direct election. Windward Maroon Councils were constituted through selection by acclamation with the elders having a strong influence over the process. It is also worthy of note that while in both sets of communities, women play a role in governance, none achieved the pre-eminence of Nanny, who was a leader of the Windward Maroons in her own right and in who is today the only female in the pantheon of Jamaican National Heroes.

The Moore Town Maroons commemorate their spiritual leader and warrior, Queen Nanny with a festival every October. However, the Maroons of the Cockpit Country commemorate their celebrated Maroon leader, Cudjoe every January. Their celebrations are attended by thousands of visitors stretching well beyond the borders of Jamaica. This annual event centers on old Maroon songs, dances and ceremonies passed down from the ancestors.

The Windward Maroons along with key government agencies manage the conservation and preservation of the cultural and natural resources of the Blue and John Crow Mountains. This is a striking departure in the case of the Cockpit Country. In light of the profound issues associated with the Cockpit Country such as, an appropriate boundary accepted by all the stake holders, mining rights, no legal protection for the cultural heritage, the maroons plays no part in the decision making process of the site.

### ***Comparison to other Maroon sites within the Region***

Although many withstood military assaults for years, most maroon communities were eventually destroyed by colonial troops, who usually outnumbered them and were much better armed. After the abolition of slavery, many maroon groups were assimilated into the larger societies that surrounded them. Of the hundreds of such communities once spread across the hemisphere, only a few still exist. Present-day Maroon peoples include the Saramaka, Ndjuka, Paramaka, Matawai and Kwinti of Suriname; the Aluku of French Guiana; the Palenqueros of Colombia; the Windward and Leeward Maroons of Jamaica; the Garífuna of the Atlantic coast of Central America; the Maroons of the Costa Chica region in Mexico; and the Seminole Maroons of Texas, Oklahoma, Mexico and the Bahamas (Ibid Price, 1979:1)

The Maroons of the Costa Chica area in the Mexican states of Guerrero and Oaxaca are descendants of Africans who began escaping in the late 16th century from Spanish cattle ranches and estates along the Pacific coast. When the colonial government launched a military campaign against them, they retreated into more inaccessible The Seminole Maroons, now divided among Oklahoma, Texas, the Bahamas and the northern Mexican state of Coahuila, originated in Spanish Florida, where groups of escaped slaves from South Carolina and Georgia

## Jamaica's response to ICOMOS' Queries

began seeking refuge in the early 18th century. Though they developed a close alliance with those Native American groups who came to be known as Seminole Indians, these maroons maintained a separate identity. After the end of the Seminole War in 1842, they were transported along with their Indian allies to Oklahoma. To avoid raids by slave-catchers, a portion of the Seminole Maroons moved to Mexico, where their descendants, known as Negroes Mascogos, remain today. During the mid-19th century, some of these Mexican Seminoles moved to Texas, where they joined the U.S. Cavalry as part of a special division known as the Seminole Negro Indian Scouts. Their descendants live today in Brackettville and Del Rio, Texas.

### Comparison with specific Maroon societies

#### Suriname

In Suriname, which the Dutch took over in 1667, runaway slaves revolted and started to build their own villages from the end of the 17th century. As most of the plantations existed in the eastern part of the country, near the Commewijne River and Marowijne River, the *Marronage* (i.e., running away) took place along the river borders and sometimes across the borders of French Guiana. By 1740 the Maroons had formed clans and felt strong enough to challenge the Dutch colonists, forcing them to sign peace treaties. On October 10, 1760, the Ndyuka signed such a treaty forged by Adváko Benti Basiton of Boston, a former Jamaican slave who had learned to read and write and knew about the Jamaican treaty. The treaty is still important, as it defines the territorial rights of the Maroons in the gold-rich inlands of Suriname.

Like most Maroon societies, the Windward Maroon and those in Surinam developed ways of regulating social and economic life. These Maroons succeeded in creating a political system that effectively govern the rights and obligation toward neighbors and kin, mechanisms for dispute settlement and rules of leadership, succession, ownership, marriage and inheritance. Political organization was frequently shaped by military considerations. Strong and able leadership was often determined by religious standing. Among the early maroon leaders who achieved fame for their exceptional qualities were Nanny of Jamaica and Boni of Suriname.

In later years, the treaties many groups made with colonial governments led to a gradual erosion of autonomy. Nonetheless, some Maroon societies maintain distinct political systems stemming from the early days. Surinamese and French Guianese Maroons, for instance, are headed by paramount chiefs known as *Gaama* or *Gaunman*, who are installed with great ceremony and hold office for life. The office of paramount chief is vested with a great deal of authority, and its occupant is treated with great respect. Assisting these tribal chiefs are a large number of village chiefs (*Kabiteni*), under-officers (*Basia*) and councils in which elders play a leading role.

Public issues are discussed and debated, and cases tried and judged, in the context of formal meetings known as *kuutu*. The more serious *kuutu* are presided over by chiefs and prominent elders. *Kuutu* oratory is always interactive and highly stylized, performed as an antiphonal



## Jamaica's response to ICOMOS' Queries

exchange between a series of speakers and a formal interlocutor known as *pikiman* (literally, "the man who answers"). Governed by a complex etiquette, and characterized by indirection, digression and metaphor, oratory is easily distinguishable from ordinary speech.

**Kuutu** may be spontaneous meetings of four or five family members who come together to resolve a domestic problem; or they may be carefully planned gatherings in which the paramount chief and all the village chiefs assemble to discuss issues affecting the entire society. Well adapted to highly fluid social circumstances, such as those in which the early ancestors lived, the *kuutu* tradition continues to serve Surinamese Maroons admirably today.

Jamaican Maroons also maintain their own special system of local government. The Windward Maroon community of Moore Town, for example, is led by an elected chief bearing the title *Colonel*, who works together with under-officers and an appointed council known as the *Kamati* (Committee). Disputes between individuals over sections of communally held Maroon lands, and a host of other relatively minor problems, are aired and resolved in the context of committee meetings. Issues that concern the entire community, on the other hand, require larger gatherings called "Township Meetings," to which the general public is summoned by blowing the *abeng*, a West African signaling device made from a cow's horn.

In most contemporary Maroon communities, oral historians remain an important source of knowledge about the past. In Suriname, Jamaica and elsewhere, narratives about "first-time"--the early days of flight and struggle--are told with great emotion and circumspection, and only in certain contexts. While a portion of this cherished historical knowledge may be shared with outsiders, much of it is held sacred and kept secret.

### Brazil

One of the best-known *quilombo*s (maroon settlements) in Brazil was Palmares (the Palm Nation) which was founded in the early 17th century. At its height, it had a population of over 30,000 free people and was ruled by king Zumbi. Palmares maintained its independent existence for almost a hundred years until it was conquered by the Portuguese in 1694. This was not the case with the Windward Maroons, they continued to exist unconquered to present day.

## Comparison to World Heritage Sites

### Cuba

#### *Viñales Valley*

The Viñales Valley has been listed as a UNESCO World Heritage Site since November 1999, for the outstanding karst landscape and traditional agriculture as well as vernacular architecture, crafts and music. Its population of some 8000 people is engaged mainly in growing tobacco, a

## **Jamaica's response to ICOMOS' Queries**

crop which gives the best yields. Cubans identify themselves strongly with Viñales Valley because of the beauty of the site and its historical and cultural importance.

The valley is home to an original culture, a synthesis of contributions from indigenous peoples, Spanish conquerors and black slaves. The cimarrones, or escaped slave (Maroons), often found refuge in the caves of the Valley. Heritage sites found in Viñales include the Museo Municipal, Casa de Caridad Botanical Gardens, Museo Paleontológico, Palenque (a Maroon village) and the nearby caves (Cueva del Indio, Cueva de José Miguel, Cueva de Santo Tomás) in Valle de Viñales National Park, which were refuges for runaway slaves.

The John Crow Mountains, like Vinales Valley is a spectacular karst topography that enslaved Africans sought refuge. Most of the area is not conducive for agriculture but is known for its secret enclaves and caves. Blue Mountain comprised mainly of igneous and metamorphic rocks carved by the countless streams and rivers that traverses the area and along with the dense natural forests are the chief food sources for the Windward Maroons.

### ***Mauritius***

#### ***Le Morne Cultural Landscape***

Le Morne Cultural Landscape, a rugged mountain that juts into the Indian Ocean in the southwest of Mauritius was used as a shelter by runaway slaves, maroons, through the 18th and early years of the 19th centuries. It was inscribed on the world heritage list in 2008 under cultural criteria (iii) and (vi).

Criterion (iii): The Mountain is an exceptional testimony to maroonage or resistance to slavery in terms of it being used as a fortress for the shelter of escaped slaves, with evidence to support that use.

Criterion (vi): The dramatic form of the mountain, the heroic nature of the resistance it sheltered, and the longevity of the oral traditions associated with the maroons, has made Le Morne a symbol of slaves' fight for freedom, their suffering, and their sacrifice, all of which have relevance beyond its geographical location, to the countries from which the slaves came – in particular the African mainland, Madagascar and India and South-east Asia.

Like Le Morne, the Blue and John Crow Mountains acted as a fortress that sheltered runaway enslaved Africans later became known as the Windward Maroons. The isolation provided by the mountains and the diverse African cultural traditions fostered the development of a distinct society and cultural heritage. The archaeological vestiges and intangible heritage testimony to the authenticity of the site and the strong associations between the maroons and the mountains are well known and valued far beyond the area.

A fundamental difference between Le Morne and the Blue and John Crow mountains Maroons is evident in the regions where enslaved people originated. Those who found themselves in Le

## **Jamaica's response to ICOMOS' Queries**

Morne came from the African mainland, Madagascar, India, and South-east Asia. On the contrary, those who were taken to Jamaica derived mainly from West Africa. This departure undoubtedly accounts for the divergence in the creolized cultures that are manifested in language, food, music and dance. Although there are some outside influences, the Windward Maroon culture has been transmitted through generations to the present and exemplifies the continuity of the Maroon cultural heritage. After emancipation both groups left the enclave of the mountains to settle at the foothill where soils are more conducive for agriculture and more accessible. This resulted in Le Morne Maroons becoming almost assimilated in the general population but managed to retain fundamental tradition. Despite relocating to lower elevations the windward maroon remained isolated which may have accounted for their continuity.

### **Conclusion**

#### **Culture**

World Heritage properties with association to Maroon sites include the Le Morne Cultural Landscape in Mauritius inscribed in 2008 under cultural criteria (iii) (vi). This property differs from the proposed nomination as it omits mention of trails and routes. Although several others are historically associated with Maroons, they are inscribed for their natural values. These sites includes Morne Trois Pitons National Park, Dominica, (1997, (viii), (x)); Río Plátano Biosphere Reserve, Honduras (1982, (vii), (viii), (ix), (x), Everglades National Park, United States of America (1979, (viii), (ix), (x), and to a much lesser extent, Alejandro de Humboldt National Park, Cuba (2001, (ix), (x) and Pitons, cirques and remparts of Reunion Island, France (2010, (vii), (x).

Most countries in the Americas had an African presence and in each resistance plans were devised and actual uprisings took place forcing the plantocracy to enter into treaty with the Maroons. Haiti, Dominicans Republic, Brazil, Panama, Venezuela, Ecuador, Mexico, Colombia among others had treaties from as early as the 16th century. Many Caribbean Maroon communities were very short-lived on account of defeat by the colonial powers, and had relatively little or no impact on the development of the colonies in which they were located. However, several communities in Jamaica, Suriname, Cuba and Brazil became large and relatively permanent powerful states encompassing thousands of members and surviving for generations even centuries (Price, 1979:1).

However, the Nanny Town Treaty of 1739 occurring 44 years before the United States won its War of Independence with England in 1783, and 65 years before the 1804 Treaty with France created the independent nation of Haiti, stands apart from all other Maroon resistance, on account of its association with the female leader, Nanny Queen of the Maroons.

## Jamaica's response to ICOMOS' Queries

The Blue and John Crow Mountains property stands out universally from other properties in its national and international significance, and helps to fill thematic gaps on the World Heritage List, as well as the imbalance of sites with associative values as follows:

- 1) There are few properties that have been nominated on the World Heritage List, or are on this Tentative List in the mixed category, and only two mixed sites are in the Latin American and Caribbean (LAC) region and none in the Caribbean sub region;
- 2) It would help to re-dress the general imbalance of sites from the Caribbean subregion;
- 3) The site falls in the ambit of Small Island Developing States (SIDS), also underrepresented on the World Heritage List;
- 4) It falls inside the thematic group of Sites of Memory directly related to the transatlantic slave trade and plantation enslavement, of significance to the wider international community as a pilgrimage and sacred site to the resistance movement for freedom;
- 5) There is no other Maroon example of early struggles of enslaved people resulting in the creation of a parallel State alongside the English colonial state, where this dual sovereignty has survived in continuous existence today;
- 6) The property falls within natural heritage of seventy-eight most irreplaceable protected areas (sites or clusters) of biodiversity for the conservation of the world's amphibian, bird and mammal species;
- 7) Its geological origin verifies a 100 million years history of the development of the Caribbean Tectonic Plate, where the oldest rocks are found inside the Blue Mountain Inlier in the Blue Mountain Block, critical to understanding the evolution of the Caribbean region;
- 8) The property contains the best record of this part of geological time within the tropical Americas, where the first location in the Greater Antilles containing abundant fossils of rudist bivalves (an extinct type of tropical clam), including the bizarre *Barrettia monilifera* fossils were found and recognised as the Type Locality;
- 9) Limestones in the property contain the best record of this part of geological time within the tropical Americas.

### The cultural heritage component fills gaps as:

- a) Archaeological sites in the form of settlements, secret trails, burials, and sacred sites;

## Jamaica's response to ICOMOS' Queries

- b) Defensive systems using the natural environment;
- c) Cultural routes, an evolving special category, and would be its first proposed nomination from the Caribbean sub region that would also add a new dimension to this category with a definition such as 'a route comprising defensive mountain trails' (ICOMOS 2004, 80).
- d) Caribbean cultures related to Aboriginal and enslaved peoples, colonisation, Colonial Period, also development of independent states until World War I as outlined in (ICOMOS 2004, 75).
- e) Intangible associated value with:
  - Gender and heritage through the universal value of the English war in the first quarter of the eighteenth century against the Maroons who were led by a woman, Nanny, Queen of the Maroons that resulted in Maroon sovereignty on June 23, 1739;
  - The 2003 inscription of the culture of this Maroon community proclaimed as a UNESCO Masterpiece of the Oral and Intangible Heritage.
  - Sustainable community management of its natural environment as an interconnected part of Maroon lifestyle aiding the retention of the endemism of the property as significant outstanding universal value.

### ***Natural comparison with other sites of Biodiversity in Latin America and the Caribbean and globally***

World Wildlife Fund Classification and Global 200 List attempts to identify a set of eco regions whose conservation would achieve the goal of saving a broad diversity of the Earth's ecosystems. These eco regions include those with exceptional levels of biodiversity, such as high species richness or endemism, or those with unusual ecological or evolutionary phenomena. The inclusion of the Blue and John Crow Mountains by special mention within the Greater Antillean Moist Forest Eco region as worthy of nomination because it is recognized as an important area to be conserved. If this diversity of assemblages and species were to be compromised, it would represent a significant loss of global biodiversity.

- The Blue and John Crow Mountains property is classified under Jamaican Moist Forest within the Tropical and Subtropical Moist Broadleaf Forest biome in the Neotropical Realm using the World Wildlife Fund ecoregion classification.

## Jamaica's response to ICOMOS' Queries

- The Blue and John Crow Mountains are singled out for the number of endemic vascular plants over the Alejandro de Humboldt falls within the Cuban Moist Forest biome recognizing that both forests fall within the Greater Antillean Moist Forest Global Ecoregion. The Central Suriname Forest Reserve, Suriname and the Sangay National Park, Ecuador are included on this list, also the Greater Blue Mountains, Australia; Kinabalu Park, Malaysia and Tikal National Park, Guatemala.

Jamaica has twenty-one native species of frogs, which are all endemic to the island. Eleven of these reside in the nominated property, of which five (*Eleutherodactylus andrewsi*, *E. orcutti*, *E. pentasyringos*, *E. alticola* and *E. nubicola*) are to be found nowhere else in Jamaica. One species lives only in bromeliad plants. *E. orcutti* lives mainly in rivers. Elevation appears to play a significant role in the distribution of frogs in the nominated property, and diversity peaks in the Blue Mountain range.

The IUCN in analysing the patterns of endemism for the number and percentage of endemic amphibians by country presents some important patterns. It is noteworthy that the percentage of endemism shows six island countries each having 100% endemism (none of these with very diverse amphibian faunas). On this list of the twenty countries with the highest percentage of endemism, Jamaica ranks No.1.

<b>RANK</b>	<b>COUNTRY</b>	<b>% ENDEMICS</b>
1)	Jamaica	100.0
2)	Seychelles	100.0
3)	Sao Tome and Principe	100.0
4)	New Zealand	100.0
5)	Fiji	100.0
6)	Palau	100.0
7)	Madagascar	99.6
8)	Cuba	96.7
9)	Australia	93.7
10)	Sri Lanka	84.8
11)	Japan	80.4
12)	Philippines	79.0
13)	Puerto Rico	78.9
14)	Chile	70.7
15)	Papua New Guinea	70.3

## Jamaica's response to ICOMOS' Queries

16)	United States of America	69.9
17)	Mexico	67.6
18)	Brazil	66.9
19)	India	66.3
20)	China	65.2
The numbers given here for China include the province of Hong Kong and Macau, but do not include the province of Taiwan which is listed separately due to its geographic separation from the mainland.		

(Source: "Amphibians on the IUCN Red List" in the *The IUCN Red List of Threatened Species: Geographic Patterns, Diversity*.

<http://www.iucnredlist.org/initiatives/amphibians/analysis/geographic-patterns>)

Selected countries from the "Terrestrial Biodiversity and the World Heritage List: Identifying broad gaps and potential candidate sites for inclusion in the natural World Heritage network". The list is based on the 100 most irreplaceable protected areas for all species (tick in top 100 PAs for all species) and the 100 most irreplaceable protected areas for the subset of threatened species (tick in top 100 PAs for threatened species). Many of the selected areas are on both top 100 lists and, where any two or more of the selected protected areas were contiguous or within 50 km of each other, clusters were formed to include all the affected sites. The possible options for World Heritage nomination in the last column are indicative only.

### The Natural Heritage component fills gaps as:

- 1) An outstanding biodiversity site with merit for potentially World Heritage listing listed on the IUCN- UNEP-WCMC report as helping to answer the needs in the global thematic study focusing on the terrestrial realm that identified broad gaps (Bertzky, et. al., 2013, 43);
- 2) Concentration of endemism where on the highest elevations of the BJCM, over 50% of all plant species are endemic;
- 3) Enhancement of the areas with outstanding biodiversity values in a significant geomorphological environment;
  - a. The geology with its rapid uplift of the BJCM has created a spectacular and impenetrable landscape.

## Jamaica's response to ICOMOS' Queries

- b. This has resulted in the preservation of extensive tracts of primary forest.
  - c. Its geological history and formations, have resulted in vegetation formations, ecosystems and species diversity of flora and fauna is outstanding against such places as Australia, Ecuador, Cuba and Malaysia;
  - d. The result is an important centre for plant biological diversity and endemism in the Caribbean where 50% endemism resides amongst the flowering plants of the upper montane forest (above 900 – 1000m) and between 30 – 40% of these are confined to the BJCM.
  - e. There are approximately 106 of the 324 taxa of trees listed on the IUCN Red List as threatened or near threatened in the BJCM ranges;
  - f. A number of endemic plant species of global significance such as the *Wercklea flavovirens*, are recorded as very rare or rare in the database formerly maintained at the Nature Conservancy's Conservation Data Center, such as this plant rediscovered in the forest type during a rapid ecological assessment of the park in 1992.
- 4) International significance as a centre for invertebrate diversity, for example,
- a. Forty-eight species of fireflies have been given taxonomic recognition in Jamaica, with forty-five species found nowhere else in the world holding a 94% rate of endemism;
  - b. Among the vertebrates, is an endemic of great significance, *Pterourus homerus* (previously *Papilio homerus*);
  - c. Several aquatic invertebrate species including the *Neritidae punctulata* locally known as "Bussu" is a freshwater gastropod of the family *Neritidae* only found in two of the rivers originating in the nominated property and nowhere else in the world. Maroons consider *Bussu* a delicacy. For the avifauna, the BJCM is the largest intact wintering habitat blocks for migratory birds in the insular Caribbean. One endemic species in the BJCM is Jamaica's national bird, the streamer-tail hummingbird locally called the 'Doctor Bird'.
- 5) Intangible associations and linkages with the natural heritage for example, the Giant Swallowtail Butterfly, and one of the two verified endemic larval food plants grow near the 'Corn Puss Gap' and the 'Cunha Cunha Pass' trails of the Maroons. This butterfly was first described in 1793 (Emmel and Garraway, 1990).



## Jamaica's response to ICOMOS' Queries

### Question 2: Copy of legal documents establishing the nominated property as Protected National Heritage

#### Declaration/designation process under the Jamaica National Heritage Trust Act (1985)

The Jamaica National Heritage Trust in keeping with its mandate to preserve, protect Jamaica's national heritage is empowered by Sections 12 and 13 of the Act to declare any structure a national monument or designate any place as national protected heritage on the basis that the preservation of object/subject of declaration or designation is a matter of public interest by reason of its historic, architectural, traditional, artistic, aesthetic, scientific, or archaeological interest, mutatis mutandis applies to an act of designation.

#### Procedure for Declaration/Designation of National Monument

##### **Step 1**

Request is received which should include name, address, owner/occupier of site, location of site, volume and folio number if site is registered, photograph of site, description and reason for wanting the property listed.

##### **Step 2**

- The JNHT will verify information received.
- Conduct its own research and prepare recommendation for approval to the Board of Trustees
- If the Board of Trustees approves, draft declaration/designation is prepared and served with notice of intention to declare/designate site/place on owner or occupier of site, local authority in which the site, monument or place is located.
- The said draft and notice is then published once in a daily newspaper in Kingston stating that the declaration is proposed to be made and the effect of the declaration and specifying the time (not being less than (twenty-eight days from the first publication of the notice in such a newspaper) within which and the manner in which objections to the proposed declaration can be made;
- A copy of the draft of the proposed declaration to be fixed on some conspicuous part of the national monument.

##### **Step 3**

If there is an objection, the Trust after considering any representation and objections duly made to the declaration by the owner or occupier of the monument may make the declaration either in terms of the draft or with modifications thereof.

After the declaration has been made, the Trust shall publish in the Gazette and in a daily newspaper published in Kingston a notice stating that the declaration has been made and the effect thereof, and shall serve a like notice and a copy of the declaration on every person on whom a copy of the draft declaration was required to be served and on any other person

## Jamaica's response to ICOMOS' Queries

appearing to the Trust to have an interest in the national monument who duly made an objection which has not been withdrawn, and the declaration shall come into operation on the date on which the notice is published as aforesaid in the Gazette.

### A. Signed designation

**DESIGNATION**

**JAMAICA NATIONAL HERITAGE TRUST ACT**

**DESIGNATION OF A PROTECTED NATIONAL HERITAGE**  
**BLUE & JOHN CROW MOUNTAINS CULTURAL HERITAGE SITE**

**WHEREAS Section 13 (1)** of the Jamaica National Heritage Trust Act confers on the Jamaica National Heritage Trust (hereinafter referred to as 'the Trust'), the power to designate any place a Protected National Heritage:

**AND WHEREAS** the Trust is of the opinion that the preservation of **Blue & John Crow Mountains Cultural Heritage Site**, which is described in the Schedule hereto, is a matter of public interest by reason of its historic, archaeological and scientific significance;

**NOW THEREFORE**, the Trust, in exercise of the power conferred as aforesaid hereby designates, **Blue & John Crow Mountains Cultural Heritage Site**, more particularly described in the Schedule hereto, to be a Protected National Heritage.

**Effects of Designation**

In accordance with the Act, the designation will have the following effects:-

- (1) Any owner of land, buildings or property within the protected national heritage will be entitled to:
  - (a) appropriate compensation for any financial loss resulting from the designation;
  - (b) have treated as a deductible expense for income tax purposes, any amount spent by him on work certified by the Trust as being necessary for the preservation of such land, buildings, or property within the protected national heritage.
- (2) The owner, or where appropriate, the person in possession of land, buildings, or other property within the protected national heritage will be prohibited from carrying out any demolition, removal or alteration thereon without the prior approval of the Trust.
- (3) The Trust may, in its own discretion, maintain or assist in the maintenance of land, buildings, or other property within the protected national heritage so as to prevent its falling into a state of disrepair.
- (4) Authorized persons may enter any land or building within the protected national heritage for the purpose of investigation, inspection or maintenance.
- (5) Criminal procedures may be instituted in respect of the doing of any prohibited act pertaining to the protected national heritage.

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## Jamaica's response to ICOMOS' Queries

-2-

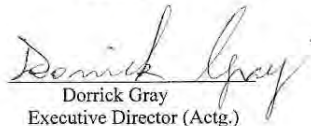
### SCHEDULE

All that parcel of land known as the Blue and John Crow Mountains National Park and the Rio Grande Valley and located in parts of the parishes of St. Andrew, St. Thomas, Portland and St. Mary; the boundary begins at Warminster District on the Parish border of Portland and St. Mary where it travels northward along the Warminster to Belmont main road, then turns northwest through Robertsons Run, then turns south to Dumfries. At Dumfries it assumes a southwest trajectory passing north of Hermitage and Leith Hall where it continues south, then southwest along Brandon Hill to Mount Prospect main road. At Mount Prospect, it veers off the road alignment passing between Mount Crissy and Mount Airy, then proceeding in a generally southern direction where it passes through Dicks Pond, Woodford and Craigton before turning north through Redlight and then circumventing New Castle, traversing lands east of Settlement north of Sugar Loaf Trail and west of St. Peters, looping south of Silver Hill Gap and continuing on an eastward trajectory. It then passes south of Chestervale, circumventing Strawberry Hill to the north before passing Abbey Green, Radnor, Eccleston, and Arntully to the northeast where it traverses Newington, Newsfield, and Shirley Castle and continues on a southeast trajectory along the Morant River (Blue Mountain Valley) to Hillside. The boundary then arches the districts of Cave Bottom and Craighead to the north and proceeds to House Hill, passing north of Mount Donald and traversing Cedar Grove where it swings north to Big Level just north of Johnson Mountain. At this point it travels in a generally north-westerly direction through Rose Garden Mountain to Cambridge Backland then west to Windsor and north along the Rio Grande west bank to Fellowship where it travels in a westerly direction along Cooper's Hill to Durham main road. Just south of Burton Hall the boundary continues in a generally westerly direction to Trafalgar Plantation where it diverts northwards to the Cottage and Berwick Spring then turns south through Leighfield and passes east of Spring Hill, Wakefield and Cedar Valley before swinging north again through Green Hill, Birnamwood Retreat, Dry River and back to Warminster.

Dated this 31<sup>st</sup> day of December 2013



Ainsley Henriques  
Chairman



Dorrick Gray  
Executive Director (Actg.)

# Jamaica's response to ICOMOS' Queries

## B. Jamaica Gazette (2 pgs)

JAN. 9, 2014]	THE JAMAICA GAZETTE	9
<p>Heritage Trust (hereinafter referred to as 'the Trust'), the power to designate any place a Protected National Heritage:</p>		
<p>AND WHEREAS the Trust is of the opinion that the preservation of Blue and John Crow Mountains Cultural Heritage Site, which is described in the Schedule hereto, is a matter of public interest by reason of its historic, archaeological and scientific significance;</p>		
<p>NOW THEREFORE, the Trust, in exercise of the power conferred as aforesaid hereby designates, Blue and John Crow Mountains Cultural Heritage Site, more particularly described in the Schedule hereto, to be a Protected National Heritage.</p>		
<p><i>Effects of Designation</i></p>		
<p>In accordance with the Act, the designation will have the following effects:—</p>		
<ol style="list-style-type: none"><li>(1) Any owner of land, buildings or property within the protected national heritage will be entitled to:<ol style="list-style-type: none"><li>(a) appropriate compensation for any financial loss resulting from the designation;</li><li>(b) have treated as a deductible expense for income tax purposes, any amount spent by him on work certified by the Trust as being necessary for the preservation of such land, buildings, or property within the protected national heritage.</li></ol></li><li>(2) The owner, or where appropriate, the person in possession of land, buildings, or other property within the protected national heritage will be prohibited from carrying out any demolition, removal or alteration thereon without the prior approval of the Trust.</li><li>(3) The Trust may, in its own discretion, maintain or assist in the maintenance of land, buildings, or other property within the protected national heritage so as to prevent its falling into a state of disrepair.</li><li>(4) Authorized persons may enter any land or building within the protected national heritage for the purpose of investigation, inspection or maintenance.</li><li>(5) Criminal procedures may be instituted in respect of the doing of any prohibited act pertaining to the protected national heritage.</li></ol>		
<p>SCHEDULE</p>		
<p>All that parcel of land known as the Blue and John Crow Mountains National Park and the Rio Grande Valley and located in parts of the parishes of St. Andrew, St. Thomas, Portland and St. Mary; the boundary begins at Warminster District on the parish border of Portland and St. Mary where it travels northward along the Warminster to Belmont Main Road, then turns north-west through Robertsons Run, then turns south to Dumfries. At Dumfries it assumes a south-west trajectory passing north of</p>		
<p>DESIGNATION THE JAMAICA NATIONAL HERITAGE TRUST ACT <i>Designation of a Protected National Heritage— BLUE AND JOHN CROW MOUNTAINS CULTURAL HERITAGE SITE</i> WHEREAS section 13 (1) of the Jamaica National Heritage Trust Act confers on the Jamaica National</p>		

## Jamaica's response to ICOMOS' Queries

Hermitage and Leith Hall where it continues south, then south-west along Brandon Hill to Mount Prospect Main Road. At Mount Prospect, it veers off the road alignment passing between Mount Crissy and Mount Airy, then proceeding in a generally southern direction where it passes through Dicks Pond, Woodford and Craigton before turning north through Redlight and then circumventing New Castle, traversing lands east of Settlement, north of Sugar Loaf Trail and west of St. Peters, looping south of Silver Hill Gap and continuing on an eastward trajectory. It then passes south of Chestervale, circumventing Strawberry Hill to the north before passing Abbey Green, Radnor, Eccleston, and Armtully to the north-east where it traverses Newington, Newsfield, and Shirley Castle and continues on a south-east trajectory along the Morant River (Blue Mountain Valley) to Hillside. The boundary then arches the districts of Cave Bottom and Craighead to the north and proceeds to House Hill, passing north of Mount Donald and traversing Cedar Grove where it swings north to Big Level just north of Johnson Mountain. At this point it travels in a generally north-westerly direction through Rose Garden Mountain to Cambridge Backland then west to Windsor and north along the Rio Grande west bank to Fellowship where it travels in a westerly direction along Cooper's Hill to Durham Main Road. Just south of Burton Hall the boundary continues in a generally westerly direction to Trafalgar Plantation where it diverts northwards to the Cottage and Berwick Springs then turns south through Leighfield and passes east of Spring Hill, Wakefield and Cedar Valley before swinging north again through Green Hill, Birnamwood Retreat Dry River and back to Warminster.

Dated this 31st day of December, 2013.

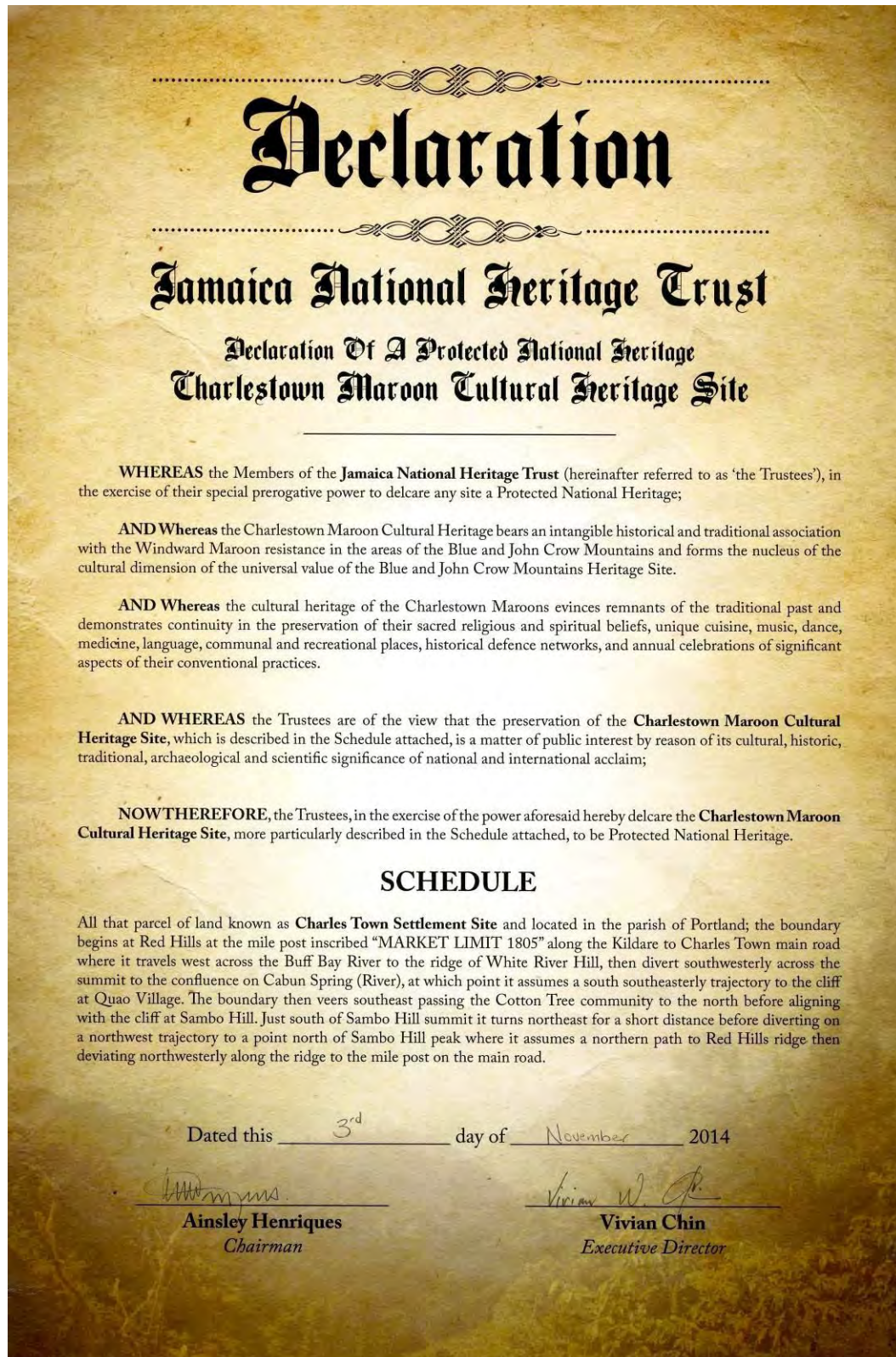
AINSLEY HENRIQUES,  
Chairman.

DORRICK GRAY,  
Executive Director (Acting). (12)

# Jamaica's response to ICOMOS' Queries

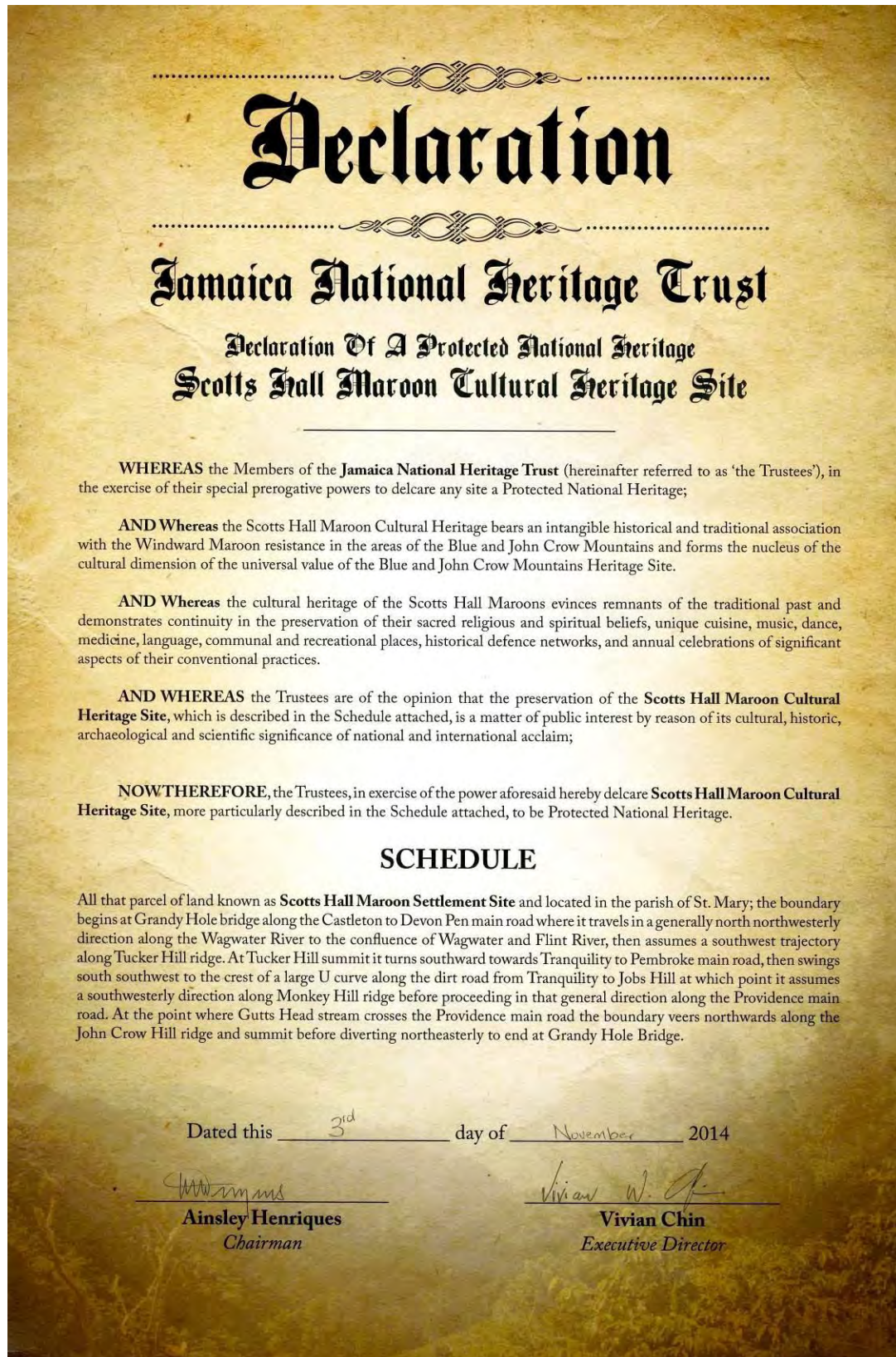
## Declaration of Windward Maroon satellite sites under the JNHT Act (1985)

- Charles Town



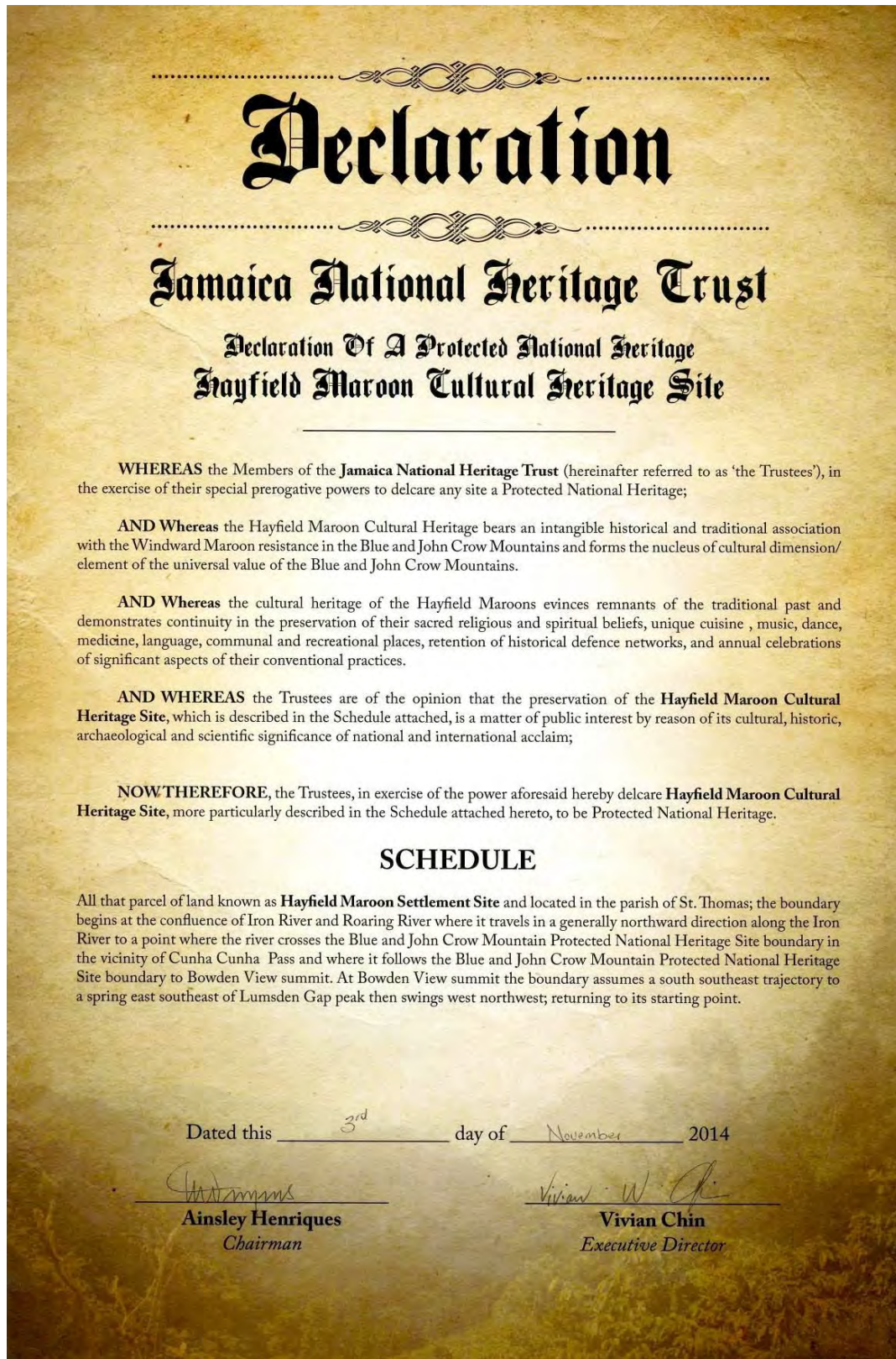
# Jamaica's response to ICOMOS' Queries

- **Scotts Hall**



# Jamaica's response to ICOMOS' Queries

- Hayfield





## Jamaica's response to ICOMOS' Queries

### Question 3

#### A. Means and formalized acts through which cultural heritage preservation has been integrated into the Blue and John Crow Mountains National Park

There are several pieces of Jamaica's legislation that are in place for the protection of cultural heritage in the nominated property. They include the Jamaica National Heritage Trust Act (1985); Institute of Jamaica (1892) 1978 Act and the Natural Resources Conservation Authority Act (1991).

In order to protect the Jamaican material cultural heritage the *Jamaica National Heritage Trust Act* was put in place in 1985. The objectives of the Jamaica National Heritage Trust (JNHT) are "To identify, research, record, interpret, regulate, protect and preserve the material cultural heritage resources of the Jamaican people"; "To promote the sustainable utilization and management of our material cultural heritage resources" and "To foster a sense of national pride and identity through heritage education". The JNHT's objectives are fulfilled through its Act.

Through the JNHT Act (1985), the JNHT has ensured the preservation of the Blue and John Crow Mountains National Park and the Rio Grande valley through its designation of the area as *protected national heritage*.

This designation in collaboration with a preservation scheme (Appendix 1) indicates levels of human involvement with the property, according to Section 21 under the heading: *Developments of national monuments and places designated to be protected national heritage* provides for the following:

- for prohibiting or restricting the construction, erection or execution of buildings, structures and other works above ground within the controlled area, or the alteration or extension of any such buildings, structures or works in such manner as materially to affect their external appearance;
- for prescribing the position, height, size, design, materials, colour and screening and otherwise regulating the external appearance, of buildings, structures and - other works above ground within the controlled area;
- for prohibiting or restricting the felling of trees, quarrying and excavations within the controlled area;
- for otherwise restricting the user of land within the controlled area to such extent as may appear to the Trust to be expedient for the purpose of preserving the amenities of the monument or place;
- for such other matters as appear to the Trust to be incidental to or consequential on the foregoing provisions of this section or to be necessary for giving effect to those provisions.

## Jamaica's response to ICOMOS' Queries

The Preservation Scheme allows the continuation of agricultural and traditional cultural practices within the buffer zone where all living Maroon communities are located. However, it maintains the protection (both legally and traditionally) of sensitive cultural heritage sites such as Nanny Town, trails and other archeological remains throughout the nominated property.

Under the JNHT Act (1985) and through the signing of a Memorandum of Understanding (Appendix 2) between the Windward Maroon communities and the JNHT, the traditional management of the site is fully acknowledged and integrated in the management of the site. The Windward Maroon communities are all governed by a system of by-laws which has resulted from the Maroons' over 300 years of self-governance which forms the basis for adjudication of community members' concerns. The governance structure of the Colonel and council being still in place is the point of arbitration and generally bring about peaceful solutions.

Further, the Act also makes provision for the necessary exploration or investigation of cultural heritage remains through excavations. Requests have been made by the Windward Maroon communities (orally – Col. Sterling and Col. Lumsden and in writing – Bowden Pen Farmers Association - Appendix 3) to the JNHT in aiding the community in cataloguing the Maroon sites within the Blue and John Crow Mountains. Within the scope of the JNHT Act and further the Memorandum of Understanding between the JNHT and the Windward Maroons refers to the involvement of the JNHT in archeological investigations with the involvement of the Maroon community. Preliminary visits have been conducted and funds have been received for some of these investigations, with intentions for further surveys within the upcoming year.

*The Institute of Jamaica (IOJ) Act 1892 (1978)* mandates the functions of the organization to be directed towards '*study, research and encourage the development of culture, science and history; to establish museums and to set up a public library and other places of learning such as galleries containing preserved cultural, scientific and historical works, illustrations and artifacts*' (Section 4). The act in Section 4(2c), further speaks to the establishment of awards and prizes for the encouragement of cultural, scientific historical and related works. Therefore, IOJ functions in safeguarding aspects of the intangible cultural heritage through research and conservation and it is through this act that the intangible aspects of the nominated site are preserved. Through the African Caribbean Institute of Jamaica/Jamaica Memory Bank (ACIJ/JMB) the intangible heritage of Jamaica is managed.

The African Caribbean Institute of Jamaica/Jamaica Memory Bank (ACIJ/JMB), a division of the IOJ, is the agency specifically charged with the responsibility for overseeing and implementing action steps toward the continued safeguarding of intangible cultural heritage elements in the country. The division serves as the focal point on ICH in Jamaica and also the clearing house for information on ICH related activities.

This body of work has built on an existing island-wide network of resource personnel, researchers and traditional knowledge holders. The extensive research and documentation programme of the ACIJ/JMB involves the systematic cataloguing and archiving of intangible cultural heritage in a central database

## Jamaica's response to ICOMOS' Queries

utilising library software specifically designed for this purpose. The resulting audiovisual collections consist of photographs, transcripts, audio and video tapes, which are currently being digitized. The material is archived using the Audio Visual Information Data Access (AVIDA) database. This database provides both access to the bibliographic data about the collection as well as links to digitized items. It will enable library users to search the bibliographic information and retrieve information from files in the digital repository. Retrieval produces hyperlinks to audio, video and photographs, thus enabling users to listen or view items. The organisation is about to acquire authoring software for visually producing web forms to query the AVIDA database, which will enable it to be searchable via the Internet.

The ACIJ/JMB has also engaged in capacity building within the communities that it works, including the Windward Maroon communities. As an example, Jamaica ratified the 2003 Convention on Intangible Cultural Heritage in 2010. The country had already benefitted from provisions in the Convention in 2003 when the Musical Heritage of the Moore Town Maroons was declared a Masterpiece of the Oral and Intangible Heritage of Humanity, making the element one of only ninety that were inscribed at the time.

Since ratification, Jamaica has been supported by UNESCO in implementing activities geared toward identifying and safeguarding other ICH elements. In December 2012 and September 2013 a series of workshops were held with members representing various traditional communities including the Maroons. A network of stakeholders including these communities was established. A significant aspect of this process was the training of community members in not only the documentation of their traditional culture, but the archiving of this as well. In this way, community archives would be established using the same systems employed by the ACIJ/JMB. Infrastructure has already been established in the Windward Maroon community of Moore Town, along with training of persons in the archiving of material. This is an ongoing exercise.

The ACIJ/JMB also has a long-standing working relationship with the Jamaica Intellectual Property Office (JIPO) and by extension the World Property Organisation (WIPO), and actively participates in the development and promotion of protection regimes for Traditional Knowledge (TK), Traditional Cultural Expressions (TCEs) and Genetic Resources (GR). It is envisaged that these protection regimes will be formalized through legislation going forward as part of JIPO's legislative agenda.

The ***National Resources Conservation Authority (NRCA) Act (1991)*** speaks to the designation of national parks and protected areas '*where the Minister may, on the recommendation of the Authority after consultation with the Jamaica National Heritage Trust, by order published in the Gazette designate any area of land or water as a protected area in which may be preserved any object (whether animate or inanimate)... that is of aesthetic, educational, historical or scientific interest*' Section 5 (1b). Collaboratively with the JNHT Act, the NRCA Act safeguards natural sites with historical and cultural affiliations

## Jamaica's response to ICOMOS' Queries

The NRCA through its Executive Agency the National Environment and Planning Agency (NEPA) has delegated management of the Blue and John Crow Mountains National Park to the Jamaica Conservation and Development Trust (JCDDT). One requirement is the preparation of 5 yearly Management Plans, the current Plan (2011 - 2016) includes a Cultural Heritage Programme which JCDDT has begun to implement in collaboration with the Maroon Councils, JNHT and ACIJ.

A Co-management agreement has been formalized by NEPA with the two other government agencies that legally manage the (Appendix 4).

### **The National Cultural Policy:**

The Jamaican government gives further weight to the importance of culture both tangible and intangible, its forms and expressions, by granting approval of the National Cultural Policy (Attachment 1) in December 2003. Important to note, the national Cultural Policy is in the process of being reviewed and updated.

The Policy speaks to safeguarding cultural material heritage, strengthening of cultural expressions throughout Jamaica with a view to nurturing Jamaicans to experience the beauty and excellence of cultural traditions and retentions. This is carried out through the various activities planned and enacted through the cultural agencies, with direction from the Ministry of Youth and Culture. The framework of the Policy is focused on cultural diversity in Jamaica, promotion of cultural expression, heritage preservation, development and culture and its effects on all aspects of national life. Section 4.1 a, c, g, h of the National Cultural Policy declares the aims of the instrument.

The Jamaican government has taken several positions with regard to the policy, some of which include:

*... strengthening our advocacy for the many causes we support now and in the future, through the conventions, treaties and instruments we have been party to over the years and those to be enacted in the future (Section 6.6d); Recognize, protect and promote all cultural expressions and products developed by the Jamaican people in the course of our history, including all forms of African retentions, European based traditions, ... (Section 7.4e) Give direction to, and provide assistance and funding for the programme geared at the development of ... World Heritage Sites, (Section 10.8b). Enact legislation for registering and documenting traditional knowledge holders in order to identify and designate Masters of Oral and Intangible Heritage (Section 10.8f).*

## Jamaica's response to ICOMOS' Queries

### B. Boundaries of the nominated property

The boundaries of the nominated property represent the core forest area of the Blue and John Crow Mountains National Park/Forest Reserve which protect two of the world's Key Biodiversity Areas. Based on satellite imagery and ground-truthing, this area is predominantly undisturbed closed broadleaf forest at high elevations, greater than 1000m. The National Park's management plans describe this as the Preservation Zone.

The size of the nominated property (over 26,000 ha) is large enough and with widely varying elevations (most above 1500m in the Blue Mountains and greater than 900m in the John Crow Mountains) to protect the various forest community types within. Unusual forest communities in the Blue Mountains include Mor Ridge forest in the John Crow Peak area of the Grand Ridge, High Altitude Scrub forest between 1,800 - 2,256 metres, dominated by broadleaf tree species and Montane Summit Savanna on several peaks along the Ridge. These forests form the habitat of much of the island's endemic flora and fauna inclusive of birds, amphibians and insects. The size, level of endemism and forest communities of this property are significantly greater than those of the World Heritage Sites listed for the Lesser Antilles of the Caribbean and comparable with those listed for Cuba. With respect to the latter, the flora and fauna are unique to Jamaica.

The boundaries of the nominated property incorporate several key cultural heritage sites, with Nanny Town – the ancestral spiritual and military capital of the Windward Maroons at the centre. It is important to note that the boundary of the nominated property contains several important Maroon sites such as Nanny Town, Guys Town, Mammee Hill, Gun Barrel, Dinner Time, Watch Hill, Kattawood. These are all desuetude Maroon village sites that formed part of Nanny's strategic military network.

Also fundamental to Queen Nanny's military strategy were the networks of secret trails used to access plantations and traverse among the towns. Some of these trails were mapped after the treaty in the 18<sup>th</sup> century by the colonial government, they include the Studdart and Peak Trail, Morant Bay and Surge Island Trail, Johns Hall and Corn Husk River Trail, Back Rio Grande and Stony River Trail, Two Claw Ridge Trail, all of which led directly to Nanny Town. Other significant trails that were used as routes to liberate slaves were Cuna Cuna Pass and Corn Puss trails.

The nominated property is completely surrounded by the Restoration Zone of the National Park (which forms the major part of the nominated property's Buffer Zone) and both are comprised of state-owned lands only. The remainder of the property's Buffer Zone is comprised of mainly Windward Maroon lands. Three Maroon villages, Charles Town, Scots Hall and Hayfield are located outside the main designation of the Blue and John Crow Mountains were designated Protected National Heritage under the JNHT Act as satellite Maroon sites. The rationale for this decision was engendered by the legal ramification of private land owners and management concerns.

Therefore the nominated property and its boundaries encapsulate the value, integrity and unique features of the cultural heritage and the natural heritage.

## Jamaica's response to ICOMOS' Queries

### C. Relationship of how the National Protected Area System Master Plan relates to the BJCMNP management plan

The Protected Areas System Master Plan: Jamaica 2013-2017 (PASMP) (Appendix 5) provides a framework for the management of Jamaica's protected areas, of which the Blue and John Crow Mountains National Park is an essential component. The vision for the PASMP is:

*Jamaica's protected areas are effectively managed through a system that represents the diversity of our ecosystems and local heritage for the benefit of all generations.*

The final approval and implementation of the PASMP will assist the country in fulfilling its obligations under international conventions such as the **Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention)**, the Convention on Biological Diversity and the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention). The PASMP will also contribute to achieving National Development Goals including Goal 4: "Jamaica has a Healthy Natural Environment as outlined in the Vision 2030 Jamaica: National Development Plan.

The development and implementation of the management plan for the Blue and John Crow Mountains National Park has contributed to achieving a number of the PASMP strategic outcomes, goals and targets which related to *inter alia* site management, capacity building, preventing and mitigating threats, financing, communication, education and public awareness.

#### **Examples of PASMP Goals which BJCMNP management plan will contribute to include:**

**Goal 2:** To substantially improve site-based protected area planning and management.

**Goal 3:** To prevent and mitigate the negative impacts of key threats to protected areas.

**Goal 6:** To enhance and secure the involvement of local communities and other relevant stakeholders.

**Goal 10:** To strengthen communication, education and public awareness.

The BJCMNP Management Plan is a major step towards the achievement of Goal 2 in the PASMP as it is a long-term management plan developed with active stakeholder involvement. The preparation and implementation of the Management Plan (2011-2016) will improve site management and the implementation of the following programmes aligned to the goals outlined in the PASMP:

- Conservation of Natural Heritage
- Conservation of Cultural Heritage
- Enforcement and Compliance
- Education and Public Involvement
- Recreation and Tourism
- Monitoring and Evaluation
- Governance and Administration

## Jamaica's response to ICOMOS' Queries

### Question 4: Relationship of the Co-management Committee and Maroon Advisory Committee

The two committees function on an operational level. The Maroon Advisory Committee deals specifically with Maroon issues and the Cultural Heritage Conservation Programme, whilst the Co-Management Committee deals with ALL the Programmes - the Co-Management Committee therefore takes its advice/guidance on the Cultural Heritage Programme from the Maroon Advisory Committee and defers to the Maroon Councils. The Maroon Advisory Committee provides for more in-depth involvement of the Maroon Councils in planning and protected area management. A representative from one of the three Maroon Councils is selected by the Council members jointly, to sit on the National Park Advisory Committee which aims to increase coordination and collaboration between agencies.

### Question 5: Clarifications regarding implementation and enforcement of the management framework

#### A. Outline the management framework

Under JCDT's delegation agreement with the NRCA, collaboration with JNHT and the Forestry Department are required and this occurs formerly through the Co-management and Advisory Committees as well as through the Maroon Advisory Committee. In these fora, JCDT also liaises with the ACIJ. JCDT prepares annual work-plans based on the National Park's 5 year Management Plan and liaises with JNHT and ACIJ regarding implementation which may be directly through the latter organizations, where they have the legal mandate or technical expertise e.g. site designation, archaeological work, capacity building for intangible heritage preservation and preservation activities for both tangible and intangible heritage of the National Park. JCDT acts as a secretariat e.g. for meetings, assists Maroon Councils with fundraising for events and projects and assists with educational, skills training and other activities.

#### B. Explain if it is being enforced/implemented

The current Management Plan (2011 - 2015) has a Cultural Heritage Programme and implementation has been initiated., JCDT in order to facilitate the Cultural Heritage Programme have liaised with the Maroon Councils and communities through the Park's Education & Public Involvement and Recreation & Tourism Programmes for example, preparing plans with these groups for sustainable community-based heritage tourism in the Rio Grande and Buff Bay Valleys in our 2009 Blue Mountains Sustainable Tourism Plan - components of which are also now being implemented. Attached are the most recent annual reports from the JCDT – 2012 and 2013 and Bi-annual report for 2014 (Appendices 6-8)

## Jamaica's response to ICOMOS' Queries

### Appendices

**Appendix 1: Preservation scheme under the Jamaica National Heritage Trust act (1985)**

**Appendix 2: Memorandum of Understanding between JNHT and Windward Maroons**

**Appendix 3: Letter from Bowden Pen farmers Association re: archeological investigations**

**Appendix 4: Co-Management agreement between National Environment and Planning Agency, Forestry department and Jamaica National Heritage Trust**

**Appendix 5: National Protected Area System Master Plan (2013-2017)**

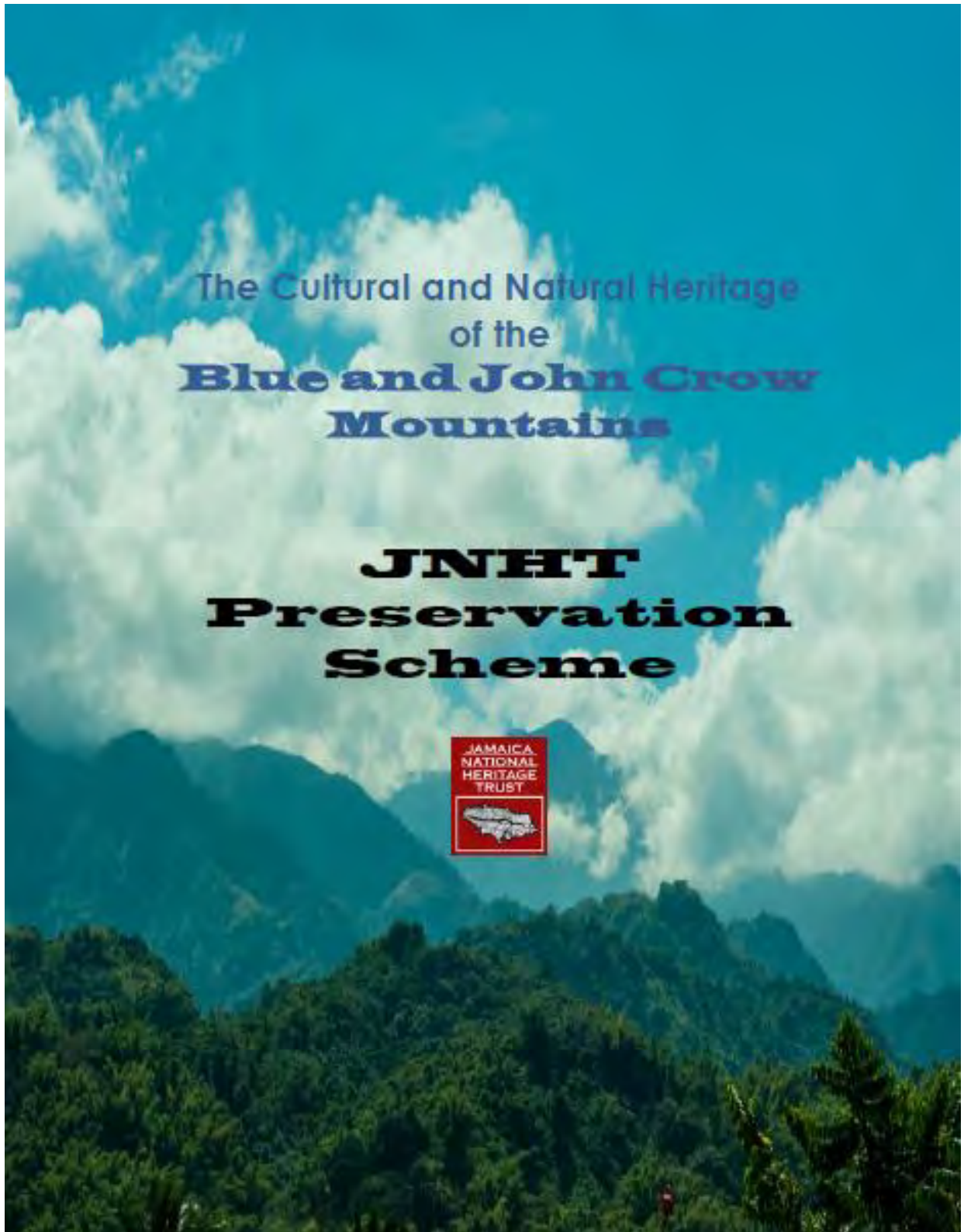
**Appendix 6: Bi-annual report from the Jamaica Conservation and Development Trust**

**Appendix 7-8: 2013 and 2012 Annual Reports from the Jamaica Conservation and Development Trust**



# Jamaica's response to ICOMOS' Queries

## Appendix 1: Preservation Scheme



# Jamaica's response to ICOMOS' Queries

## DRAFT PRESERVATION SCHEME

### JAMAICA NATIONAL HERITAGE TRUST ACT

#### BLUE & JOHN CROW MOUNTAIN CULTURAL HERITAGE SITE

#### (PROTECTED NATIONAL HERITAGE)

In exercise of the powers conferred upon the Jamaica National Heritage Trust by section 21 of the Jamaica National Heritage Trust Act, the following Preservation Scheme is hereby made:-

#### *Preliminary*

1. This Preservation Scheme may be cited as the Blue and John Crow Mountain Cultural Heritage Site Preservation Scheme, 2014.

#### *Interpretation*

- 2 (1) In this Preservation Scheme unless the context otherwise requires:-

"authority" means the co-management government agencies under whose Acts designate the site a Protected Area and as such have authority to issue permits relating to the site

"authorized officer" means a person designated as such by the Authority, any member or officer of the Jamaica National Heritage Trust, the Jamaica Constabulary Force, a person appointed a forest officer under the Forest Act, any person appointed a park manager or designated a national park ranger,

#### *Schedule*

"controlled area" means the property described in the Schedule, Parts I and II, and any additions thereto made under the provisions of this scheme,

"development" means :-

- (a) the alteration, removal, repair, restoration or demolition of or addition to, anything or place designated protected national heritage, or

## Jamaica's response to ICOMOS' Queries

- (b) the carrying out of building, engineering or other operations in, on, over, or under any protected national heritage or the making of any material change in the structure, appearance or use of any such protected national heritage.

"endangered species" means any animal or plant species threatened with extinction which are or likely to be affected by trade or whose survival is likely if any factor which threatens its extinction continues to operate

"Park" means the Blue and John Crow Mountains National Park, the boundaries of which are set out in the Natural Resources Conservation (Blue and John Crow Mountains National Park) (Declaration ) Order, 1993.

"protected national heritage" means:-

- (a) any place name;
- (b) any species of animal or plant life;
- (c) any place or object (not declared by the Trust to be a national monument), designated by the Trust to be a protected national heritage;

"the Trust" means the Jamaica National Heritage Trust established by section 3 of the Jamaica National Heritage Trust Act, 1985;

- (2) Any reference in this Scheme to Core and Buffer shall be construed as reference to the inner and outer zones within the Controlled Area, respectively, and is so designed for improving efficient Management Plan implementation and monitoring

Controlled  
Area

3. The area set out in Part I of the Schedule hereto, which is delineated on the map set out in Part II thereof, being designated Protected National Heritage under the Jamaica National Heritage Trust Act (the Controlled Area) is regulated by this Scheme.
4. The provisions of this scheme shall be in addition to, and not in derogation of, or in substitution for –
  - (a) the Forest Act and regulations;
  - (b) the Natural Resource Conservation Act;
  - (c) the Natural Resources (National Parks) Regulations, 1993

## Jamaica's response to ICOMOS' Queries

5. (1) A person shall not, except with the written permission or permit of the Authority, in the Controlled Area:-
- Archaeological Works
- (a) Excavate and uncover any archaeological feature
  - (b) remove and transport any surficial or excavated artefacts or ecofacts
  - (c) conduct extrusive or intrusive archaeological survey or study
  - (d) camp on any archaeological site
- (2) A person shall not deface any rock art, burial cave, or any natural feature associated with a significant historical event or personality.
- (3) A person shall not receive, sell, or otherwise dispose of any artefacts or ecofacts knowing it to have been unlawfully removed from the Controlled Area.
- (4) Any person who contravenes paragraphs (1) , (2) and (3) commits an offence and is liable to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues.
6. (1) The removal of fauna, flora and any other natural resources from the Core of the Controlled Area without a permit from the authority is prohibited
- Removal of flora and fauna
- (2) The authority may grant a permit for the collection of natural objects or species of animal or plant from the Controlled Area for:-
- (a) the implementation of the Management Plan
  - (b) Environmental purposes,
  - (c ) educational or scientific pursuits
7. (1) The authority may, on such terms as it thinks fit, grant a permit for the carrying out of research in the Controlled Area.
- Research
- (2) The authority shall not grant a permit under paragraph (1) where the research is likely to damage the biosphere or interfere with the management of the fauna and flora.
- (3) A person who carries out any form of research in the Controlled Area without a permit issued by the authority contravenes paragraph (1), and is liable on summary conviction before a Resident Magistrate to a fine not

## Jamaica's response to ICOMOS' Queries

exceeding five hundred dollars for every day on which the contravention occurs or continues.

- Fishing**
8. (1) A person shall not fish in any water body located within the *Core* of the Controlled Area, except in accordance with the implementation of aspects of the management Plan.
- (2) The authority may grant permission to fish in waters in the Buffer Zone; subject to conditions related to the kind of fish or other aquatic organisms which may be caught.
- (3) A person shall not use any poisonous substance, electrical charge, explosive or any similar device for the catching or killing fish, crawfish, janga, busu and other aquatic creatures.
- (4) A person who contravenes paragraphs (1), (2) or (3) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues.
- Hunting**
9. (1) Except with the written permission or permit of the Authority, a person shall not:-
- (a) catch, collect, hunt, shoot or kill any bird or other wild life or
- (b) carry or transport any weapons in the core of the Controlled Area .
- (2) Any person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues.
- Quarry and Mining**
10. (1) A person shall not, except with the written permission or permit of the Authority, dig and remove any sand , gravel, rock, stone or mineral from the Controlled Area.
- (2) The Authority shall not grant a permit for quarrying or mining in the buffer of the Controlled Area where such activity is likely to damage the biosphere or interfere with the management of cultural heritage of the site.
- (3) If any person contravenes paragraph (1) he shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues

11. (1) A person shall not light or make use of any open fire or charcoal kiln in the Core or area designated under the Forestry Act and the NRCA Act, except in compliance with a burning permit issued by the Authority.
- (2) Paragraph (1) shall not apply anywhere in the Controlled Area where the fire is being used:-
- (a) for the purpose of cooking in accordance with standards established by the Authority, or
  - (b) by an authorized person for the purpose of suppressing or controlling fire.
- (3) Except for the purpose of starting a fire in accordance with this Preservation Scheme or the Management Plan, a person shall not:-
- (a) drop a burning substance in an area designated by the Forestry Act and the NRCA Act.
  - (b) in the area designated by the Forestry Act and the NRCA Act, smoke a lighted cigarette, cigar, pipe or any other matter used for smoking.
- (4) A person who contravenes paragraph (1) and (3) shall take all reasonable steps to extinguish the burning substance. Failure to carry out necessary corrective measures, the person shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or continues

12. (1) A person shall not, except with the written permission of the Authority, erect, exhibit, display or cause to be erected, exhibited or displayed in the Controlled Area any notice, sign, slogan or other device containing any advertising or other kind of message.
- (2) A person shall not, except with the written permission of the Authority, remove, damage, obscure or otherwise interfere with a notice, sign, slogan or other device, erected by the Authority in the Controlled Area.
- (3) The Authority may authorize the erecting, placing or displaying of signs for the purpose of :-
- (a) regulating, prohibiting or restricting the stopping or parking of vehicles, or defining the manner in which vehicles may be parked.

## Jamaica's response to ICOMOS' Queries

- (b) designating a part of the Controlled Area as an area within which the parking of vehicles are permitted.
  - (c) designating a part of the Controlled Area as an area within which camping is permitted.
- (4) A sign erected for the purpose of designating a part of the Controlled Area as an area within which the parking of vehicles is permitted shall bear the words "PARKING AREA"
- (5) A sign erected for the purpose of designating a part of the Controlled Area as an area within which camping is permitted shall bear the words "BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK DESIGNATED CAMP SITE"
- (6) A person who contravenes paragraph (1) or (2), or willfully defaces, destroys, damages, obliterates, pulls up, removes, obscures or otherwise interferes with any signs erected, placed or displayed pursuant to paragraph (3) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding forty thousand dollars or to imprisonment, and in addition, such person may be ordered to pay the cost of replacement of any such signs, mark or notice and in default of payment of such cost, to be imprisoned with hard labour for a further term not exceeding 12 months.
13. (1) A person shall not, in the core of the Controlled Area:-
- (a) deposit or leave any litter, broken glass, plastic article, rubbish or other waste material, except in an area or a receptacle provided for that purpose.
  - (b) deposit or discharge any noxious, offensive or polluting substance, matter or thing
  - (c) Deposit or dumping of garbage
- (2) A person who contravenes paragraph (1) commits an offence and is liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred dollars for every day on which the contravention occurs or
14. (1) An authorized officer of the Trust, after giving reasonable notice in writing to the occupier of his intension so to do and production of his authority if so required by or on behalf of the occupier, may enter for

Rights of entry

## Jamaica's response to ICOMOS' Queries

the purpose of investigation, inspection or maintenance, at all reasonable times upon any land or building which is a national monument or contains a protected national heritage.

- (2) Where any person enters any land or building for the purpose of investigation, inspection or maintenance in accordance with paragraph (1) he shall have the power to do all such things as he considers necessary for the purpose of such investigation, inspection or maintenance, and, without prejudice to the generality of the foregoing, may make excavation on the land.
- (3) Where any excavation is made on land pursuant to paragraph (2) the Trust Shall, within a reasonable time after the completion of such excavation take such steps as may be necessary to restore the land to the condition which existed immediately before the excavation was made, unless the Trust is satisfied that the excavation forms part of the national monument.
- (4) If any person willfully obstruct or hinders any person duly authorized by the Trust in the exercise of the power conferred by section 23 of JNHT Act, he shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five thousand dollars.



## PART 1.

### *Blue and John Crow Mountain Cultural Heritage Site (Controlled Area)*

All that parcel of land known as the Blue and John Crow Mountains National Park and the Rio Grande Valley and located in parts of the parishes of St. Andrew, St. Thomas, Portland and south-east St. Mary; the boundary begins at Warminster District on the Parish border of Portland and St. Mary where it travels northward along the Warminster to Belmont main road, then turns northwest through Robertsons Run, then turns south to Dumfries. At Dumfries it assumes a southwest trajectory passing north of Hermitage and Leith Hall where it continues south, then southwest along Brandon Hill to Mount Prospect main road. At Mount Prospect, it veers off the road alignment passing between Mount Crissy and Mount Airy, then proceeding in a generally southerndirection where it passes through Dick Pond, Woodford and Craigton before turning north through Redlight and then circumventing New Castle, traversing lands east of Settlement, north of Sugar Loaf Trail and west of St. Peters, looping south of Silver Hill Gap and continuing on an eastward trajectory. It then passes south of Chestervale, circumventing Strawberry Hill to the north before passing Abbey Green, Radnor, Eccleston, and Airtully to the northeast where it traverses Neurington, Newsfield, and Shirley Castle and continues on a southeast trajectory along the Morant River (Blue Mountain Valley) to Hillside. The boundary then arches the districts of Cave Bottom and Craighead to the north and proceeds to House Hill, passing north of Mount Donald and traversing Cedar Grove Where it swings north to Big Level just north of Johnson Mountain. At this point it travels in a generally northwesterly direction through Rose Garden Mountain to Cambridge Backland then west to Windsor and north along the Rio Grande west bank to Fellowship where it travels in a westerly direction along Cooper's Hill to Durham main road. Just south of Burton Hall the boundary continues in a generally westerly direction to Trafalgar Plantation where it diverts northwards to the Cottage and Berwick Spring then turns south through Leighfield and passes east of Spring Hill, Wakefield and (Cedar Valley before swinging north again through Green Hill, Biranwood Retreat, Dry River and back to Warminster.

**SCHEDULE cont.**

**PART 11.**

*Blue and John Crow Mountain Cultural Heritage Site  
(Controlled Area)*



# Jamaica's response to ICOMOS' Queries

## Appendix 2: Memorandum of Understanding between JNHT and Windward Maroons



### MEMORANDUM OF UNDERSTANDING

#### BETWEEN

**THE JAMAICA NATIONAL HERITAGE TRUST**, a body corporate and existing under and by virtue of the **JAMAICA NATIONAL HERITAGE TRUST ACT**, with offices at 79 Duke Street, in the city and parish of Kingston (hereinafter called "the JNHT")

#### AND

The **WINDWARD MAROONS** the traditional settlers and occupiers of the Blue and John Crow Mountains through their representatives comprising their Advisory Council (hereinafter called "the Maroons")

**WHEREAS** the JNHT pursuant to the Jamaica National Heritage Trust Act has the mandate to declare, protect, promote, conserve and encourage the preservation of Jamaica's national heritage.

**AND Whereas** the Blue and John Crow Mountains (BJCM) a designated protected national heritage boasts a rich tradition of the cultural heritage of the Maroons and endemic flora and fauna which are among the world's most noted.

**AND Whereas** the Maroons are independent and culturally eminent communities nestled in the declared protected areas of the Blue and John Crow Mountains and immediate environs since the sixteenth century and have been integral to its protection, preservation, and sustenance.

**AND Whereas** the JNHT through the Government of Jamaica is desirous of having the nominated and protected areas of the Blue and John Crow Mountains declared a World Heritage Site under UNESCO for its cultural and natural significance.

#### **SCOPE OF AGREEMENT:**

This Memorandum of Understanding represents a significant partnership between the Government of Jamaica through the JNHT and the Maroons which recognizes the traditional rights of the Maroon people, engenders trust, cooperation, respect for the diversity and tradition of the Maroon way of life and is in keeping with the mandate of the JNHT to protect and preserve our cultural and natural heritage and provides the platform to highlight this rich cultural tradition to the world.

#### **1. THE JNHT AGREES TO:**

- 1) Maintain a register of archaeological sites, preservation and conservation work to be undertaken in the protected areas.
- 2) Manage and implement preservation and conservation plans in the nominated and protected areas.
- 3) Manage and approve proposals for archaeological and historical research and the interpretation of research findings regarding the protected areas.
- 4) Publish a list of accessible sites in the protected areas which are open to the public and any other sites to be determined thereafter.

## Jamaica's response to ICOMOS' Queries

- 5) Provide institutional support through preservation scheme which demands interaction with protected sites, the management, enforcement and surveillance of Maroon settlements, Nanny Town Cultural Heritage Routes, flora and fauna.
- 6) Issue permits for all archaeological research to be undertaken in the protected areas of the BJCM.

### **2. THE MAROONS AGREE TO:**

- a) Participate in the decisions affecting the protected areas and liaise with the JNHT, the Blue and John Crow Mountains Management Team in the formation and implementation of programmes to manage and preserve the protected areas.
- b) Use the flora and fauna, including hunting and gathering for traditional purposes only. This will be done in a judicious manner that will maintain the cultural and natural assets of the BJCM in keeping with their traditions, best environment practices and the provisions under the JNHT, Forestry Department, and Natural Resources Conservation Authority (NRCA) legislative schemes.
- c) Adhere to and observe all the guidelines for the preservation and protection of the nominated areas and its environs under the preservation schemes of the JNHT, the Forest Reserves and the NRCA through its agent, the National Environment and Planning Agency (NEPA) in their use of the nominated and protected areas and its environs.
- d) Carefully manage and conduct their activities in keeping with best management practices including, but not limited to, responsible use of fire as not cause destruction or alteration of the Crown lands and protected areas.
- e) Perform cultural and traditional lifestyle and practices in a manner that will not prejudice the world heritage status of the BJCM.
- f) Observe best environment practices that will improve protect and preserve the natural and cultural values of the protected areas, in particular visitor use, while enhancing the development of heritage tourism.
- g) Support the work of the JNHT, NEPA through the Jamaica Conservation and Development Trust (JCDDT) and the Forestry Department in the management, preservation and protection of the natural and cultural assets of the BJCM.

### **3. NOW THE PARTIES HAVE AGREED THAT:**

- 1) Respect for Maroon culture and tradition will be paramount in the management, planning and decision making process for the treatment of the protected areas of the Blue and John Crow Mountains.
- 2) The parties will cooperate to accomplish various heritage tourism goals to market the National Park of the Blue and John Crown Mountains as a world heritage site and to ensure the benefits derived therefrom are enjoyed by the Maroons and other vested stakeholders, chiefly the Jamaican people.

## Jamaica's response to ICOMOS' Queries

- 3) They will undertake to develop and implement a public outreach plan with particular emphasis on the importance of maintaining the integrity of sacred sites and protected areas and the need for public stewardship in the protection and preservation of such sites and areas.
- 4) The highest regard shall be given to the importance of effective environmental practices and commitment to long term management of the flora and fauna of the protected areas of the BJCM.
- 5) Access to the protected areas by visitors and research interests will be subject to prior dialogue and arrangement between the Parties and NEPA through the JCDT, which manages the National Park of the BJCM. The Maroons will provide to the JNHT and the JCDT details of the general purpose of visit, places to be visited, the number of visitors and any other reasonably relevant information required by the JNHT and the JCDT.
- 6) This Memorandum of Understanding will foster greater collaboration between the Maroons, the JNHT, the Forestry Department and NEPA through the JCDT to manage and preserve the protected areas of the BJCM and to ensure that it maintains its position on the world heritage list while not encroaching on the rights of the Maroons.

#### **4. DISPUTE SETTLEMENT**

The parties covenant to use their best efforts to abide by the terms in this Memorandum of Understanding. In the event of any dispute or differences arising out of the interpretation, implementation, and application of the provisions herein same shall be settled amicably through mutual consultation or negotiation between the parties without reference to any third party.

#### **5. INDEMNITY CLAUSE**

The Maroons through their Advisory Council hereby agrees jointly and severally to wholly indemnify the JNHT, their representatives, employees, agents and properties from and against all actions, demands, proceedings, prosecutions, and the like arising out of any loss, damage or injury following from this agreement or whatsoever.

#### **6. DURATION OF AGREEMENT**

This agreement shall be effective from the signing hereof and the parties may terminate by notice in writing at any time subject to one (1) month's notice.

**IN WITNESS WHEREOF** the parties hereto have set their hands and executed this Agreement on this the \_\_\_\_\_ day of \_\_\_\_\_ 2014.

Signed by and on behalf of  
**JAMAICA NATIONAL HERITAGE TRUST**  
By **AINSLEY HENRIQUES, CHAIRMAN**

)  
)  
)   
) \_\_\_\_\_  
) **AINSLEY HENRIQUES**

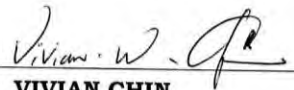
in the presence of :

  
\_\_\_\_\_ )  
) **KADENE CAMPBELL**  
) **Attorney-at-Law**

WITNESS

**Jamaica's response to ICOMOS' Queries**

Signed by and on behalf of  
**JAMAICA NATIONAL HERITAGE TRUST**  
By **VIVIAN CHIN, EXECUTIVE DIRECTOR**

)  
)   
) **VIVIAN CHIN**

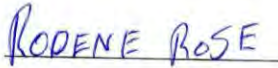
in the presence of :  
 **KADENE CAMPBELL**  
**Attorney-at-Law**

WITNESS

**Signed for and on behalf of the WINDWARD MAROONS by:**

**SCOTTS HALL MAROONS**  
By **NOEL PREHAY, COLONEL**

)  
)   
) **NOEL PREHAY**


in the presence of:  


WITNESS

  
SIGNATURE

**CHARLESTOWN MAROONS**  
By **FRANK LUMSDEN, COLONEL**

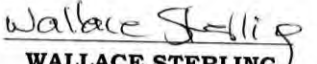
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) **FRANK LUMSDEN**


In the presence of:  


WITNESS

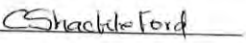
  
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**MOORETOWN MAROONS**  
By **WALLACE STERLING, COLONEL**

)  
)   
) **WALLACE STERLING**

In the presence of:  


WITNESS

  
SIGNATURE

## Jamaica's response to ICOMOS' Queries

### Appendix 3: Letter from Bowden Pen farmers Association re: archeological investigations

BOWDEN PEN FARMERS ASSOCIATION  
Upper Rio Grande Valley  
Comfort Castle P.O.  
Portland  
Telephone (Cell) 462-8163  
Email: bpfa\_ecotourism@yahoo.com

17<sup>th</sup> November, 2013

Attention Mr. Dorrick Selvenious  
Jamaica National Heritage Trust  
Duke Street  
Kingston.

Dear Sir:

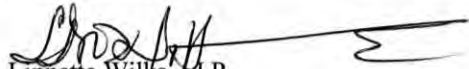
The Bowden Pen Farmers Association is seeking the help of the Heritage Trust to investigate two sites located in the upper Rio Grande Valley of St. Thomas.

The sites are located in close proximity to Quaco River and south of the Corn Puss Gap Trail. The sites are believed by the Maroons to be special places for their ancestors and Quaco in particular. The first site is known as the Sacred Site and is believed to be a burial ground and from the large caldrons, bricks and bearings on the site there is also the belief that a sugar mill was once there..

The second site is on the hill overlooking the river where it is believed Quaco's compound was situated. This site was badly damaged in the 80's by tractors that destroyed a number of dry stone walls and covered a large chain that could be seen on the ground.

We hope it will be possible for archeologists attached to the Trust to assist us to unearth vital information.

Yours sincerely

  
Linnette Wilks -J.P.  
Coordinator

# Jamaica's response to ICOMOS' Queries

## Appendix 4: Co-Management agreement between National Environment and Planning Agency, Forestry department and Jamaica National Heritage Trust

### CO-MANAGEMENT AGREEMENT

BETWEEN

THE FORESTRY DEPARTMENT,  
NATURAL RESOURCES CONSERVATION AUTHORITY

AND

JAMAICA NATIONAL HERITAGE TRUST



## Jamaica's response to ICOMOS' Queries

### CO-MANAGEMENT AGREEMENT BETWEEN THE FORESTRY DEPARTMENT, NATURAL RESOURCES CONSERVATION AUTHORITY AND THE JAMAICA NATIONAL HERITAGE TRUST

This Agreement is made the 6<sup>th</sup> day of November 2014 between the Natural Resources Conservation Authority (hereinafter referred to as "the Authority"), the Forestry Department (hereinafter referred to as "the Agency"), and the Jamaica National Heritage Trust (hereinafter referred to as "the Trust").

#### Parties

**The Authority** whose address for service within the jurisdiction of the Courts of Jamaica is 10 and 11 Caledonia Avenue, Kingston 5 of the FIRST PART and **the Agency** whose address for service within the jurisdiction of the Courts of Jamaica is 173 Constant Spring Road, Kingston 8 of the SECOND PART and **the Trust** whose address for service within the jurisdiction of the Courts of Jamaica is 79 Duke Street, Kingston of the THIRD PART (hereinafter referred to collectively as "**the Parties**").

**WHEREAS** the Government of Jamaica has declared under the authority of the Natural Resources Conservation Authority Act, the Blue and John Crow Mountains National Park (hereinafter referred to as "the National Park"), with boundaries set out in the Natural Resources Conservation (Blue and John Crow Mountains National Park) (Declaration) Order, 1993;

**AND WHEREAS** the Government of Jamaica has declared under the authority of the Forest Act, the Blue Mountain Forest Reserve (hereinafter referred to as "the Forest Reserve") with boundaries set out in the Forest (Crown Lands) (No. 1) Order, 1950;

**AND WHEREAS** segments of the National Park, consist primarily of the Blue Mountain Forest Reserve;

**AND WHEREAS** the Trust has designated the Blue and John Crow Mountains Site a Protected National Heritage pursuant to the Jamaica National Heritage Trust Act;

**AND WHEREAS** the Agency is responsible under the Forest Act and the Forest Regulations for the protection, conservation and sustainable management of forests located in forest reserves and on other Crown lands which includes the Blue Mountain Forest Reserve;

**AND WHEREAS** the Trust is responsible for the protection of Jamaica's cultural/heritage resources;

**AND WHEREAS** the Authority can delegate certain of its functions under Section 6 of the Natural Resources Conservation Authority Act, including the co-management of areas declared National Parks pursuant to the Natural Resources Conservation Authority Act and its relevant Regulations and the responsibilities/obligations under this Co-management Agreement;

**AND WHEREAS** the Authority, the Agency and the Trust are desirous of entering into an Agreement in order that the Parties may continue the work of co-management in the National Park

## Jamaica's response to ICOMOS' Queries

designated under the Natural Resources Conservation Authority Act, the Forest Reserve designated under the Forest Act and the designated site under the Jamaica National Heritage Trust Act.

**NOW THEREFORE IT IS AGREED** as follows:

### General Obligations

1. The Authority, the Agency, and the Trust shall in carrying out their legislatively mandated functions in relation to the management of the National Park, the Forest Reserve and the Protected National Heritage (hereinafter the "Co-Managed Area") seek to coordinate their activities to realize mutually agreed on goals.
2. Such coordinated management shall be exercised by the Parties for a period of 5 years hereto in keeping with the provisions of the Forest Act, the Natural Resources Conservation Authority Act, the Jamaica National Heritage Trust Act (hereinafter collectively "the Acts") and all Regulations made pursuant to these Acts, and may at the end of the period be renewed by the Parties in writing.
3. Each Party shall consult with the other Parties in the development of individual Management or other plans that may be deemed necessary by the Parties for the effective implementation of their individual mandates in relation to the Co-Managed Area.
4. The Parties may where feasible, coordinate activities related to the enforcement of the Acts and all regulations made thereunder. Such coordination shall include, but not be limited to joint training sessions, inspection and patrolling, reporting of incidents, assistance in the prosecution of offenders, the arrest of offenders, and seizure of property.
5. The Parties will endeavour to use and / or share existing resources and technical expertise for the efficient management of the Co-Managed Area
6. The Parties may where deemed efficacious to meet the strategic objectives of the Parties, collaborate in the development of projects and programmes in the Co-Managed Area.
7. The Parties shall consult with each other as appropriate regarding the review and revision of regulations; zoning, management, operation and business plans; permits and licences including but not limited to research, harvesting and development activities under the Acts that relate to the management of the Co-Managed Area.
8. Reporting on the operations of the Authority, the Agency and the Trust within the Co-Managed Area shall be the responsibility of a Committee consisting of, representatives of the Authority or its agents, the Agency and the Trust. Interested parties, community groups such as the Local Forest Management Committees and individuals may be co-opted as required and agreed to by all of the Parties.
9. The Committee shall prepare a written report every calendar year which shall include but not be limited to the activities which have taken place in the Co-Managed Area, information on enforcement, preservation and conservation measures implemented within the

# Jamaica's response to ICOMOS' Queries

previously named areas, and progress towards meeting the objectives of the management plans. This report is to be submitted to the Chairman of the Authority, the Chief Executive Officer & Conservator of Forests, and the Executive Director of the Trust.

10. The specific operational functions to be carried out by each Party will be based on the availability of resources and the priorities established by each Party in relation to the management process for the Co-Managed Area.
11. Any disputes or differences, which shall at any time, arise between the Parties whether during the term or afterwards, touching or concerning this agreement or effecting the rights duties or liabilities of the Parties under or by virtue of it, or otherwise, or any other matter in any way connected with or arising out of the subject matter of this Agreement, the Parties shall meet with a view to amicably resolving the issue. Where this fails, the heads of each of the Parties shall intervene.
12. This agreement is a representation of the understanding between the parties for the co-operation of the Management of the Co-Managed Area and is not intended to have any legal effect nor to confer any rights on any third party.

## AMENDMENT

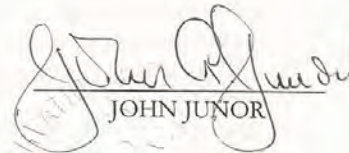
This Agreement may be amended in writing in terms agreed to in writing by the Parties.

## TERMINATION

Any Party may terminate this Agreement provided that written notice of a minimum of three months is given to the other two Parties.

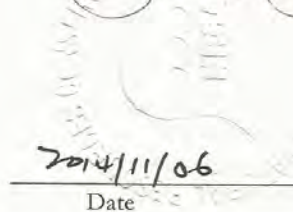
**IN WITNESS WHEREOF** the Parties hereto have hereunto set their hands and seals the day and year first hereinbefore written

THE OFFICIAL SEAL of the )  
NATURAL RESOURCES CONSERVATION )  
AUTHORITY was hereunto affixed and this )  
instrument signed by JOHN JUNOR, Chairman )  
Natural Resources Conservation Authority )

  
JOHN JUNOR

In the presence of:

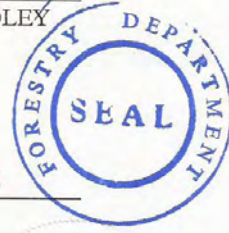
  
Witness

  
2014/11/06  
Date

Jamaica's response to ICOMOS' Queries

THE OFFICIAL SEAL of the )  
FORESTRY DEPARTMENT was hereunto affixed )  
and this instrument signed by MARILYN HEADLEY )  
CEO & Conservator of Forests )

M Headley  
MARILYN HEADLEY



In the presence of:

B Williams  
Witness

2014/11/06  
Date

THE OFFICIAL SEAL of the )  
Jamaica National Heritage Trust )  
was hereunto affixed and this Instrument )  
signed by AINSLEY HENRIQUES, Chairman )

A Henriques  
AINSLEY HENRIQUES

In the presence of:

KADENE CAMPBELL  
Attorney-at-Law  
Witness

2014/11/06  
Date

## **Jamaica's response to ICOMOS' Queries**

**Appendix 5: National Protected Area System Master Plan (2013-2017)**

**Document is attached separately**

## **Jamaica's response to ICOMOS' Queries**

**Appendix 6: Bi-annual report from the Jamaica Conservation and Development Trust**

**Appendix 7 -8: 2013 and 2012 Annual Reports from the Jamaica Conservation and Development Trust**

**Six Month Status Report on Management of the  
Blue and John Crow Mountains National Park (April - September, 2014)**

**HIGHLIGHTS**

**1. Enforcement & Compliance**

- 80 patrols conducted (averaging 13/mth) – 67% of Target achieved (130% of 6 mth Target).
- 14 joint patrols conducted (FD: 9, NEPA: 6 and NWC: 1) – 117% of Target achieved.
- 7 training sessions - including 2 dy – Leadership Skills for Supervisors at the Jamaica Employers Federation for new Chief of Corps – Gabrielle-Jae Watson and celebration of World Ranger Day (31/7) including motivational seminar with Dr. Leachim Semaj and recognition/awards ceremony – involving other Park Rangers and Enforcement Officers.

**2. Conservation**

- 1 ha of Invasive species control at Mt Horeb – across from Holywell (FCF funded)
- Research Data-base brought up-to-date.
- Book (edited by E. Thomas Hope) with paper using the BJCMNP as a Case Study launched locally on 25/9 (following publication in December 2013)

**3. Monitoring & Evaluation**

- Freshwater Monitoring:-
  - reports for 2008 – 9; 2009 – 10, 2010 – 11, 2011 – 12 prepared by graduate Intern, checked by Park Manager and sent to Kimberly John is reviewing them.
  - field training conducted with Kimberly John, TNC and Vivian Blake and lab training being scheduled for November.
- 5 Photo-Monitoring activities – 50 % of Target

**4. Cultural Heritage Preservation**

- Participated in (and provided some funding through sponsorship from Jamaica Energy Partners) for the 4 day International Maroon Conference, Charles Town in June and Bowden Pen Farmers' Association's Ancestral Memories festival on Emancipation Day at Comfort Castle, Portland. Also attended Scot's Hall Maroon Council's festival in Scot's Hall, St. Mary on Emancipation Day.

**5. Education & Public Involvement**

- 13 community meetings re: Importance of the BJCM and the World Heritage Site nomination – 130% of Target.

## JAMAICA CONSERVATION AND DEVELOPMENT TRUST

- Teacher training workshop on river poisoning on 16/5 in Buff Bay attended by 18 teachers from 8 schools. Educational materials produced and disseminated to the teachers.
- 2 Gleaner articles: 19/7 – “Park Rangers – defenders of the earth” and 23/8: “WH Site evaluators coming” by Paul Williams

### 6. Recreation & Tourism

- Installation of Solar Panels at Holywell for electricity and water heating (through US Dept. of Interior funding) almost complete – Launch/Seminar held on 26<sup>th</sup> August – attended by B Blue, NEPA, Forestry Department and others.
- Produced Report on Visitor Survey conducted at Holywell and submitted to NEPS with request for increases in some fees.
- Monthly figures for income and numbers generally decreased over both locations though year-to-date figures are still averaging 24% increase in income and 11% increase in numbers (as at August, 2014). However expenditure is still significant.

### 7. Governance & Administration

- **Project Development** – working to finalise agreement with GIZ/CARPHA Caribbean Aqua-Terrestrial Solutions (CATS) Project and had discussion with Caribbean Disaster Risk Reduction Fund.
- **Fundraising:**
  - Sent information to, and met with 4 private sector companies and/or foundations.
  - JNPTF funding approved though amount reduced; continued follow up with FCF re: funding but no word.
- **World Heritage Site** - Participated in several technical and advisory meetings at the Ministry of Youth and Culture re: WHS Nomination Evaluation as assisted with planning for Evaluators’ Site Visit (Oct 27 – Nov 3).



JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Six Month Status Report on Management of the Blue and John Crow Mountains National Park - April - September, 2014

PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
<b>Enforcement and Compliance Programme</b>				
1. Increase level of presence & effectiveness of enforcement officers	<p>1.1 Conduct routine patrols</p> <p>1.2 Organise joint agency patrols</p> <p>1.3 Organise helicopter reconnaissance (JDF)</p> <p>1.4 Organise training</p> <p>1.4a Prepare training manual</p> <p>1.4b Conduct training sessions</p>	<p>1.1 10/mth (incl. joint patrols) 120/year – reports &amp; GPS points</p> <p>1.2 1/mth</p> <p>1.3 1/yr</p> <p>1.4a Draft by Dec</p> <p>1.4b At least 2 including wildlife conservation</p>	<p>1.1 <b>80 patrols averaging 13/month (67% of Target &amp; 130% of 6 mth Target)</b>. Summary Map at Appendix 1.</p> <p>1.2 <b>14 joint patrols (117% of Target &amp; 230% of 6 mth Target)</b> FD: 9, NEPA: 6, NWC:1.</p> <p>1.3 <b>Helicopter reconnaissance will occur</b> at end of October as part of UNESCO World Heritage Site Nomination.</p> <p>1.4a Training Plan prepared - See Appendix 2. Work started on preparing a Training Manual – (based on the training sessions conducted and research).</p> <p>14b. <b>7 training sessions (350% of Target):-</b></p> <p>(i) External Training (2)</p>	<p>Chief of Corps – position vacant Jan – April as there were challenges of performance and possible negligence with the person in the position since Dec. 2012 therefore, his contract was not renewed, following a 3 month extension to allow a chance to improve.</p> <p>Chief of Corps Interviews conducted 8/4/14: Bethune Morgan, NEPA, Lt. Cdr. M. Rodriguez, JCDT Director &amp; S. Otuokon, JCDT on the Panel. Gabrielle-Jae Watson selected and started work on 3/5/14.</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
			<p>29 – 30/7: Chief of Corps – Gabrielle-Jae Watson attended 2 dy training in Leadership Skills for Supervisors at the Jamaica Employers Federation, sponsored by JCDT Director.</p> <p>25/9: All Rangers – NEPA First Responder Training – Ava Tomlinson and Vivian Blake, NEPA</p> <p>(ii) In-house Workshops (4) – All Rangers:- 20/8 am – BJCMNP &amp; its Management Programmes (Dr. Susan Otuokon)</p> <p>20/8 pm – Cultural Heritage of the BJCM and the World Heritage Site Nomination (Debra-Kay Palmer, MYC &amp; S. Walters, JNHT)</p> <p>17/9 – Freshwater Ecology &amp; Monitoring (Kimberly John, TNC) &amp; NEPA’s Freshwater Monitoring Prog. (Vivian Blake, NEPA)</p> <p>24/9 – Recreation &amp; Tourism Programme: Programme Overview and Customer Service Refresher (Dr. Otuokon); Recreation Area Procedures (Donna Fray, JCDT)</p> <p>(iii) 31/7 - Motivational Seminar (Dr. Leachim</p>	<p>Former Park Ranger Roger Thompson resigned effective 31/5 &amp; joined the Forestry Dept. Panel: Marva Smith-Moodie, NEPA, C/Corps GJ Watson &amp; S. Otuokon, JCDT interviewed candidates on 11/7 &amp; selected Gary Campbell to start work on 4/8.</p> <p>As at Sept. 30, 2014 – BJCMNP Ranger Corps consists of 7 inclusive the Chief of Corps.</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
2. Contribute to resolution of breaches of legislation	2.1 Record threats & offences from patrols	2.1 Monthly Reports with photos, GPS pts	<p>Semaj) &amp; Recognition Ceremony held on World Ranger Day 31/7. Included personnel from NEPA, FD, MBMP, CCAM. Funded by EFJ.</p> <p>2.1 <b>6 monthly reports prepared</b> by Chief of Corps based on Ranger's Patrol Reports, photographs &amp; GPS coordinates. These are used to prepare bi-monthly reports to NEPA. <b>100% of Target met.</b></p> <p>2.2 Four (4) main types of offences noted and reported to NEPA and/or FD and/or NWC – mostly outside the National Park boundary:-</p> <ul style="list-style-type: none"> <li>(i) Fire was rampant in July – the drought resulted in high impact of what is believed to be regular slash &amp; burn practices and idle youth lighting fires. A few actually impacted the Park e.g. at Cinchona.</li> <li>(ii) Garbage at various locations</li> <li>(iii) Animal waste/pig farm along rivers</li> <li>(iv) Coffee waste pollution</li> </ul> <p>Information on incidents is sent immediately to NEPA &amp;/or FD by phone and email. The reports led to joint</p>	<p>4 main issues:-</p> <p>Fire e.g. Cinchona/Westphalia – 13 – 14/7 destroyed about 250 acres including at least 150 acres within the Park – areas reforested with Pine by FD and native species (33 acres) JCDT.</p> <p>Garbage at various locations – one dump burned after Rangers spoke with community members;</p> <p>Pig pens by rivers: Plum Valley &amp; Scots Hall reported to NEPA; Construction in Plum Valley stopped.</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
	2.2 Report to NEPA & FD as needed	2.2 Calls, emails, Reports	<p>patrols with, and/or action by the relevant government agency. <b>100% of Target met.</b></p> <p><b>3. Target not being met as yet.</b></p> <p>3.1 None</p> <p>3.2 None required but new GPS units purchased and used in obtaining coordinates from patrols.</p> <p>4.1 10 stops in communities on patrol – distribution of brochures and talking to people. <b>80% of Target met.</b></p> <p>4.2 6 joint patrols (4 with 5 community members from the Buff Bay Valley – May/June, 2014 &amp; Millbank (2) – April, 2014). <b>Target not being met.</b></p> <p>5. Programme Assistance (Targets being met):</p>	<p>Wallenford Coffee Factory pollution 17/4 – returned with NEPA 29/5 – Notice served. Check made on 16/7.</p> <p>Intend to have discussions with NEPA regarding this during the second half of the year.</p> <p>Challenge is to find a stipend for community members to</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
3. Improve boundary clarity	3.1 Liaise with NEPA re: boundary clarification	3.1 Plan for next steps	<p>Park Rangers are assigned to work in the various programme areas contributing to the meeting of targets particularly in Conservation, Monitoring, Recreation &amp; Tourism Programmes e.g. Park's Recreation Areas (Holywell &amp; Portland Gap) are manned every weekend and Holywell - Tues – Thursday.</p> <p>6. Major editing/updating of the Existing Plan/Manual following comments from ODPEM, meeting with Park Rangers and Literature Review. <b>Target about 70% met.</b></p>	<p>allow for regular patrols</p> <p>Manual to be completed after a session with JCDT Deputy Chairman – Lt. Cdr Michael Rodriguez.</p>
4. Community Outreach	3.2 Conduct mapping of key sites	3.2 Mapping as needed		
	4.1 Rangers stop in communities on patrol e.g. distribute brochures	4.1 At least 2/mth		
	4.2 Involve at least 2 community members in patrols after basic training	4.2 At least 2/mth		
5. Rangers assist with	5.Ensure other Programmes			

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
<p>other Programmes as required</p> <p>6. Emergency &amp; Disaster Preparedness &amp; Management</p>	<p>achieve their targets</p> <p>6.Audit &amp; Review and Updating of Existing Manual by Dec</p>	<p>5.Other Programmes achieve their targets</p> <p>6.Revised Plan by December</p>		
<p><b>Conservation Programme</b> (Programme challenged as Conservation Science Officer resigned and moved to FD in April, 2013 but ED/PM. AM &amp; C/Corps are supervising work)</p>				
<p>1. Reforest &amp; rehabilitate degraded forest &amp; Maintain areas already rehabilitated</p>	<p>1.1 Reforestation at Priority Sites</p> <p>(a) Conduct Reforestation or Forest rehabilitation as</p>	<p>1. Total: 12ha</p> <p>1.1a. 12 ha in Upper</p>	<p>Reforestation target will not be met as funds anticipated were not forthcoming.</p> <p>1.1a 0 for 2014 – Target not being met</p>	<p>Recreation Pathways was to contract JCDT for about 12ha at Sherwood but did not. An agreement may be signed to</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
	<p>appropriate in 12 ha in the upper Yallahs watershed</p> <p>(b) Maintain 25 ha planted in previous years.</p> <p>1.2 Invasive Species Control</p> <p>(a) Mt. Horeb/Fairy Glade (Wild Ginger - <i>Hedychium</i>)</p> <p>(i) maintain existing controlled area</p> <p>(ii) control additional area</p> <p>(b) Blue Mtn. Peak Trail Wild Coffee (<i>Pittosporum</i>): Check for any invasion of Park</p> <p>(c) Holywell:-</p> <p>(i) maintain free of adult</p>	<p>Yallahs Watershed Area</p> <p>1.1b. Maintain 10ha from 2013 &amp; 15ha from 2012</p> <p>1.2ai Maintain 5.65 ha</p> <p>1.2aii Add 3 ha</p> <p>1.2b. Conduct check</p> <p>1ci. Holywell/</p>	<p>1.1b. Maintenance conducted: 10ha at Sherwood and 15 ha at Cinchona. 100% Target met.</p> <p>Major fire at Cinchona 13 – 14/7 burned 33 acres of JCDT/FCF (13.2 ha) &amp; hundreds of FD acreage</p> <p>1.2ai 0.65ha maintained</p> <p>1.2aii 1 ha added</p> <p>1.2b Check conducted May - Peak Trail clear of <i>Pittosporum</i></p>	<p>start in April 2015.</p> <p>10ha at Sherwood will be maintained for 3 yrs to ensure successful establishment.</p> <p>Maintenance scheduled for October – November and further control December – February.</p> <p>Need to purchase a new drill for Wild Coffee control.</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date	
			April - September, 2014	
2. Propagate and supply native seedlings for reforestation from Holywell & Hagley Gap Nurseries	<p>and saplings (<i>Pittosporum</i>)</p> <p>(ii) maintain control of Wild Ginger (<i>Hedychium</i>)</p> <p>(d) <i>Cinchona</i> (<i>Pittosporum</i>)</p> <p>(i) maintain existing controlled</p> <p>(ii) control additional area</p> <p>2.1 Propagation of seedlings of native broadleaf species</p> <p>2.2 Propagation &amp; sale of commercial species to help sustain propagation of natives</p>	<p>Woodford Rd</p> <p>1cii. Blue Mahoe &amp; Oatley Mtn Trails, Holywell</p> <p>1di.Maintain 2.27ha</p> <p>1dii Add 2ha</p> <p>2.1a Holywell - 5,000 seedlings of at least 6 species</p> <p>2.1b Hagley Gap – 6,000 seedlings of at least 6 species</p> <p>2.2a H/well – 1,000</p>	<p>1.2ci Hwell Trails except Wag Water, clear of <i>Pittosporum</i></p> <p>1.2cii Identified areas for work</p> <p>1.2d Check identified <i>Pittosporum</i> but need to replace drill and get two batteries for greater work efficiency.</p> <p>2. Target not being met as Recreation Pathways did not sign the contract for reforestation – therefore no point in producing so many seedlings.</p> <p>2.1a H/well nursery repairs started. Production estimate: 1,500</p> <p>2.1b Hagley Gap Production estimate: 2,000</p>	<p>Lack of a Conservation Science Officer impacted nursery counts. 11 species for reforestation:- Milkwood, Dovewood, Soapwood, Mountain Yacca, Antswood, <i>Turpinia</i>, Christmas Trees, Blue Mahoe, WI Cedar, Spanish Elm, Silky Oak</p>



JAMAICA CONSERVATION AND DEVELOPMENT TRUST

PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
3. Promote & Facilitate research	<p>3.1 Partnerships with at least 3 research institutions</p> <p>3.2 100% of research requests examined and responded to</p> <p>3.3 100% of researchers applying through NEPA entered in database which is</p>	<p>seedlings</p> <p>2.2b H/Gap – 500 seedlings</p> <p>3.1 Abstracts sent &amp; Partnerships with at least 3 research institutions by Sep 30</p> <p>3.2 100% of research requests examined &amp; re-sponded to by Dec</p> <p>3.3 100% of researchers applying through NEPA</p>	<p>2.2 Production Estimate: H/well: 1,000; H/Gap: 200</p> <p>3.1 Discussions with 5 foreign universities and UWI re: possible research projects. Partnership continued with University of Indiana (study tour: 31/5 – 10/6). Attended a UWI Dept of Life Sciences seminar - 10/4: E Tanner, U/Cambridge: montane forest recovery from hurricanes; Discussions: K. McLaren, E. Garraway, D. Whyte, B. Wilson – UWI; H Fuller, U/ Georgia State &amp; G Graves, Smithsonian. Received papers: G Graves, E. Tanner.</p> <p>3.2 4 research application permits received and responded to for 2014. 100% of Annual Target met.</p>	<p>Need to increase sales of herbs &amp; flowering plants.</p> <p>Still working on partnerships and sourcing funding to get the level and types of research desired happening.</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
	<p>promoted (website etc.)</p> <p>3.4 At least 25% of researchers in the Park accompanied into the field on at least 1 occasion</p> <p>3.5 Obtain reports from at least 25% of researchers who conducted research in 2011/12. Interpret results, promote (e.g. media) and use to guide Park Management where applicable.</p> <p>3.6 Participate in relevant national committees</p>	<p>entered in data-base promoted (website etc.) by Dec</p> <p>3.4 At least 25% of researchers in the Park accompanied in the field at least 1 by Dec</p> <p>3.5 Obtain reports from at least 25% of researchers who conducted research in 2011/12. Interpret results, promote &amp; use</p> <p>3.6 Participate as appropriate</p>	<p>3.3 Research Data-base updated to current.</p> <p>3.4 None – no researchers made final arrangements with us for accompanying in the field.</p> <p>3.5 G Graves sent paper re: Golden Swallow; C Duffie Judy sent document on her research.</p> <p>Information from research used to prepare proposals for funding.</p>	<p>1 researcher accompanied in previous year (C Duffie July 2/2 re: streamertails survey).</p> <p>Challenges updating website have not allowed us to place info re: permits yet.</p> <p>Publication from 2013</p>

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	<p>3.7 At least 1 publication &amp; 2 presentations on the Park (including 1 at UWI)</p> <p>4. Prepare report based on findings</p>	<p>3.7 At least 1 publication &amp; 2 presentations on the Park (including 1 at UWI)</p> <p>4. Report by Dec</p>	<p>3.6 Attended NPAS Project Consultations (19/8, 19/6, 11/6). Participated in CHM Advisory Committee. Participated in Invasive Species workshop and sent comments and joint project recommendation with S. Koenig, Windsor Research Centre re: White-tailed Deer.</p> <p>3.7 Newsletter Articles sent – NHMJ, CHM &amp; JIEP and all published (February – April).</p> <p>4. Proposals and concept notes based on research written seeking funds for implementation, unfortunately no funds approved as yet.</p>	<p>launched in Jamaica: 25/9/14 - Otuokon, S. and M. Beale. 2013. Protected Areas Policy and Practice in the Caribbean with Special Reference to Jamaica and Trinidad and Tobago, in Elizabeth Thomas-Hope (ed.), <i>Environmental Policy and Practice in the Caribbean</i>, Kingston, Jamaica University of the West Indies Press.</p>

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4.Conservation Targets – Identify any additional steps to better conserve the Park’s conservation targets & implement as possible				
<b>Monitoring and Evaluation Programme</b>				
1. Threats and Impacts Monitoring (GIS)	1.1 Collect & Enter Information from Patrols  1.2 Conduct Permanent Photo-monitoring of 12 sites	1.1 Monthly patrol map  1.2 Photos from 10/12 sites by 3/15	<b>Maps for April – Sept. prepared</b> and submitted with reports to NEPA. <b>100% of Target met.</b> Also, Summary Map for 2013 prepared.  <b>1.2 5 sites monitored. 50% of Target met.</b> Catherine’s Peak: 18/6, St. Peter’s: 8/7, Arntully: 23/7, Rowlandsfield: 10/9 Whitehall: 18/9	Comparison process initiated vis a vis collating photographs.

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<p>2. Monitor Populations of Key Threatened Species</p> <p>3. Forest Encroachment Area</p> <p>4. Fresh-water (FW) Macro-invertebrate Monitoring</p>	<p>2. Record all sightings etc. from patrols, monitoring &amp; communities using GIS</p> <p>3. Collaborate with the JDF for Helicopter Monitoring if possible (and FD for possible photo analysis)</p> <p>4.1 Sample stream sites in both dry and wet seasons</p> <p>4.2 Analyse data and Prepare Reports for data collected but not analysed.</p>	<p>2. Report with map for 2013 by Dec</p> <p>3. Photos (can compare with 2009 photos)</p> <p>4.1 12 sites 2/yr</p> <p>4.2 Report by Dec</p>	<p>2. Observations of endemic &amp; threatened species recorded. 11/9: <i>C. caribaea</i> - Johnson Mtn; 12/6: <i>H. pluviialis</i>, <i>T. todus</i>, <i>M. barbirostris</i> – House Hill; 10/5: <i>N. nigerimus</i>, <i>T. todus</i>, <i>M. radiolatus</i> - Peak Trail; 9/4: <i>T. todus</i>, <i>M. radiolatus</i>, <i>P. grammicus</i> – House Hill.</p> <p>3. Identified project to liaise with for photos (see E&amp;C Prog)</p> <p>4.1 None to date – wet season scheduled for November and dry season January/February 2015</p> <p>4.2 FW data collated &amp; analysis conducted by graduate Intern who did FW ecology at UWI. Reports sent to Kimberly John for assistance with final analysis and evaluation of results. Meeting with NEPA’s Water Quality Monitoring Unit re: partnership. FW Macro-invertebrate Monitoring refresher training conducted with K John and plans made for additional training prior to re-starting monitoring.</p> <p>5a. To be started later in year assuming funds sourced.</p>	<p>FW &amp; Bird Monitoring – work will be initiated to re-establish monitoring programmes impacted by loss of full-time CSO and funding constraints</p>

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5. Bird Monitoring	<p>5a. Begin point establishment and monitoring for Winter Season in another of the five established areas</p> <p>5b. Complete establishment of Points and Monitoring for Winter Season at one of five sites</p> <p>5c. Analyse data from earlier years and Prepare Reports (including any climate change findings)</p>	<p>5a. At least 60 points established and counted by Dec 2014</p> <p>5b. Establishment &amp; counting of 120 points started by Dec 2014</p> <p>5c. Report</p>	<p>Training organized for October and November.</p> <p>5b. None</p> <p>5c. Work started on data analysis with graduate interns from National Youth Service.</p>	<p>Absence of full-time CSO and fact that there was a back-log in analysis &amp; limited monitoring 2013 to current.</p> <p>Trying to identify sufficient funds for bird monitoring and analysis of data e.g through NMBCA Fund – but this was not approved.</p> <p>Assistance obtained from Dr. Leo Douglas (JCDT Board Director, President of Birds Caribbean and Ornithologist) re: bird monitoring data analysis and training.</p>

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<p><b>World Heritage Site Nomination</b></p> <p>Pursue WHS status for BJCMNP to raise global status, attention and possibility for funding</p>	<p>1.1 Assist JNHT/MoYC</p> <p>1.2 Mention in public awareness</p>	<p>1.1 As needed</p> <p>1.2 As often as possible</p>	<p>1.1 Attended meetings at JNHT: 27/1, 28/2. Received Final Dossier 28/2; reviewed and sent comments 28/4. Received responses May &amp; June re: next steps. Attended meetings at Ministry 18/6, 22/8, 12/9 &amp; assisted with preparation for Evaluators visit.</p> <p>1.2 In addition to the activities in February celebrating the National Park's 21<sup>st</sup> Anniversary the following were implemented:-</p> <ul style="list-style-type: none"> <li>* CVM TV Live at 7 on 8/4</li> <li>* Exhibit at Intl Maroon Conference, Charles Town, Portland 20 – 23/6</li> <li>* Remarks at BPFA's Ancestral Memories in Comfort Castle -1/8</li> <li>* Series of community meetings (see Education Prog)</li> <li>* Buff Bay Cable TV Interviews – 10/9</li> </ul>	<p>21/1: JCDT Chair wrote to Minister Hanna cc. relevant Ministers: Tourism &amp; Environment noting concern at haste to submit WHS Nomination. Minister Hanna &amp; JNHT disagreed, said Pat Green reviewed &amp; finalized it good to go. JCDT wrote back 12/2 congratulating Minister, wishing all the best &amp; indicating continued service to the BJCM. WH Unit closed at JNHT &amp; Officer seconded to Ministry.</p>
<b>Cultural Heritage Conservation</b>				
<p>With help from the JNHT and other agencies and</p>	<p>1.1 Source funding for the BMST Programme (see</p>	<p>1.1 BMST Prog. started</p>	<p>1.1 See Recreation &amp; Tourism Programme below. Funding being sought but sourced. Target not being</p>	<p>Most of these activities link with the Park's Recreation &amp;</p>

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organizations, support the conservation of cultural heritage as an important component of the BJCMNP.	R& T Prog)  1.2 Assist community cultural heritage festivals          1.3 Sign MOUs with Maroon Councils and Bowden Pen Farmers' Association (BPFA)	1.2 Festivals assisted          1.3 MOUs with at least 2 organisations	met.   1.2 Provided support for Nanny Queen of the Maroons documentary & financial support (from Jamaica Energy Partners) for International Maroon Conference (CTMC) 20 – 23/6 & BPFA Ancestral Memories 1/8. Manned BJCMNP and PA System Booth at the Maroon Conference (funded by NEPA NPAS Project). <b>Target 100% met.</b> See Recreation & Tourism Programme below  1.3 1 Meeting of BJCMNP Maroon Communities Advisory Committee 4/4 and 10/9 and other meetings and discussions are leading towards MOUs.	Tourism Programme   Time constraints and lack of a Recreation & Tourism Officer stymied efforts at an MOU particularly re: tour packages.   Greater involvement with the Scot's Hall Maroon community following Maroon Conference e.g. site visit 2/7.
<b>Education and Public Involvement Programme</b>				
Obj. 1: Facilitate capacity building of community	1.1 Work with communities to build their capacity &	1.1a. Liaise with CBOs in at least 6 targeted	1.1a. <b>7 communities – Target 100% achieved:-</b>	Awaiting approval of funds from FCF for second phase of





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	1.3 Involve community members including Youth PATH, in Park management activities	1.3 30 (including Park staff)	1.3 At least 5 persons employed from communities on a full-time basis and about 25 persons employed part-time at recreation areas, in forest rehabilitation and Holywell electrician, plumber, carpenter & tour guides. For May – June, 5 youth from Buff Bay Valley conducted river patrols and community outreach re: river poisoning.	
Obj. 2: Increase public awareness about the Park, its importance and relevant issues	<b>2.1 Buffer Zone Communities</b> 2.1a Community Meetings	2.1a At least 10 re: Park	2.1a <b>13 Community Meetings - 130% of Annual Target met.</b>  * 2 community workshops held re: BJCMNP, climate change & flooding (UWI CaribSave) – Lloyds 10/6 & BrookLodge 26/6.  * 3 meetings re: BJCMNP, climate change & agriculture & forests (GIZ CATS Project planning) – Westphalia 5/6, Mavis Bank/Hagley Gap – 5/6, Comfort Castle/Millbank – 6/6. * 8 meetings re:	Funds anticipated under FCF Capacity Building but not yet obtained have made some activities e.g. school visits impossible.

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	<p>2.1b Hazards – Flooding</p> <p>2.1c River Poisoning</p>	<p>2.1b Poster &amp; radio advertisements by June</p> <p>2.1c School materials</p>	<p>importance BJCM for natural &amp; cultural heritage and JA’s WHS nomination:- Moore Town – 16/7, Comfort Castle/Millbank – 25/7, Hayfield &amp; Johnson Mtn. – 12/8, Scott’s Hall &amp; Charles Town – 15/8, Irish Town – 20/8 &amp; 21/9, Mavis Bank/Hagley Gap/Penlyne Castle – 26/8.</p> <p>2.1b Poster disseminated &amp; radio advertisements aired – June – July (several stations). <b>100% Target achieved.</b></p> <p>2.1c School materials prepared and disseminated and teacher training workshop held re: their use (see below). <b>100% Target achieved.</b></p> <p>2.1d No signs re: boundaries produced though 3 signs indicating Protected National Heritage, National Park and Forest Reserve to be placed in October by JNHT/MoYC. Liaising with JSIF REDI Project re: Peak Trail signage.</p>	<p>In addition, 3 signs designed for placement along rivers in Brook Lodge, Grasspiece and</p>

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	<p>2.1d Signage re: boundaries &amp; Peak Trail</p> <p><b>2.2 General Public</b></p> <p>2.2a Website maintained &amp; updated</p> <p>2.2b Facebook Page</p> <p>2.2c Media Releases sent out</p>	<p>2.1d 4 signs at key boundaries; Signage Plan for Peak Trail</p> <p>2.2a Major Update</p> <p>2.2b. At least 2 posts/mth</p> <p>2.2c Coverage – 8 times in print or electronic (+ events)</p>	<p>2.2a None</p> <p><b>2.2b. Total: 19 (avg. 3/mth) Target 100% met.</b></p> <p>Likes: 480 at end of Sept up from about 400 in April</p> <p><b>2.2c Coverage – 4+ times – Target 50% achieved.</b> Print: 2 Gleaner: Park Rangers Defending Nature 19/7 &amp; WHS Evaluators coming 23/8. Interviews: CVM TV Live at 7 on 8/4 and Buff Bay Cable TV 10/9 re: WHS Nomination plus advertisements (under UWI/CaribSave Project re: protecting forests in the BJCMNP )</p> <p>2.2d No action yet for this school year.</p> <p>2.2e Participated in 2 events (in addition to</p>	<p>Lloyds (Yallahs) re: Climate Change &amp; Flooding (UWI CaribSave).</p> <p>No major updates due to challenges with website designer's time.</p> <p>2013/14 – had a CARIMAC</p>

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	<p>2.2d Liaise with CARIMAC for assistance</p> <p>2.2e Participate in exhibitions/mini-expos</p> <p>2.2f Provide information to the public through library</p> <p>2.3 Visitors</p>	<p>2.2d Tangible assistance from CARIMAC</p> <p>2.2e At least 3</p> <p>2.2f Record of library users</p> <p>2.3a Improvement &amp;</p>	<p>International Maroon Conference) <b>Target 66% achieved:</b></p> <p>10/4 – CARIMAC Tourism Expo – UWI</p> <p>1/5 - Shortwood Teachers’ College</p> <p>2.2f 1 User &amp; Internal use</p> <p>2.3a Some improvements made with more expected by January, 2015 (under US Dept of Interior Renewable Energy Project):-</p> <p>* 1 Exhibit (2 x 3 board) on natural and cultural heritage</p> <p>* Interactive materials for students e.g. set of activities, Treasure Chest Game, Blue Mountain Stream poem</p>	<p>Intern and plan the same again for 2014/15.</p>

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	<p>2.3a Maintain/refresh Visitors' Centre, Holywell</p> <p>2.3b Conduct tours as requested</p> <p>2.4. Target buffer zone schools to engender care of the Park.</p> <p>2.4a Intensive work with schools e.g. help with project</p> <p>2.4bVisits to buffer zone schools – presentation and activity</p>	<p>repairs</p> <p>2.3b Provide support</p> <p>2.4a At least 4 schools</p> <p>2.4b At least 30 schools</p>	<p>2.3b See below (Recreation &amp; Tourism)</p> <p>Schools visitation/presentation target is not being met</p> <p>2.4a None</p> <p>2.4b <b>6 schools</b> visited (<b>Target 20% achieved</b>) with presentations about climate change and possibility of flooding and steps to prevent this: Yallahs Primary, Minto Primary, Hagley Gap Basic, Logwood Basic, Associated Gospel Basic, and Aeolus Valley All Age (UWI/Carib-Save Project)</p> <p>2.4c <b>Teacher training workshop held in Buff Bay Valley: 16/5</b> (18 teachers from 8 schools attended) and materials produced and disseminated. <b>Target</b></p>	<p>Target cannot be met without additional funding - awaiting funding of project by FCF for full school visitation programme.</p>

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	2.4c Buffer Zone teacher training workshop to help with integration of BJCMNP information & issues into the curriculum, in collaboration with communities, particularly in the 4 targeted communities.	2.4c At least 1	<b>100% achieved.</b> Consultant Marjorie Gaynor conducted the workshop and produced the educational materials. Schools: Fairfield, Tranquility, Cascade, Charles Town, Moore Town & Buff Bay Primary and Charles Town, Ginger House and Pilgrim Holiness Basic.	
<b>Recreation &amp; Tourism Programme</b>				
Obj. 1: Provide & facilitate educational & recreational opportunities to raise awareness & support for Park	1.1 Holywell - Maintain & Improve Product 1.1a Enhance "Tuck-Shop" to Café and Gift Shop  1.1b Improved cabin interiors	1.1a Enhanced building interior  1.1b Improvement	<b>Targets about 20% achieved:-</b>  1.1a No action – awaiting funds from TEF  Letter from TEF re: balance of project funds but no funds disbursed yet – working with TPDCo. on this.  1.1b Seeking funds – FCF Capacity Building – awaiting	TPDCo/TEF project basically complete though still remains to settle accounts and some other items. TEF Project to have Phase 2 re: road & plan to look at big picture.

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	<p>1.1c Solve water quality/volume problem</p> <p>1.1d Road improvements (TPDCo/TEF)</p> <p>1.1e Provide educational tours at Holywell</p> <p>1.2 Portland Gap/Peak Trail – Improve Product</p> <p>1.2a Source funds for Peak &amp; Access Trail &amp; Portland Gap Area Improvements (JSIF Proposal) - access funding, start work</p> <p>1.2b Address user fee non-payment by meeting &amp; establishing system with guest houses/tour guides etc.</p>	<p>1.1c System improved &amp; maintained</p> <p>1.1d Road improvements</p> <p>1.1e At least 40</p> <p>1.2a Funds sourced &amp; project started</p>	<p>approval</p> <p>1.1c Tank sealed &amp; meters installed &amp; chlorination programme in place along with regular coliform testing.</p> <p>1.1d Had discussions with TPDCo. re: TEF funding – but decision not clear.</p> <p>1.1e 12 educational tours (as at 30/8) – 30% of target achieved</p> <p>1.2a Photos &amp; information gathered for planning and meetings held with business consultants.</p>	<p>Funds for repairs to Peak Trail environs dependent on JSIF but they won't fund Trail repairs. Now seeking funds FCF and TEF.</p> <p>The Peak Trail Improvement Project will allow for improved collections, but will now have to prepare a proposal to the</p>



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	<p>1.3 Cunha Cunha Pass &amp; Corn Puss Gap Trails – Address fee collection (Trails pass through Park)</p> <p>1.4 Blue Mountains Sustainable Tourism (BMST)</p> <p>1.4a Copyright Name/Logo</p> <p>1.4b Park &amp; Community attractions &amp; events marketed</p> <p>2.1 Improve management &amp; supervision (through meetings and regular site visits)</p>	<p>1.2b System in place</p> <p>1.3 System in place</p> <p>1.4a Copyright</p> <p>1.4b Marketing &amp; events</p>	<p>1.2b Spoke with some of guest-houses – they feel non-residents fee of US\$20 is too high versus JA\$200 for residents. Wrote guest-houses and trying to ensure collections.</p> <p>1.3 Verbal agreement with BPFA. Letter to NEPA re: User Fees</p> <p>1.4a Information obtained and work started on copyrighting logo – awaiting funding.</p> <p>1.4bi Promoted Buffer Zone Community Events, Making plans for improved Misty Bliss as part of the 2<sup>nd</sup> holding of the Blue Mountain Music Festival.</p> <p>2.1 Unable to afford a Programme Officer. French expatriate V. Luppe Schaffert has been volunteering since Jan. 2014. Efforts being made to improve</p>	<p>TEF – made presentation to the Kingston Resort Board – who are very supportive.</p> <p>The BM Sustainable Tourism (BMST) Prog. was designed under an IDB project in 2008. Funding for its implementation continues to be sought especially for a Programme Officer. Without this person, work is shared between the Administrative Manager (on-going operations &amp; projects) &amp; Executive Director (fund-raising).</p>

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Obj. 2: Increase income from Programme to result in a surplus for Park management	<p>2.2 Increase marketing and sales</p> <p>2.2a Cultural &amp; Community Events &amp; Hikes organized to generate income &amp; awareness</p> <p>2.2b School groups invited to Holywell for educational tours</p> <p>2.2c Income generation from "Tuck Shop"</p> <p>2.2d Increase revenue</p>	2.1 Employ Programme Officer	<p>management and supervision e.g. through meetings with Grounds staff meetings – 2 for year to date.</p> <p>2.2 Volunteer assisting with marketing: Holywell Market Survey conducted &amp; Report prepared and action initiated re: findings e.g.: requested changes in fees through NEPA, site improvements, income generation plans: food, souvenirs, tours.</p> <p>2.2a Only Community events assisted (see above). Hike to have been held in the summer but inadequate staff to allow for organization.</p> <p>2.2b Sandals Foundation invited to send schools.</p> <p>2.2c Awaiting improvements through TEF/TPDCo. Plans to formalize fruit/coffee sales by local community members including construction of a "market place".</p>	<p>Inadequate funds and limited staff time are main reasons for inadequate marketing though brochures are distributed at exhibits in public spaces.</p> <p>Schools to be invited with start of new school year.</p>

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	<p>3.1a Support for community attractions &amp; ventures</p> <p>3.1b Support for capacity building</p>	<p>2.2a See above (1.4b)</p> <p>2.2b Information to schools</p> <p>2.2c Concession in place</p> <p>2.2d By 30% over 2013/14</p>	<p>2.2d Target should be achieved, as to date:</p> <p>YTD August 30:</p> <p>Holywell Income: 24% increase</p> <p>Portland Gap Income: 26% increase</p> <p>Total Income: 24% increase</p> <p>Total # Visitors: 11% increase</p> <p>3.1a Supported 2 community events:-</p> <p>* Charles Town Maroon Council: International Maroon Conference 20 – 23/6</p> <p>* Bowden Pen Farmers' Association: Ancestral Memories – 1/8</p> <p>3.1b See Education &amp; Public Involvement Prog</p>	

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<p>Obj. 3: Engender community support for Park through benefits to community groups &amp; members</p> <p>Obj. 4: Management for biodiversity conservation &amp; environmental sustainability</p>	<p>4.Work with UWI to have studies &amp; research conducted &amp; plans/strategies developed</p>	<p>3.1a At least 3</p> <p>3.1b See Education &amp; Public Involvement Prog</p> <p>4.Research proposals sent to UWI</p>	<p>4. Some discussion with lecturers at UWI.</p>	
<b>Governance &amp; Administration Programme</b>				
Obj. 1: Coordinate	1.Establish & meet twice for	1. Two meetings	1. BJCMNP Advisory Committee meeting held on 25/9 at Ministry of Youth & Culture Meeting Room.	

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<p>management at policy level through establishment of an Advisory Committee</p> <p>Obj. 2: Coordinate management at operations level through Co-management and participatory planning</p> <p>Obj. 3 Provide support for Park management</p>	<p>the year</p> <p>2.1 Re-establish Co-management Committee meetings</p> <p>2.2 Liaise with Buffer Zone Community Groups for projects &amp; programmes</p> <p>3.1 Preparation of Annual Plans &amp; Reports</p> <p>3.2 Preparation of monthly &amp; bi-monthly Programme Reports &amp; Park Reports</p>	<p>(September &amp; March)</p> <p>2.1 3 mtgs/yr (June, Nov/March)</p> <p>2.2 planning and other meetings</p> <p>3.1a Annual Report (Feb)</p> <p>3.1b Annual Plan (Feb)</p>	<p>2.1 None however NEPA, FD and JCDT have been liaising on several areas e.g. Enforcement and the World Heritage Site nomination e.g. community meetings.</p> <p>2.2 Continued to liaise with communities (see Cultural Heritage and Education &amp; Public Involvement Programme above)</p> <p>3.1 The Report for 2014/15 and Plan for 2015/16 are to be submitted in 2015.</p> <p>3.2 Reports prepared &amp; submitted: Mar-April (2/6), May– Jun(22/7), July – Aug (16/9)</p>	<p>Co-management Meeting awaiting renewed agreement &amp; the NPAS Project</p> <p>The 2013 Report and 2014/5 Workplan and Budget were submitted to NEPA on 14/2</p>

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PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
	<p>3.3 Preparation of quarterly project reports</p> <p>3.4 Regular meetings: Programme Management, Rangers' Roster Meetings (monthly) &amp; Staff meetings quarterly</p> <p>3.5 Project Development and Management: Develop, Manage &amp; Implement as per Park Plan</p>	<p>3.2 By 12<sup>th</sup> &amp; 15<sup>th</sup> of each month</p> <p>3.3 By 21<sup>st</sup> or 30<sup>th</sup> of each relevant month</p> <p>3.4 Meeting notes &amp; coordination</p> <p>3.5. Project proposals and implementation of projects</p>	<p>3.3 One report outstanding as at 30/9</p> <p>3.4 All Rangers' Roster meetings held; 1<sup>st</sup> &amp; 2nd staff meeting held; No Programme Management meetings held due to short staff – staff are met with individually by Executive Director/Park Manager/</p> <p>3.5. Implementation of 5 projects as part of Park management. EFJ River Poisoning Awareness and UWI CaribSave Climate Change/Flooding ended in July and US Dept of Interior Renewable Energy started in March and GIZ Caribbean Aqua-Terrestrial Solutions (CATS) had a planning component from June - July with longer agreement expected in October.</p> <p>3.6 See Enforcement &amp; Compliance Programme</p>	<p>The current number of projects and slow time for approval and disbursement of</p>

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PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
Obj. 4: Source short and long-term funding for	<p>3.6. Human Resource Development/Management</p> <p>3.7 Networking and Collaboration – attend meetings, workshops &amp; other activities to promote collaboration on activities which support Park management</p> <p>4. Source funding:-</p> <p>4.1 Proposals to NEPA &amp; JNPTF</p> <p>4.2 Proposals to donors &amp; private sector</p>	<p>3.6. At least 10 Training days</p> <p>3.7 Increase over 2013/14.</p>	<p>3.7 Attended numerous meetings – have not been able to accurately assess.</p> <p>4.1 Total new funding for budget: JA\$15,047,780 4.1 NEPA/JNPTF: NEPA approved: \$11,371,099.64 (2014/15) JNPTF approved \$3,139,081 (2014)</p> <p>4.2 Efforts and results as follow: *Discussions with 4 private sector companies and/or foundations (Digicel, Wallenford, Stewarts, Sandals) *Sandals Foundation/ATL agreed to a Forest Rehabilitation Programme to start in October.</p>	<p>funding have created cash-flow challenges. Project funding has not been forthcoming – non-approval of most project proposals &amp; lengthy periods for proposal consideration – FCF &amp; JSIF and project finalization e.g. TPDCo/TEF. Other funding options are being explored e.g. corporate sponsorship and corporate foundations.</p> <p>Budget request to NEPA was for \$13,436,000 and to JNPTF</p>

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PROGRAMMES & STRATEGIES	Major Tasks/Targets	Performance Indicators/ Measures	Achievements	Constraints, Projections, Remarks & Consequences
			Year-to-Date April - September, 2014	
BJCMNP management from various sources	<p>4.3 Fundraising events</p> <p>4.4 Other</p>	4. Minimum JA\$30 million	<p>*Started working with a new donor – GIZ under a regional project (CATS): US\$4,800 for project administration.</p> <p>*Proposal writing: 4 new proposals prepared and submitted: UNEP REGATTA: US\$94,204 &amp; CCIC re Carbon Project Feasibility: US\$50,000; Swiss Re: Watershed Mgmt: US\$133,000; Fish &amp; Wildlife within Birds Caribbean Proj.: US\$10,000.</p> <p>*Followed up with FCF re: anticipated Capacity Building Phase 2 Project.</p> <p>4.3 No Fundraising events during this period</p> <p>4.4 No other fundraising activities</p>	<p>for \$4,192,060</p> <p>US Dept of Interior Climate Friendly Parks Project has provided US\$60,950 but this does not cover Park operations but rather solar panel installation at Holywell (which will reduce expenditure on electricity by about JA\$100,000 per annum) and interpretive materials and improvements to Visitors Centre.</p>



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**KEY:** C/Corps – Chief of Corps    CSO – Conservation Science Officer    ECOO – Education & Community Outreach Officer    ED – Executive Director/ Park Manager    AM – Administrative Manager, BPFA – Bowden Pen Farmers Association.

**Appendix 1 – Summary Patrols Map for April – September 2014**

(N.B.: 12 patrols (including in Buff Bay Valley had no GPS coordinates so could not be mapped)

## Patrolled Areas in and around BJCMNP April-September 2014



### Legend

- ★ Recreation Areas
- Single Patrols
- Double Patrols
- Triple Patrols

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**Appendix 2 - Recreational Area Statistics (as at August 30, 2014)**

Information Types	Holywell		Portland Gap	
	July	August	July	August
<b>Number of Visitors (including Foreign)</b>	770 (9)	1,638 (24)	246 (25)	213 (2)
<b>Income:</b>				
Entrance Fees	128,890	155,710	40,500	41,800
Cabin Rentals	163,000	134,200	63,100	27,900
Trail/Tour Packages	25,900	28,000	39,100	56,500
Special Packages	0	0	0	0
Camping Fees	22,400	27,500	0	0
Rental of Grounds	1,500	0	0	0
Plant Sales	200	1,150	0	12,480
Other Sales e.g. water, landrover, sponges	8,300	2,250	53,650	57,400
<b>TOTAL Income</b>	<b>350,190</b>	<b>348,810</b>	<b>196,350</b>	<b>196,080</b>
<b>TOTAL INCOME (July &amp; August)</b>	<b>699,000</b>		<b>392,430</b>	
<b>Expenditure (July &amp; August):</b>				
Staff (casual/groundsmen, housekeeping etc)		267,000.00		169,850.00

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Laundry Service (H/well)	109,520.00	0
Phone/ Fax/Comm. (H/well)	22,615.22	0
Travel/Transportation	26,000.00	0
Fuel & Oil/Cooking Gas	26,649.36	0
Office & Cleaning Supplies	15,207.50	6,507.50
Holywell- Salary	0	0
Electricity (Holywell only)	62,642.02	0
Stationery & Office Supplies	12,496.47	0
Trail & Other Tours & Group Events	22,500.00	169,500.00
Recreation Area Operations & Maintenance e.g pest control	52,551.86	37,250.00
Nursery Worker	0	0
General Expenses – Other e.g. security deposit refund	128.00	0
<b>TOTAL EXPENDITURE (July &amp; August)</b>	<b>617,310.43</b>	<b>383,107.5</b>
<b>Profit/Loss (July &amp; August)</b>	<b>81,689.57</b>	<b>9,322.50</b>

# JAMAICA CONSERVATION AND DEVELOPMENT TRUST

## REPORT ON IMPLEMENTATION OF 2013

### BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK WORKPLAN

*JCDT Mission: Promoting environmental conservation and sustainable development, with particular emphasis on the Blue and John Crow Mountains National Park, for the benefit of Jamaica and our people.*



*BJCMNP Mission: To collaboratively manage the national park for its natural, cultural and recreational values, by striking the right balance between biodiversity conservation and socio-economic development, for the ultimate well-being of the people of Jamaica.*

## EXECUTIVE SUMMARY

### **INTRODUCTION**

The Jamaica Conservation and Development Trust (JCDT) is an environmental, non-government organization, and registered charity, founded in late 1987 and incorporated in 1988. Its mission is to promote environmental conservation and sustainable development, with particular emphasis on the Blue and John Crow Mountains National Park, for the benefit of Jamaica and our people. The JCDT's manages the Blue and John Crow Mountains National Park (BJCMNP) under a delegation agreement with the Natural Resources Conservation Authority (NRCA) through the National Environment and Planning Agency (NEPA). The organisation's goals and objectives are stated in the JCDT Strategic Plan 2010 – 2014, which dovetails with the BJCMNP Management Plan for 2011 – 2016. The JCDT staff are dedicated to management of the Blue and John Crow Mountains National Park and all fundraising efforts for JCDT relate to generating income to support management of the National Park. The Executive Director spends about 2 - 5% time with other issues e.g. participating on national committees and in national consultations on the National Protected Area System or related issues e.g. economic valuation of natural resources.

### **HIGHLIGHTS**

JCDT manages the National Park according to a 5 year Management Plan detailing programmes, goals, objectives and strategic activities. The current Management Plan is for the period 2011 – 2016. An annual work-plan is prepared setting targets based on the 5 year plan and Programme Officers prepare monthly reports which are compiled and sent to NEPA and JCDT's Board on a bi-monthly basis. 2013 was a particularly challenging year for the JCDT with the resignation of the Conservation Science Officer and being unable to employ a replacement full-time.

#### Enforcement & Compliance Programme

- 131 patrols were conducted for the year, averaging 11/month exceeding the target of 10/month a 36% increase over 2012 ( 96 for the year or average of 8/month).
- All Rangers participated in training on Cultural Heritage in the BJCMNP and Disaster Preparedness and Management.
- The Rangers continued to play a major role in the implementation of all the Park's management programmes e.g. conducting bird monitoring, supervising reforestation etc.

#### Conservation Programme

- This Programme was impacted when the Conservation Science Officer resigned in March. Despite this, the target of maintaining 15hectares in the Cinchona/Bellevue area was achieved although only 10 of 15ha were reforested and invasive species control was very limited.

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- Nursery production continues to focus on native, non-lumber species for reforestation within the National Park and 73% of the 9,000 seedling production was achieved.
- There was an increase in the contact with universities from overseas. The student from the Integrated Urban and Rural Environmental Management MSc. Programme completed his project, “Mapping and Risk Assessment of Climate Change Related Hazards: A Strategy for Building Resilience Towards Disaster Risk in the Blue and John Crow Mountains National Park” with funding assistance from the Environmental Foundation of Jamaica (EFJ) through JCDT and presented findings to the research communities.
- Book edited by E. Thomas-Hope published December 2013 - *Environmental Policy & Practice in the Caribbean* with paper *Protected Area Policy & Practice in the Caribbean with Reference to Jamaica* (Otuokon & Beale) which uses the BJCMNP as an example.

### Monitoring and Evaluation Programme

- This Programme was impacted by the resignation of the Conservation Science Officer.
- Bird Monitoring was conducted for the House Hill area in St. Thomas but only for the non-breeding season, due to insufficient funding.

### Cultural Heritage Preservation Programme and World Heritage Site (WHS) Nomination

JCDT continued to work with the Jamaica National Heritage Trust towards resubmission of the WHS nomination for the National Park including hosting a retreat at Holywell. Jamaica Tourist Board and private sector support was used to assist Maroon communities with the hosting and promotion of their festivals which resulted in greater attendance and publicity. JCDT at the request of the Bowden Pen Farmers Association took the JNHT to visit one of the Maroon sacred sites to look at the possibility of archaeological studies.

### Education and Public Involvement

- At least 8 community meetings about the National Park and related issues were held, exceeding the target set for six (6) community meetings. This was made possible by funding from the EFJ for the Buff Bay Valley Anti-River Poisoning and Hazard Mapping Projects and the UWI CaribSave Project.
- Ten (10) CBOs were involved in planning and implementation of projects/activities e.g. Bowden Pen Farmers Association, Charles Town and Moore Town Maroon Councils, Woodford Community and Agricultural Groups, Cascade CDC, Balcarres CDC, Buff Bay LFMC, Spring Hill and Tranquility, Portland
- Only 6 primary and 2 basic schools around the National Park were visited with a presentation (on River Poisoning) – this was due to delays in approval of the anticipated Phase 2 of the FCF funded Capacity Building Project. Copies of the DVD shown “Earth To Sea” were delivered by Rangers in the first quarter as planned.
- 2 DVDs were produced: “Hazards Yes, Disasters No”(shown in 4 communities & distributed in 5 to date) and “Don’t Poison the River” (shown in 1 community to date) – this was with funding from 2 separate EFJ projects.

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- 10 boundary signs were produced and erected at key boundaries around the Park with funds from the UNDP/GEF National Protected Area Strengthening Project (NPAS).
- The Facebook Page was posted on 43 times for the year, averaging 3 posts/mth resulting in 348 Likes.

### Recreation and Tourism Programme

JCDT continued to seek funds for full implementation of the Blue Mountains Sustainable Tourism Programme and but the revised proposal to the Inter-American Development Bank was eventually turned down. JCDT continued to work with the Jamaica Social Investment Fund's Rural Economic Development Initiative (REDI) Project towards project approval for the Blue Mountain Peak and Environs Improvement Project.

This Programme does not have a full-time Programme Officer and responsibilities are shared between staff members, particularly the Administrative Manager. Highlights were:-

- Major repairs at Holywell (trails, stage, gazebos, bathrooms) funded by the Tourism Enhancement Fund (TEF) through Tourism Product Development Company (TPDCo).
- Work almost completed on repairs and improvements to the water catchment at Holywell which will hopefully result in increased flows (with EFJ funding and technical assistance and funding from Hydrology Consultants)
- 39 schools and other groups visited Holywell for hikes and educational tours exceeding the target of 25.
- Visitation and income increased across both recreation areas by 34% and 29%.

### Governance and Administration Programme

- A BJCMNP Advisory Committee was established and two meetings held. The Co-management Committee and a Maroon Community Committee were established.
- About 6 proposals totalling requests for about US\$2 million were prepared during 2013 with 2 rejected and 4 awaiting response. Three existing proposals were followed up with one (IDB) rejected, one (JSIF/REDI) going through relevant documentation and feasibility processes and the other (FCF Capacity Building) awaiting a Board decision. In addition NEPA approved funds for 2013 - 2014. Recreation Pathway Reforestation and UWI/Carib Save Projects No major new funds were raised in 2013.
- Through the assistance of a JCDT Director, Education & Community Outreach Officer attended the Birds Caribbean Conference and Training in Grenada.

### **CHALLENGES**

Challenges continue to be related mainly to limited resources, particularly financial, human and vehicles. Funds for core costs such as rent, utilities and administrative staff are almost impossible to obtain from donors but are essential for the operation of the organisation. Despite our best efforts at efficiency and a very hard-working staff, the limited



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number of personnel – particularly administrative, affected the meeting of time-lines and achievement of targets. The Conservation Science Officer resigned and the position could not be filled due to inadequate funding. There was an increase in the number of volunteers including: E. “Henry” Akhinedor and Shanese Watson. The Jamaica Energy Partners provided summer employees (university students) who were very helpful.

**Staff Complement – 2013**

Executive Director (ED)	- Susan Otuokon		Ranger Corps
Administrative Manager (AM)	- Donna Fray	Chief of Corps (C/Corps)	- Bernard Gentles
Conservation Science Officer (CSO)	- Marlon Beale (to end March)*	Station Chief, Holywell	- Herma Nathan Dawes
Education & Community		Station Chief, Portland Gap	- Rudolph Poyser
Outreach Officer (EECO)	- Wellington Taylor	Ranger	- Ryan Love
Accountant	- Howard Irons (part-time)	Ranger	- Roger Thompson
Accounts Clerk	- Rohainia Lawrence (to end April)	Ranger	- Marlon Hamilton
Receptionist/Bookings Clerk	-Andre Bennett (from June) - Kantalin Robinson	Ranger	- Jermy Schroeter
Office Attendant	- Valma “Mavis” Powell		

\* Marlon Beale resigned as Conservation Science Officer effective April 1, 2013. Search for a replacement was not successful and insufficient funds prevented obtaining a full time staff member. Instead, the Executive Director and Administrative Manager along with Rangers and Chief of Corps took on specific responsibilities.

**BJCMNP Enforcement and Compliance Programme – 5 Year Goal:** To stop encroachment of the Park boundary and destruction of the forest and wildlife within.

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This Programme is linked to JCDT's Strategic Plan Goal 1, Objective 1.1

Main Funding (2012): NEPA Management Fee (2011/12 and 2012/13)

Persons Responsible: Chief of Corps – Bernard Gentles/Park Manager – Susan Otuokon

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans																												
<p>Obj. 1. Increase level of presence &amp; effectiveness of Enforcement Officers</p> <p>1.1 Involve community members in patrols</p> <p>1.2 Conduct routine patrols <b>and</b></p> <p>1.2a Organise Joint Agency Patrols</p> <p>1.2b Organise patrols out of usual day time hours</p> <p>1.2c Organise additional patrols seasonally</p> <p>1.3 Organise helicopter reconnaissance</p> <p>1.4a Training Manual</p> <p>1.4b. Conduct training sessions</p>	<p>1.1 See #4 below</p> <p>1.2 10/mth (120/yr)</p> <p>{incl.(a) &amp; (b)}</p> <p>1.2a At least 1/mth from Feb (11/yr)</p> <p>1.2b At least 1/mth from March</p> <p>1.2c 2 additional in Aug &amp; Nov</p> <p>1.3 At least 1/yr by December 31</p> <p>1.4a Prepare Draft</p> <p>1.4b Conduct at least 2 (incl. cultural heri-</p>	<p>1.1 See #4 below</p> <p>1.2 Average of 11 patrols/mth for 2013 (Total: 131)</p> <table border="1"> <thead> <tr> <th>Month</th> <th># Patrols</th> <th>Month</th> <th># Patrols</th> </tr> </thead> <tbody> <tr> <td>January</td> <td>15</td> <td>July</td> <td>13</td> </tr> <tr> <td>February</td> <td>10</td> <td>August</td> <td>9</td> </tr> <tr> <td>March</td> <td>12</td> <td>September</td> <td>10</td> </tr> <tr> <td>April</td> <td>16</td> <td>October</td> <td>6</td> </tr> <tr> <td>May</td> <td>15</td> <td>November</td> <td>9</td> </tr> <tr> <td>June</td> <td>10</td> <td>December</td> <td>6</td> </tr> </tbody> </table> <p>1.2a Joint Patrols: 23 patrols with FD or NEPA plus assistance to NEPA during Bird Shooting Season</p> <p>1.2b 3 early morning patrols in Rio Grande Valley area</p> <p>1.2c Additional patrols some months but not in Aug. or Nov.</p> <p>1.3 Helicopter reconnaissance not done</p> <p>1.4a No action on Training Manual.</p>	Month	# Patrols	Month	# Patrols	January	15	July	13	February	10	August	9	March	12	September	10	April	16	October	6	May	15	November	9	June	10	December	6	<p>1. Targets for Objective 1 generally achieved</p> <p>but critical areas not addressed</p> <p>1.1 see #4 below</p> <p>1.2 Exceeded patrols target but not for those outside usual schedule</p> <p>1.3 Unable to organise helicopter reconnaissance due to lack of funds for fuelling of helicopter</p> <p>1.4a No Training Manual produced</p>	<p>The new Chief of Corps had a lot to learn during the year and this was further hampered by the resignation of the Conservation Science Officer in March. Whilst patrolling targets were generally exceeded, there was need for improvement in documentation and reporting.</p> <p>Reduced patrols: Oct (heavy rain) &amp; Dec (Recreation Area and Reforestation focus)</p> <p>Inadequate funding for CSO , cash flow challenges and inadequate time available from the Park Manager (JCDT ED)</p> <p>The new Chief of Corps did not</p>
Month	# Patrols	Month	# Patrols																													
January	15	July	13																													
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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>Obj. 2. Contribute to resolution of breaches</p> <p>2.1 Record threats &amp; offences from patrols</p> <p>2.2 Report to NEPA &amp; FD as needed</p> <p>2.3 Investigate &amp; produce special issue reports</p> <p>Obj. 3. Improve Boundary Clarity</p>	<p>tage)</p> <p>2.1 Monthly Reports with photos, GPS points</p> <p>2.2 Calls, emails, Reports</p> <p>2.3. As needed</p>	<p>1.4b. Training conducted: Five (5) Training sessions:</p> <p>(i)GPS Training: 28/5, 23/9 and 7/11 (MH, RT, JS)</p> <p>(ii)Cultural Heritage in the BJCM with JNHT (4/6 am)</p> <p>(iii)Basic Disaster Management, Hurricane &amp; Earthquake Safety with ODPEM (4/6 pm) – All Rangers &amp; C/Corps</p> <p>(iv)Interpretation for Tour guides at Holywell on 13/6 – MH, JS and Holywell staff</p> <p>(v) Holywell Water Quality Testing with SRC (for Public Health Certification) on 14/11 - All Rangers &amp; C/Corps</p> <p>2.1 Information from patrols recorded</p> <p>2.2Reports submitted to NEPA as part of bi-monthly reporting and calls made/emails sent to report issues</p> <p>2.3 No special issue reports produced but special joint patrols conducted with NEPA or FD to address concerns identified.</p> <p>3.1 See Education &amp; Public Involvement Prog.</p> <p>3.2 No discussions had.</p> <p>3.3 Mapping of Corn Puss Gap Trail</p>	<p>1.4b Training sessions exceeded</p> <p>2. Target achieved</p> <p>3. Target partially achieved, particularly signage</p>	<p>have the requisite skills to address the issue of training in a significant way.</p> <p>An attempt was made to provide a Ranger with GIS training through Mona GeoInformatix “Introduction to GIS” but the course proved too “academic”</p> <p>Improvements to be made in documentation and reporting</p> <p>Need to discuss boundary concerns with NEPA but need to address other issues first</p> <p>Lack of funds for stipends for community members prevented the involvement of community members in patrols</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>3.1 Mark key boundaries with signs</p> <p>3.2 Liaise with NEPA re: boundary clarification</p> <p>3.3 Conduct mapping of key sites</p> <p>Obj. 4. Community Outreach</p> <p>4.1 Rangers stop in communities with brochures etc</p> <p>4.2 Involve at least 3 community members in patrols after conducting basic training</p> <p>5. Rangers assist with other Programmes as required</p>	<p>3.1 # signs by March</p> <p>3.2 Plan for next steps by August</p> <p>3.3 Mapping as needed</p> <p>4.1. At least 2/mth</p> <p>4.2 At least 2/mth</p> <p>by 31 July</p>	<p>4.1 Rangers stopped in at least 18 communities to talk with community members and/or distribute BJCMNP brochures (N.B. recording of this information did not start until half way through year). In addition, Ranger M Hamilton delivered DVDs to schools around the Park (copy of old River to Sea DVD) and attended 1 community meeting with Ed. Officer</p> <p>4.2 Three (3) patrols conducted in Rio Grande Valley involving 2 community members</p> <p>5. Rangers played major role in other Programmes:-</p> <ul style="list-style-type: none"> <li>- Conservation – supervision &amp; implementation of invasive sp. eradication, nursery counts, reforestation, wilding &amp; seedlings collection</li> <li>- Monitoring &amp; Evaluation – bird, photo and fresh water monitoring</li> <li>- Education &amp; Public Involvement – interpretive enforcement &amp; conducting guided tours for schools etc. at Holywell</li> <li>- Recreation &amp; Tourism – weekend visitor management;</li> </ul>	<p>4. Target partially achieved but not with respect to increased involvement of community members on patrols</p> <p>5. Target achieved</p> <p>Bird monitoring had to be cancelled due to inadequate funds for stipends and related costs.</p>	<p>except in the Rio Grande Valley where there were a few patrols focused on trail improvements and river poisoning. Funds for stipends for Buff Bay Valley river poisoning patrols were received from EFJ but due to cashflow challenges with the project – it was running late and so training of community members was not possible in the timeframe – this should occur in early 2014.</p>



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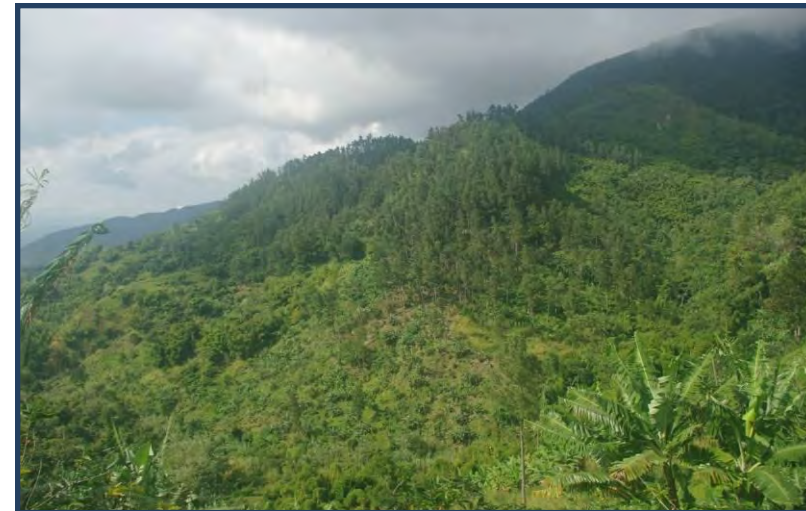
Coffee Pollution in River below Wallenford Factory, St Peters



Possible illegal lumber in Ecclesdown Area, Portland



Ring tail Pigeon Feathers indicating illegal bird shooting in Arntully area



Farming on land believed owned by NWC just outside Park near Freetown

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**BJCMNP Conservation Programme – 5 Year Goal:** To maintain and enhance the remaining area of closed broadleaf forest and component species of plants and animals.

This Programme is linked to JCDT’s Strategic Plan Goal 1, Objectives 1.2 and 1.4

Main Funding (2012): Forest Conservation Fund (Forest Conservation) and (Soil Stabilisation)

Persons responsible: Executive Director/Admin Manager/Rangers

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>Obj. 1: Rehabilitate degraded forest in priority areas &amp; maintain rehabilitated areas</p> <p>1.1 Reforestation at Priority Sites</p> <p>(a) Conduct Reforestation or Forest rehabilitation as appropriate in 15 ha in the upper Yallahs watershed</p> <p>(b) Maintain 15 ha planted in previous year.</p> <p>1.2 Invasive Species Control</p> <p>(a) Mt. Horeb/Fairy Glade (Wild Ginger - <i>Hedychium</i>)</p> <p>(i) maintain existing controlled area</p>	<p>1.1 By Dec 31:-</p> <p>(a) 15 ha in Upper Yallahs Watershed Area</p> <p>(b) Maintain 15ha</p> <p>1.2a. Mt Horeb by Nov 31</p> <p>(i) Maintain 4.65 ha</p>	<p>1a. 10 ha at Stony Valley (private lands near Peak Trail - for Recreation Pathways) mainly native forest seedlings</p> <p>1b. Maintenance of 6ha at Stony Valley.</p> <p>Maintenance of 15ha planted in 2012 and 5older ha at Cinchona.</p> <p>1.2a(i) Less than 0.5 ha of existing 4.65ha maintained but</p>	<p>1a.Reforestation: 67% of Target</p> <p>1b. Maintenance: 100%.</p> <p>1.2a(i) Target not</p>	<p>Target achievement was reduced as plans for additional acreage at Cinchona were postponed to focus on improving survival and growth through improved maintenance.</p> <p>Inadequate supervision due to lack of a full-time CSO reduced</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>(ii) control additional area</p> <p>(b) Blue Mtn. Peak Trail (<i>Pittosporum</i>): maintain control and monitor existing 5ha plot</p> <p>(c) Holywell:-</p> <p>(i) maintain free of adult and saplings (<i>Pittosporum</i>)</p> <p>(ii) maintain control of Wild Ginger (<i>Hedychium</i>)</p> <p>(d) Cinchona (<i>Pittosporum</i>)</p> <p>(i) maintain existing controlled</p> <p>(ii) control additional area</p> <p>(e) Prepare best practice guide for invasive species</p> <p>Obj. 2: Propagate and supply native species for reforestation – Holywell</p>	<p>(ii) Add 1.35ha</p> <p>1.2b. Maintain and monitor 5 ha pilot plot by Sept 30</p> <p>1.2c. Holywell/Woodford Rd by June 30</p> <p>(i) <i>Pittosporum</i></p> <p>(ii) Blue Mahoe &amp; Oatley Mtn Trails</p> <p>1.2d. At Cinchona by Dec 31:</p> <p>(i) Maintain 2.27ha</p> <p>(ii) Add 2ha</p> <p>1.2e. Best Practice Guide by Dec 31</p> <p>2.1a Holywell - 5,000 seedlings of at least 5 species</p>	<p>plots are partially self-maintaining.</p> <p>1.2a (ii) 1ha added. Total now: 5.65ha</p> <p>1.2b. Site not maintained</p> <p>1.2c. Holywell area and trails checked for Wild Coffee (<i>Pittosporum</i>) and saplings pulled.</p> <p>1.2d. No maintenance or additional areas.</p> <p>1.2e. A Best Practice Guide was not produced.</p>	<p>met</p> <p>1.2a (ii) 75%</p> <p>1.2b. Target not met</p> <p>1.2c. Target partially met</p> <p>1.2d. Target not met</p> <p>1.2e. Target not</p>	<p>effectiveness of Invasive Species Control work.</p>



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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>&amp; Hagley Gap Nurseries</p> <p>2.1 Propagation of native, broadleaf species for use in forest rehabilitation</p> <p>2.2 Propagation &amp; sale (seek buyers) of lumber, landscaping, and other commercial species to help sustain the production of natives.</p> <p>Obj. 3: Promotion &amp; Facilitation of Research</p> <p>3.1 Send Abstracts for project based on Management Plan Research Prospectus to universities and increase partnership with UWI</p> <p>3.2 Examine all research applications (sent by NEPA) and reply with comments &amp; direct email to researchers re: 3.4 and 3.5.</p> <p>3.3 Maintain and promote Research Data-base – list of Researchers and</p>	<p>2.1b Hagley Gap – 3,000 seedlings of at least 4 species</p> <p>2.2a H/well – 1,000 seedlings</p> <p>2.2b H/Gap – 300 seedlings</p> <p>3.1 Partnerships with at least 3 research institutions by Sep30</p> <p>3.2 100% of research requests examined and responded to by Dec 31</p> <p>3.3 100% of</p>	<p>2.1a. 3,922</p> <p>2.1b. 6,600 seedlings:</p> <p>2.2a. The number of plants &amp; cut flowers sold from Holywell &amp; Portland Gap collectively doubled over 2012 but did not achieve target in terms of numbers.</p> <p>2.2b. No commercial plants at Hagley Gap</p> <p>3. Promotion of Research</p> <p>3.1. (i) UWI – M.Sc. student (Integrated Urban &amp; Rural Environmental Management) for Hazard Mapping Project – completed and student presented findings to community members and helped produce DVD on the subject.</p> <p>(ii) correspondence with 5 research institutions</p>	<p>achieved.</p> <p>2.1a 78% Target achieved</p> <p>2.1b. Target exceeded (187%)</p> <p>2.2 Target not achieved</p> <p>3a. 100% Target achieved</p> <p>3b. Target exceeded</p> <p>3. Target exceeded</p>	<p>Mountain Yacca (<i>Podocarpus urbanii</i>) is listed on IUCN Red List as critically endangered although it is common in BM forests. During 2013 over 150 Mtn Yacca were grown and about 50 planted out. The decision was taken to keep these very slow growing seedlings in nursery for much longer.</p> <p>Additional endemic &amp; native species identified for propagation e.g. <i>Lyonia jamaicensis</i>, <i>Brunellia comocladifolia</i> (WI Sumach)</p> <p>Lack of full-time Conservation Science Officer for most of year reduced ability to promote &amp; facilitate research</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>Research</p> <p>3.4 Learning/training and exploration in partnership with researchers in the Park – write requesting to work with/assist researchers in the field</p> <p>3.5 Repatriation &amp; use of research results</p>	<p>researchers applying through NEPA entered in database which is promoted (website etc.) by Dec 31</p> <p>3.4 At least 25% of researchers in the Park accompanied into the field on at least 1 occasion by Dec 31</p> <p>3.5 Obtain reports from at least 25% of researchers who conducted research in 2011/12. Interpret results, promote (e.g. media) and use to guide Park Management where applicable by Dec 31</p> <p>3.6 Participate as appropriate</p>	<p>3.2. All 3 research applications received from NEPA were responded to</p> <p>3.3. Data-base maintained but not promoted</p> <p>3.4. No researchers were accompanied in the field nor were reports obtained. One researcher promised to be in touch but was not. Planning for liaison with researchers for 2014 initiated.</p> <p>3.5. 1 researcher provided report through NEPA re:</p>	<p>(130%)</p> <p>3.2 Target achieved</p> <p>3.3. Target 50% achieved</p> <p>3.4. Target not achieved</p>	<p>Plans made to accompany one researcher in February, 2014</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>3.6 Participate in relevant national committees</p> <p>3.7 Promote work through publications &amp; participation in conferences, presentations to universities etc.</p>	<p>(ongoing)</p> <p>3.7 At least 1 publication &amp; 2 presentations on the Park (including 1 at UWI) by Dec 31</p> <p>4. Prepare report based on findings by</p>	<p>streamertail research. Papers received from 3 other researchers: Gary Graves, Matt Johnson &amp; Herlitz Davis. Information used to prepare proposal to the Neotropical Migratory Bird Conservation Act Fund (US Fish &amp; Wildlife Service)</p> <p>3.6. ED attended meetings and workshops – Clearing House Mechanism Steering Committee meetings (2) and work on World Heritage Site Nomination and one national workshop (Alien Invasive Species Action Plan). ED also attended some meetings &amp; indicated in media JCDT concerns re: issue of Goat Islands/Portland Bight PA as site for Logistics Hub.</p> <p>3.7. Book edited by E. Thomas-Hope published December 2013 - <i>Environmental Policy &amp; Practice in the Caribbean</i> with paper <i>Protected Area Policy &amp; Practice in the Caribbean with Reference to Jamaica</i> (Otuokon &amp; Beale) which uses the BJCMNP as an example. Dr. Otuokon used BJCMNP as a case</p>	<p>3.5. Target achieved</p> <p>3.6 Target partially achieved</p>	<p>Would have participated in more activities/committees if more staff were available. In some cases, Board members attended meetings</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>Obj. 4. Conservation Targets</p> <p>Identify any additional steps to better conserve the Park's conservation targets and implement as possible</p>	<p>Dec 31</p>	<p>study and field trip for UWI MSc. Integrated Urban &amp; Rural Environmental Management – National Parks &amp; Tourism module.</p> <p>4. No action on report however information from research re: montane forest birds role in eating coffee pests led to a proposal to promote this and encourage maintenance of native forest stands on farms (to NMBCA Fund as noted above)</p>	<p>3.7 Target achieved</p> <p>4. Target (report) not achieved (no work done)</p>	<p>This activity was not worked on by the Conservation Science Officer and in the absence of a full-time replacement, could not be addressed.</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans



Ranger Thompson measures endemic Milkwood (*Sapium harissii*) at Cinchona

Endemic and threatened Mountain Yacca (*Podocarpus urbani*) seedling planted in 2012 in Cinchona area ( very slow growing)



Newly planted seedlings at Stony Valley – Recreation Pathways

Variety of native and endemic tree seedlings at Hagley Gap Nursery



(prepared by S. Otuokon, Executive Director, JCDT/Manager, BJCMNP)

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p><b>World Heritage Site (WHS) Nomination</b></p> <p>Pursue WHS status for BJCMNP to raise global status, attention and possibility for funding</p> <p>1.1 Attend all National Technical Committee meetings and participate in national decisions re: nomination approach</p> <p>1.2 Continue local, regional &amp; international lobbying and promotion of site</p> <p>1.3 Source funding to conduct necessary studies and re-writing/editing &amp; publishing of a new Nomination Dossier &amp; associated documents</p>	<p>1.1a Attend all meetings held by Dec 31</p> <p>1.1b Finalised decision by March 31</p> <p>1.2 See Education &amp; Public Involvement Prog. (by Dec. 31)</p>	<p>1.1a Attended all meetings called including to assist with brochure for WHS Council Member Nomination. Major work done by Executive Director (ED) in reviewing and re-writing the Nomination Dossier. ED also facilitated and participated in retreat at Holywell for re-writing.</p> <p>1.1b Decision agreed on re: boundary and criteria</p> <p>1.2 Participated in meeting with Permanent Secretary, Ministry of Youth &amp; Culture; Sent information to Ministry of Tourism &amp; Entertainment. Raised issues with the NRCA/NEPA. Assisted Maroon communities with funding for promotion of their festivals and facilitated JNHT visit to Quaco River and Sacred Site, Bowden Pen for discussions re: archaeological work. Assisted US based Jamaican team with plans/efforts to produce a film about Queen Nanny of the Maroons in 2014.</p> <p>1.3 Assisted JNHT in preparing proposal to Tourism Enhancement Fund. Prepared proposal from JCDT, JNHT and Bowden Pen Farmers' Association to US Ambassadors'</p>	<p>Targets only partially achieved due to challenges outside JCDT's control.</p>	<p>The challenges faced were beyond JCDT's control and suggest need for greater understanding about the WHS Convention at higher levels of government.</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
	1.3 New Nomination Dossier Project started by Sept 30	Cultural Fund, for archaeological work at Sacred Site and education/interpretive activities based on information obtained.		
<p><b>Cultural Heritage Preservation</b></p> <p>With help from the JNHT and other agencies and organizations, support the conservation of cultural heritage as an important component of the BJCMNP</p> <p>1.4 Source funding for the BMST Programme (see R&amp; T Prog)</p> <p>1.5 Assist community cultural heritage festivals</p> <p>1.6 Sign MOUs with Maroon Councils and Bowden Pen Farmers' Association (BPFA)</p>	<p>1.4 BMST Prog. started</p> <p>1.5 Festivals assisted</p> <p>1.6 MOUs with at least 2 organisations</p>	<p>1.1 Funds not sourced. The IDB finally indicated that the proposal to them was not innovative enough – has been done in other countries.</p> <p>1.2 With funds from the Jamaica Tourist Board and Jamaica Energy Partners, helped Maroon communities to promote and organise their festivals/events:-</p> <ul style="list-style-type: none"> <li>• June 21 – 23 Charles Town International Maroon Conference &amp; Quao Day Festival</li> <li>• August 1 – Bowden Pen Farmers' Association Ancestral Memories</li> <li>• October 21 – Moore Town Maroon Council's Nanny Day Celebrations</li> </ul> <p>1.3.No work on MOUs though some discussion with all groups particularly re: tour package commissions. However BJCMNP Maroon Communities Committee was established and 2 meetings were held on May 10 and Sept 20.</p>	<p>a. Target not achieved</p> <p>b. 100% Target achieved</p> <p>1.3 Target not achieved but other relevant actions</p>	

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
			implemented	



Nanny Day Celebrations at Moore Town – October 21



JCDT/JNHT Visit to Sacred Site at Bowden Pen re: possible archaeological work

**BJCMNP Monitoring and Evaluation Programme** – 5 Year Goal: To track and record both the threats and the changes to ecosystem health, so that it is possible to assess whether or not the Park is achieving its over-arching conservation goal.

This Programme is linked to JCDT’s Strategic Action Plan Goal 1, Objective 1.3

Main Funding (2012): NEPA Person responsible: Conservation Science Officer – Marlon Beale



JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>Obj. 1: Threats and Impacts Monitoring (GIS)</p> <p>1.1 Collect &amp; Enter Information from Patrols</p> <p>1.2a Conduct Permanent Photo-monitoring of 12 sites</p> <p>1.2b Establish 2 more Permanent Photo-Monitoring Points</p> <p>Obj. 2: Monitor Populations of Key Threatened Species - Record all sightings etc. from patrols, monitoring &amp; communities using GIS</p>	<p>1.1a Record data (photo, location) for all observed threats &amp; impacts (ongoing)</p> <p>1.1b Report for 2012 (by May 31)</p> <p>1.2 By Dec 31:-</p> <p>(a) At least 8/12 existing points photographed for 2013</p> <p>(b) Photograph 2 new sites</p> <p>2. Prepare maps &amp; produce data on species by Dec 31</p>	<p>1.1a Jan. – December 2013 data entered and monthly maps prepared.</p> <p>1.1b Report/map for 2012 not prepared</p> <p>1.2a 10/12 sites photographed</p> <p>1.2b. No new sites photographed</p> <p>2.No action</p>	<p>1.1a. Target achieved</p> <p>1.1b. Target not achieved</p> <p>1.2a Target 80% achieved</p> <p>1.2b. Target not achieved</p> <p>2. Target not achieved</p>	<p>Volunteer assisting with GIS hence maps are being prepared</p> <p>CSO position not filled so other staff and volunteer implementing which has reduced effectiveness of some aspects of M&amp;E. In addition, there was a back-log of analysis reports still to be done e.g. 2012. The 2013 report will be completed in January, 2014.</p> <p>During 2014 efforts will be made to bring analysis and reporting up to date and improve system.</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>Obj. 3: Forest Area &amp; Encroachment</p> <p>Collaborate with the JDF for Helicopter Monitoring if possible (and FD for possible photo analysis)</p> <p>Obj. 4: FW Macro-invertebrate Monitoring</p> <p>4a Sample sites in both dry and wet seasons</p> <p>4b Analyse data and Prepare Report for 2010 &amp; 2011</p> <p>Obj. 5: Bird Monitoring</p> <p>5a. Complete establishment of Points and Monitoring for Winter Season – House Hill</p> <p>5b. Monitor all Points for Winter &amp; Summer Seasons</p> <p>5c. Analyse 2009/2010 and 2010/11 data and Prepare Reports (including any climate</p>	<p>3. Helicopter Monitoring Report with pictures by Dec 31</p> <p>4. By Dec 31:-</p> <p>4a 12 sites twice</p> <p>4b Reports</p> <p>5a. 120 points established &amp; counted by April 30</p> <p>5b. 120 points counted</p> <p>By Aug 31</p>	<p>3. This was not done. It was hoped that FD would have obtained satellite imagery and conducted analysis under EU Project but there were challenges with cloud cover and up to November, FD was not able to provide us with the status or plans except that they might obtain and analyse aerial photography.</p> <p>4. FW Monitoring was done for 10/12 sites. No data analysis was conducted nor report prepared.</p> <p>5. Monitoring in House Hill area for Non-Breeding Season completed in May/June (delayed due to Ranger accident and Rangers on leave). Breeding Season Monitoring was not done due to inadequate funding. Data has not been entered and report has not been prepared. New site has not been started due to inadequate funding. Efforts have been made</p>	<p>3. Target not achieved</p> <p>4. Target not achieved</p> <p>1. Target only about 30% achieved</p>	<p>Absence of full-time CSO; challenges re: rostering of Rangers and inability to obtain a chemical hampered this activity. Analysis and reports are still outstanding.</p> <p>Efforts will be made to address this situation in 2014.</p> <p>This component of the M&amp;E Programme has been impacted as indicated above.</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
change findings)  5d. Begin point establishment and monitoring for Winter Season in another of the five established areas  5e. Select 'complementary' monitoring area, begin point establishment and monitoring	5c. Report by Aug 31  5d. At least 60 points established and counted by Dec 31  5e. 30 points established and counted by Dec 31	to raise funds for bird monitoring but without success yet.		



Rangers conducting Freshwater Monitoring



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<p>1.3 Involve community members including Youth PATH, in Park management activities</p>	<p>31  1.3 25 (incl. Park staff) through year</p>	<p>1.3. Over 25 community members involved in Park mgmt e.g. 8 in reforestation, 4 as Park Rangers, 1 Receptionist/Bookings Clerk, 1 part-time assistant to ECOO, 2 part-time nurseries, 10 part-time Rec. Areas, 2 on Trail patrols in Portland</p>	<p>achieved  1.3 Target achieved</p>	<p>Intention to involve more community members under River Poisoning Project delayed due to cash-flow challenges.</p>
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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>Obj. 2: Increase public awareness about the Park, its importance and relevant issues  2.1 Buffer Zone Communities</p>	<p>2.1a At least 6 re: Park issues by Dec</p>	<p>2.1a 9 community meetings held:-  Re: Hazards &amp; their Prevention: Hall's Delight, Ginger House, Irish Town and Woodford (October) 2 attempts to meet with Cascade failed  Re: River Poisoning: Balcarres, Tranquility, Buff Bay</p>	<p>2.1a. Target exceeded</p>	

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2.1a Community Meetings		<p>Re: Flooding: Brook Lodge &amp; Grass Piece (near Hagley’s Gap), Poorman’s Corner near Yallahs (June and July)</p> <p>Also, EECO Officer attended and participated in CBO meetings: Woodford Community Group, Cascade CDC &amp; Hagley Gap &amp; Environs Benevolent Society</p>		
2.1b Hazards – Landslides	2.1b brochure & DVD by June	<p>2.1b DVD: “Hazards Yes, Disasters No” produced and shown in 4 communities and copy given to CBO and school along with map for Community Centre in 5 communities. It was decided that a brochure would be somewhat wasted. The other DVDs are to be disseminated throughout Buffer Zone communities.</p>	2.1b. Target achieved though late	
2.1c Hazards – Flooding	2.1c assorted materials by Dec	<p>2.1c Materials not produced as information from UWI was not obtained.</p>	2.1c. Target not achieved	2.1c The materials re: flooding will be produced in first quarter of 2014
2.1d River Poisoning	2.1d DVD by June	<p>2.1d DVD: “Don’t Poison the River” produced, shown and disseminated in 1 community (Balcarres).</p>	2.1d Target achieved though late	2.1d Additional communities to be shown the DVD in 2014
	2.1e 6 signs at key	<p>2.1e. Signs produced and erected:-</p> <p>10 boundary signs (NPAS Project): Claverty Cottage, Sherwood Forest, Durham, Reach, Cascade, Millbank, Penlyne Castle, House Hill, Clydesdale and Cinchona</p>	2.1e Target exceeded 10/6	

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<p>2.1e Signage re: boundaries</p> <p>2.2 General Public</p> <p>2.2a Website maintained &amp; updated</p> <p>2.2b Facebook Page</p>	<p>boundaries by March</p> <p>2.2a Major Update by March 31</p> <p>2.2b. At least 2 posts/mth through year</p>	<p>1 Community Buffer Zone Sign (FCF Capacity Bldg): Mavis Bank</p> <p>2.2a Updates drafted but only critical updates e.g. names of staff and directors were made due to insufficient resources.</p> <p>2.2b A total of 43 posts with an average of 3 posts/month was maintained throughout the year with some months having 5 or more. Number of likes (Page):348</p>	<p>at key boundaries</p> <p>2.2a Target partially achieved</p>	<p>2.2a Staff training was not sufficient to allow staff to implement updating and insufficient funds to allow for web designer to update</p>
Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>2.2c Media Releases sent out</p>	<p>2.2c Coverage – 8 times in print or electronic (+ events) by Dec 31</p>	<p>2.2c Two media releases sent out but only one published in the Gleaner 23/2 re: National Park’s 20<sup>th</sup> Anniversary Plans</p> <p>However there were: 6 radio interviews on KOOL FM, RJR &amp; Nationwide associated with events throughout the year, 2 KOOL FM Outside Broadcasts from Misty Bliss (2 March) &amp; the Intl Mtn Day Footprints Nature Hike on the Cunha Cunha Pass Trail (7 Dec) and 2 TVJ Smile Jamaica interviews - one re: Misty Bliss (1 March – S Otuokon) and the</p>	<p>2.2c Target achieved</p>	<p>The target was only just achieved but mainly due to event related interviews and advertising.</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>2.2d Liaise with CARIMAC for assistance</p> <p>2.2e Participate in exhibitions/mini-expos</p> <p>2.2f Provide information to the public through library</p> <p>2.3 Visitors</p>	<p>2.2d Tangible assistance from CARIMAC</p> <p>2.2e At least 5 by Dec 31</p> <p>2.2f Record of library users</p> <p>2.3a Improvement/repairs</p>	<p>other re: BJCMNP Recreation Areas (11 March – H Dawes)</p> <p>2.2d CARIMAC Integrated Marketing Communication student: Shanese Watson started working on her 3<sup>rd</sup> year project with JCDT from August. The project seeks to use social and other marketing strategies to increase the participation and funds raised from the World Water Day Mona Reservoir Lap-a-thon for the Blue Mountains in March 2014.</p> <p>2.2e Exhibits were only set up at 3 events: World Water Day Mona Reservoir Lap-a-thon on 23<sup>rd</sup> March, Earth Day event on 22<sup>nd</sup> April and EFJ Annual Lecture on 17<sup>th</sup> October.</p> <p>2.2f 13 users e.g. from UTECH and Teacher Training Colleges in addition to staff.</p> <p>2.3a One new poster exhibit was made in December but there were no other improvements due to lack of funding.</p> <p>2.3b Tours were provided mainly by the Rangers (see Recreation &amp; Tourism below)</p>	<p>2.2d Target achieved</p> <p>2.2e Target 60% achieved</p> <p>2.2f Target achieved</p>	<p>There were no funds to participate in any events requiring fees</p>



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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>2.3a Maintain/refresh Visitors' Centre, Holywell</p> <p>2.3b Conduct tours as requested</p> <p>2.4. Target buffer zone schools to engender care of the Park, in collaboration with communities, particularly in the 4 targeted communities.</p> <p>2.4a Intensive work with schools e.g. help with project</p> <p>2.4b Visits to buffer zone schools – presentation and activity</p> <p>2.4c Buffer Zone teacher training workshop to help with integration of BJCMNP information &amp; issues into the curriculum</p>	<p>2.3b Provide support</p> <p>2.4a At least 4 schools by June 30</p> <p>2.4b At least 50 schools by Dec 31</p> <p>2.4c At least 1 by Dec 31</p>	<p>2.4a Only 1 school worked with in an intensive way – Cascade Primary &amp; All Age re: Plant Nursery/Greenhouse</p> <p>2.4b Only 8 schools visited with presentations – these were all in the Buff Bay Valley under the EFJ Anti-River Poisoning Project: (6 primary and 2 basic):- Cascade Primary, Birnam-wood Primary, Fairfield Primary, Charles Town Primary, Buff Bay Primary and Junior High, and Tranquility Primary and Infant School.</p> <p>2.4c The Buffer Zone Teacher Training workshop planned for schools in the Buff Bay Valley re: Anti-River Poisoning was postponed to 2014 due to cash-flow challenges with the project.</p>	<p>2.3 Target partially achieved</p> <p>2.4a Target only 25% achieved</p> <p>2.4b Results not achieved</p>	<p>2.4 Funding anticipated from FCF to support buffer zone school outreach was not forthcoming</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
			2.4c Results not achieved (though only postponed)	



UWI MSc. Student E. Akhidenor presents findings on hazards research at Community Meeting in Hall's Delight



Women in shop in Buff Bay look and listen as the poster on River Poisoning is explained to them by community youth



Susan Otuokon is interviewed by Dervan Malcolm on POWER 106 at the International Maroon Conference

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**BJCMNP Recreation and Tourism Programme – 5 Year Goal:** To provide recreational opportunities for local and international visitors, using ecotourism principles, to generate income and support for the Park. This Programme is related to JCDT’s Strategic Plan Goal 6, Objective 4.4 and Goal 2, Objective 2.1.

The basic operations of the Park’s Recreation Areas run mainly on income they generate, but their management and supervision is subsidized by JCDT through implementation by the Executive Director (marketing), Administrative Manager (sales and logistics), Receptionist/Clerk (bookings and sales), Park Rangers – particularly Station Chiefs (visitor & site management). Funding continues to be sought for the implementation of the Blue Mountains Sustainable Tourism Plan including support for a Programme Officer.

Main Funding (2013): Recreation Area Income, TPDCo./TEF Holywell and Trail Improvement Project.

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>Obj. 1: Provide &amp; facilitate educational &amp; recreational opportunities to raise awareness &amp; support for Park</p> <p>1.2 Holywell - Maintain &amp; Improve Product</p> <p>1.1a Enhance “Tuck-Shop” to Café and Gift Shop</p> <p>1.1b Waterfall Trail end improvement</p> <p>1.1c Solve water quality/volume problem</p>	<p>By December 31:-</p> <p>1.1a Enhanced building</p> <p>1.1b Enhanced site (bridge)</p> <p>1.1c Water Harvesting Project completed/System maintained</p>	<p>1.1a Tuck Shop roof repaired but other repairs still needed.</p> <p>1.1b. Waterfall Trail improved but the proposed “bridge” for the water to run “under” the road was not done as it would have been very costly.</p> <p>1.1c. Project complete re: EFJ funds but sealing a tank and installation of the meters to be done by M White, Hydrology Consultants, who donated the 2 meters, is still outstanding. The sealing should finally resolve the leakage and the meters will allow the flow to be measured. Chlorination continued SRC water testing initiated. Public Health certificate obtained.</p>	<p>1.1a. Target partially achieved</p> <p>1.1b Target partially achieved</p> <p>1.1c. Target partially achieved</p>	<p>1.1a/b. TPDCo/TEF Project ran very slowly as Project Manager at TPDCo. was strapped for time; there were many delays and stoppages and the project is still not yet totally completed.</p> <p>1.1c. Dependence on busy donor delayed this project significantly and tasks still remain to complete the improved water supply system at Holywell</p> <p>1.1d As per 1.1a/b</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>1.1d General improvements as per TPDCo.</p> <p>1.1e Provide educational tours at Holywell</p> <p>1.2 Portland Gap/Peak Trail – Maintain &amp; Improve Product</p> <p>1.2a Maintain garbage removal system</p> <p>1.2b Source funds for Peak &amp; Access Trail &amp; Portland Gap Area Improvements (JSIF Proposal) – organize meeting, get lease/letter NLA &amp; information on landownership, access</p>	<p>1.1d Recommendations implemented</p> <p>1.1e At least 25</p> <p>1.2a System maintained</p> <p>1.2b Activities implemented, Funds sourced &amp; project started</p>	<p>1.1d. Under TPDCo/TEF Project, Stage re-building and trail repairs (Oatley &amp; Waterfall) completed and work on gazebos, BBQs, Tuck Shop roof &amp; bathrooms complete. However a few items are still outstanding e.g completion of Tuck Shop, KDZ repainting and purchase of supplies.</p> <p>1.1e 39 tours conducted (trail and educational).</p> <p>1.2a Garbage Removal System maintained</p> <p>1.2b. Funds not sourced but numerous activities towards that end were implemented e.g. held agency meeting, obtained “comfort letter” from NLA, sent revised proposal and additional information to JSIF and organised and attended meetings. In addition, support offered by the JDF Engineering Regiment and a Canadian based interested party and donation committed by Pear Tree Press.</p>	<p>1.1d Target partially achieved</p> <p>1.1e Target exceeded (156%)</p> <p>1.2a Target achieved</p> <p>1.2. Target partially achieved</p>	<p>1.2 Discussions re: Peak Trail and User Fee initiated with NEPA, guesthouses and tour guides. It is hoped that funding from JSIF REDI Project will be realised as this will aid in addressing these issues.</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>1.3 Cunha Cunha Pass &amp; Corn Puss Gap Trails – Address fee collection (Trails pass through Park)</p> <p>1.4 Blue Mountains Sustainable Tourism (BMST)</p> <p>1.4a Source funds for Programme</p> <p>1.4b Community attractions &amp; events marketed</p>	<p>1.3 System in place</p> <p>1.4a Project started</p> <p>1.4b Marketing &amp; events</p>	<p>1.3 System discussed but was not put in place due to constraints on human resources to organise this.</p> <p>1.4 BMST</p> <p>1.4a. IDB indicated interest in possible support for BMSTP proposal submitted in 2011 &amp; requested a full proposal; Despite revisions &amp; meetings the response finally was that the project was not innovative enough. Funds also sought unsuccessfully from USAID &amp; COMPETE CARIBBEAN.</p> <p>1.4b Several events held and/or supported: Misty Bliss made a slight loss due to extreme weather</p> <p>Series of events for JCDT's 25<sup>th</sup> Anniversary held or supported and funds provided from the Jamaica Tourist Board and Jamaica Energy Partners: Intl. Maroon Conference, BPFA Ancestral Memories and MTMC Nanny Day with sponsorship &amp; promotion funds. Organized two Footprints Nature Hikes (27/7: Gordon Town to Greenwich Trail and 7/12: Cunha Cunha Pass Trail)</p>	<p>1.3. Targets not achieved</p> <p>1.4a Target not achieved</p> <p>1.4b Target achieved</p>	<p>1.3 Human resource constraints impacted achievement of this target</p> <p>1.4 Major funding needed for the BMST Programme was not sourced. JA\$1million approved by the Jamaica Tourist Board to market a series of events but this was only about ¼ of funds needed to fully implement the activities.</p> <p>Despite inadequate funding, several events were held which helped raise awareness about the National Park and the recreation opportunities</p> <p>2. Whilst funds for the full-time Officer were not obtained and events were not financial successes, there was a significant</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>Obj. 2: Increase income from Programme to result in a surplus for Park management</p> <p>2.1 Improve management &amp; supervision (Programme Officer employed)</p> <p>2.2 Increase marketing and sales</p> <p>2.2a Cultural &amp; Community Events &amp; Hikes organized to generate income</p> <p>2.2b School groups invited to Holywell for educational tours</p> <p>2.2c Income generation from "Tuck Shop"</p> <p>2.2d Increase revenue</p> <p>Obj. 3: Engender community support for Park through benefits to community</p>	<p>2.1 Employ Prog Officer</p> <p>2.2a See above (1.4b)</p> <p>2.2b Information to schools</p> <p>2.2c Concession in place</p> <p>2.2d By 15% over 2012</p>	<p>2.1. Funds for full-time Officer sought but unsuccessful.</p> <p>2.2a. Events (Misty Bliss &amp; World Water Day Mona Reservoir Lapathon) &amp; Hikes (2) organised but made less than \$150,000 in total.</p> <p>2.2b Information emailed to over 40 schools but no responses</p> <p>2.2c Tuck shop roof repaired but other repairs still needed</p> <p>2.2d Revenue and visitation increased over 2012: Holywell by 20% &amp; 31% respectively. Portland Gap increased by 59% and 36%. Total increase in revenue of 29%.</p> <p>3.1a. Funding for Programme not obtained.</p> <p>3.1b. Support provided as indicated above</p> <p>3.1c. Almost no support for capacity building as funds were</p>	<p>2.1 Target not achieved</p> <p>2.2a Target partially achieved</p> <p>2.2b. Target achieved</p> <p>2.2c Target not achieved</p> <p>2.2d. Target achieved (193%)</p>	<p>increase in visitation and revenue not only over 2012 but also over 2011 figures.</p> <p>Revenue/visitation increased over 2011. H/well: by 9% &amp; 20%, PGap: 58% &amp; 30%</p> <p>Despite inability to fund major projects, support for community festivals within the three Maroon communities and support to other communities in terms of public awareness and community outreach raised awareness and support for the National Park</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>groups &amp; members</p> <p>3.1a BMST Programme funded &amp; implementation started</p> <p>3.1b Support for community events/ventures provided</p> <p>3.1c Support for capacity building</p> <p>Obj. 4: Management for biodiversity conservation &amp; environmental sustainability</p> <p>4.1a Programme Officer will help ensure management</p> <p>4.1b Work with UWI to have studies &amp; research conducted &amp; plans/strategies developed</p>	<p>3.1a See 1.4a</p> <p>3.1b See 1.4b</p> <p>3.1c See Education &amp; Public Involvement Prog</p> <p>4.1a See 2.1</p> <p>4.1b Research proposals and work started</p>	<p>not sourced (see above)</p> <p>4. The targets for this objective were not achieved due to inability to source funds for a Programme Officer. Holywell and Portland Gap/Peak Trail are managed to best of our ability in terms of biodiversity conservation and environmental sustainability – mainly through activities of the Park Rangers.</p>	<p>3.1a Target not achieved</p> <p>3.1b. Target achieved</p> <p>3.1c. Target not achieved</p> <p>4. Target not achieved</p>	

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Stage rebuilt at Holywell



Gazebo repairs underway at Holywell



Footprints Hike: Cunha Cunha Pass Trail (Dec 7)



**BJCMNP Administration and Governance Programme – 5 Year Goal:** To provide efficient, effective and sustained management that will allow the Park to meet its overarching and other goals. This Programme links with JCDT’s Strategic Plan Goal 5, Objectives 4.1 – 4.3

Main Funding (2013): Project Administrative Fees, NEPA and JCDT support for Executive Director who is the Acting Park Manager and JCDT Administrative staff who provide administrative support for the BJCMNP. Person Responsible: Executive Director (ED)/Acting Park Manager – Dr. Susan Otuokon

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>Obj. 1: Coordinate management at policy level through establishment of an Advisory Committee</p> <p>1. Establish &amp; meet twice for the year</p> <p>Obj. 2: Coordinate management at operations level through Co-management and participatory planning</p> <p>2.3 Re-establish Co-management Committee meetings</p> <p>2.4 Liaise with Buffer Zone Community Groups for projects &amp; programmes</p> <p>Obj. 3 Provide support for Park management</p> <p>3.1 Preparation of Annual Plans &amp; Reports</p>	<p>1. Two meetings (Mar/Sept)</p> <p>2.1 3 mtgs/yr (Mar, June, Nov)</p> <p>2.2 planning and other meetings</p>	<p>1. Advisory Committee meetings held 10<sup>th</sup> July &amp; 3<sup>rd</sup> December and minutes circulated.</p> <p>2.1 JCDT re-established the Co-management Committee which had not met for over a year. 2 meetings were held: 16<sup>th</sup> May and 19<sup>th</sup> September &amp; notes circulated. As there has not been any action on the Co-management Agreement that NEPA was leading, JCDT wrote to NEPA on this and other concerns and met with the NRCA Chair &amp; NEPA team – 30 Oct. NEPA is to further address.</p> <p>2.2 Two Maroon Community meetings held 10<sup>th</sup> May, and 20<sup>th</sup> Sept. and notes circulated. Maroon Community representative sits on the Advisory Committee. Activities with Maroon Communities (see Recreation &amp; Tourism) and with Buff Bay Valley and other Communities (see Education &amp; Public Involvement)</p> <p>3.1a Annual Report 2012 prepared &amp; disseminated 26/2</p> <p>3.1b Annual Work-plan 2013 prepared &amp; disseminated 18/2</p>	<p>1.Target achieved</p> <p>2.1Target 66% achieved</p> <p>2.2 Target achieved</p>	<p>It is very challenging to organise meetings due to inadequate administrative resources and further it is very difficult to get representatives from the various agencies to attend on the same day. At least two proposed meetings were postponed. 2008 had 3 meetings and 2007 only 1.</p> <p>Improvements needed in project reporting accuracy and timeliness.</p> <p>3.1 – 3.3. Human resources are</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>3.2 Preparation of monthly &amp; bi-monthly Programme Reports</p> <p>3.3 Preparation of quarterly project reports</p> <p>3.4 Regular meetings held:</p> <p>3.4a Programme Management &amp; Rangers' Roster Meetings (monthly)</p> <p>3.4b Staff meetings quarterly</p> <p>3.5 Project Development and Management Develop, Manage &amp; Implement as per Park</p>	<p>3.1a Annual Report by Feb 28</p> <p>3.1b Annual Plan by Oct 31</p> <p>3.2 By 12<sup>th</sup> of each month</p> <p>3.3 By 21<sup>st</sup> or 30<sup>th</sup> of each relevant month</p> <p>3.4 Meeting notes &amp; coordination</p>	<p>3.2 Reports prepared but often 2 – 4 weeks late</p> <p>Bi-monthly reports to NEPA prepared &amp; submitted: Jan/Feb(19/3); Mar/Apr (22/5); May/June (24/7); July/Aug (19/9); Sept/Oct (18/12)</p> <p>3.3 Project reports prepared but often 2 – 4 weeks late</p> <p>3.4a Programmes: 10/1, 6/2, 13/3, 10/4, 8/. 12/6 10/7, 14/8, 11/9, 14/10 &amp;13/11 Rangers: 8/1, 5/2, 5/3, 2/4, 1/5, 4/6, 2/7, 7/8, 3/9, 1/10, 5/11, 3/12</p> <p>3.4b. Staff: 8/1, 5/2, 27/2, 2/4, 2/7, 5/11</p> <p>3.5. Implementation of 9 projects (EFJ – 3 (Hazards, River Poisoning &amp; Water Harvesting at Holywell), FCF – 1 (Soil Stabilisation through Reforestation), UWI CaribSave (Flooding in Yallahs Valley), CEPF Small Grant NGO Capacity study, TEF/TPDCo Holywell Improvments, NEPA NPAS Community Awareness, Recreation Pathways Reforestation). See</p>	<p>3.1a. Target achieved</p> <p>3.1b Target achieved late</p> <p>3.2/3.3 Targets achieved but often late</p> <p>3.4 Targets achieved</p>	<p>challenged with respect to administrative duties as there is no Administrative Officer to deal with many of the tasks the ED and AM currently do.</p> <p>3.5 Target was somewhat vague – generally because of not being certain of projects which may be funded. More detailed project implementation can be found in</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>Plan</p> <p>3.6. Human Resource Development/Management</p> <p>3.7 Networking and Collaboration – attend meetings, workshops &amp; other activities to promote collaboration on activities which support Park management</p> <p>3.7a National Protected Area Groups &amp;</p>	<p>3.5. Project proposals and implementation of projects</p> <p>3.6. At least 10 Training days</p>	<p>information re: proposals below</p> <p>3.6 10 Training Days: Six (6) Training sessions:</p> <p><b>GPS Training:</b> 28/5, 23/9 and 7/11 - 3 Rangers (MH, RT, JS)</p> <p><b>Cultural Heritage in the BJCM</b> with JNHT (4/6 am)</p> <p><b>Basic Disaster Management, Hurricane &amp; Earthquake Safety</b> with ODPEM (4/6 pm) – All Rangers &amp; Staff, <b>Interpretation for Tour guides</b> at Holywell on 13/6 – MH, JS and Holywell staff;</p> <p><b>Holywell water quality testing (SRC)</b> 14/11 – All Rangers</p> <p><b>Birds Caribbean Conference &amp; Parrot Pest/Conservation Conflict Workshop</b> (25 – 31/7, Grenada) EECO (WT)</p> <p>3.7a National PA System Master Plan – drafted major document with comments from NGO sector; Participation in Alien Invasives workshop &amp; submitted recommendations; Participated in Ja CHM Steering Committee.</p> <p>3.7b Activities with several institutions:</p> <p>UWI: 2 groups at Holywell: Dr. B. Wilson, UWI &amp; BSc students; Dr M Johnson, Humboldt University &amp; M.Phil/Ph.D students;</p>	<p>3.5 Target generally achieved</p> <p>3.6 Target achieved</p>	<p>the project reports. The project reporting status indicated above – often 2 – 4 weeks late indicates a supervisory and administrative challenge.</p> <p>3.7a Participation limited by # of management level staff &amp; therefore limited time of existing personnel.</p>



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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>4.1 Proposals to NEPA &amp; JNPTF</p> <p>4.2 Proposals to donors &amp; private sector</p> <p>4.3 Fundraising events</p> <p>4.4 Other</p>	<p>4. Minimum JA\$30 million</p>	<p>interest.</p> <p>4.3iii. Events 2013: JTB \$1million &amp; JEP \$250,000 – Maroon events &amp; Hikes</p> <p>4.4iv. Conducted site visit to Holywell re: possible USAID/US National Park Service Project re: alternative energy at Holywell</p> <p>4.4 None</p>	<p>4. See other programmes</p>	

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Park Rangers, other staff and volunteer listen keenly to JNHT presenters



First meeting of the BJCMPN Advisory Committee



Jamaican Folk Singers brave cold, rainy weather at Misty Bliss

Wilks collects Caribbean Tourism Organisation Award for the BPFA after nomination by JCDT



Board Director & Bowden Pen Farmers Association (BPFA) Coordinator – Linette

# JAMAICA CONSERVATION AND DEVELOPMENT TRUST

## REPORT ON 2012

### BLUE AND JOHN CROW MOUNTAINS NATIONAL PARK WORKPLAN

*JCDT Mission: Promoting environmental conservation and sustainable development, with particular emphasis on the Blue and John Crow Mountains National Park, for the benefit of Jamaica and our people.*



*BJCMNP Mission: To collaboratively manage the national park for its natural, cultural and recreational values, by striking the right balance between biodiversity conservation and socio-economic development, for the ultimate well-being of the people of Jamaica.*

**EXECUTIVE SUMMARY**

**INTRODUCTION**

The Jamaica Conservation and Development Trust (JCDT) is an environmental, non-government organization, and registered charity, founded in late 1987 and incorporated in 1988. Its mission is to promote environmental conservation and sustainable development, with particular emphasis on the Blue and John Crow Mountains National Park, for the benefit of Jamaica and our people. The JCDT's main focus is management of the Blue and John Crow Mountains National Park (BJCMNP) under a delegation agreement with the Natural Resources Conservation Authority (NRCA) through the National Environment and Planning Agency (NEPA). The organisation's goals and objectives are stated in the JCDT Strategic Plan 2010 – 2014, which dovetails with the BJCMNP Management Plan for 2011 – 2016. JCDT staff spend 95 – 100% of their time dedicated to management of the Blue and John Crow Mountains National Park. All fundraising efforts for JCDT relate to generating income to support management of the National Park. The Executive Director and a few other staff spend about 2 - 5% time with other issues e.g. participating on national committees and in national consultations on the National Protected Area System or related issues e.g. economic valuation of natural resources etc.

**HIGHLIGHTS**

JCDT manages the National Park according to a 5 year Management Plan detailing programmes, goals, objectives and strategic activities. An annual workplan is prepared setting targets based on the 5 year plan and Programme Officers prepare monthly reports which are compiled and sent to NEPA and JCDT's Board on a bi-monthly basis. During 2012, JCDT continued to work on achieving the objectives and goals of the National Park, and to make improvements in the management of the National Park, as lessons were learned from implementation.

A major highlight for the National Park in February, 2012 was the approval by the NRCA/NEPA of the 2011 – 2016 Management Plan after a detailed review and updating process, including addition of a Cultural Heritage Preservation Programme.

**Enforcement & Compliance Programme**



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- A new Chief of Corps started work in December, 2012 after almost two (2) years without a full-time supervisor for the Ranger Corps and Officer responsible for the Enforcement & Compliance Programme.
- A new Ranger joined the Corps in September, 2012 bringing the Ranger complement to six (6).
- 96 patrols were conducted for the year, averaging 8/month (89%) of target of 9/month or 108 for the year.
- All Rangers participated in training to renew their First Aid and CPR certification and also participated in a workshop on Customer Service.
- The Rangers continued to play a major role in the implementation of all the Park's management programmes e.g. conducting bird monitoring, supervising reforestation etc.

### Conservation Programme

- This Programme was impacted by reduced time of the Conservation Science Officer (CSO) who also played the role of Chief of Corps during 2012. Despite this the target of 15hectares of reforestation with native species was achieved in the Cinchona/Bellevue area and 14hectares of earlier reforestation were maintained – more than the 10ha target set. Little work was done on invasive species control as the areas cleared of both Wild Ginger and Wild Coffee seemed to be self-maintaining.
- Nursery production continues to focus on native, non-lumber species for reforestation within the National Park and 73% of the 9,000 seedling production was achieved.
- There was no liaison with visiting researchers although 7 foreign research applications sent from NEPA were approved. The CSO went to a stakeholder meeting for a presentation by one researcher, who did not turn up for the meeting. Outreach to the University of the West Indies continued and with funding assistance from the Environmental Foundation of Jamaica (EFJ) through JCDT, a student from the Integrated Urban and Rural Environmental Management M.Sc. Programme started work on his MSc. Project, “Mapping and Risk Assessment of Climate Change Related Hazards: A Strategy for Building Resilience Towards Disaster Risk in the Blue and John Crow Mountains National Park”.
- A peer-reviewed paper written by Susan Otuokon, Shauna-Lee Chai and Marlon Beale, “Using Tourism To Conserve The Mist Forests And Mysterious Cultural Heritage Of The Blue And John Crow Mountains National Park, Jamaica” was published in the journal PARKS 2012 Vol. 18.2 (a publication of the International Union for the Conservation of Nature).

### Monitoring and Evaluation Programme

- This Programme is also managed by the Conservation Science Officer who used the assistance of the M.Sc. student to help catch up with outstanding mapping for patrols and threats monitoring for 2010 and 2011. The 2012 maps will be produced earlier in 2013.
- Bird Monitoring was completed for the Vinegar Hill/Claverty Cottage area in Portland.

### Cultural Heritage Preservation Programme and World Heritage Site (WHS) Nomination

JCDT continued to work with the Jamaica National Heritage Trust towards resubmission of the WHS nomination for the National Park. Numerous meetings were attended and funds were sought unsuccessfully from the CHASE Fund to revise, rewrite and have the dossier published professionally. This process was delayed for a number of reasons and it will not be possible to achieve the original February, 2013 target and even the February, 2014 looks challenging.

The focus of the Cultural Heritage Programme was to assist Maroon communities to improve their tourism product and also to provide other capacity building assistance. This was accomplished through the Park's Education Programme under which the Charles and Moore Town Maroon Councils along with the Bowden Pen Farmers Association received copies of the Business Plans they worked on with consultants in 2011, computer, printer and office furniture, \$400,000 for improvements and Buffer Zone community signs. Moore Town focused on safety infrastructure for the Nanny Falls Trail, Charles Town made improvements at the Asafu Yard and River Park and Bowden Pen built and Interpretive Centre at Ambassabeth. This was supported by funding from JCDT's Forest Conservation Fund Capacity Building Project.

### Education and Public Involvement

- Fifteen (15) community meetings about the National Park and related issues were held, over-reaching the target set for ten (10) community meetings. This was made possible by support from the NEPA National Protected Area System Project and funding from the EFJ for the Buff Bay Anti-River Poisoning Project.
- Seven (7) communities were involved in planning and implementation of projects: Balcarres, Spring Hill and Tranquility, Portland for the River Project, Charles Town, Moore Town and Millbank/Bowden Pen for the FCF Capacity Building for Sustainable Livelihoods and Hall's Delight for Disaster Risk Management with the FAO.
- All 30 primary schools around the National Park were visited with a presentation leading to demands for copies of the DVD shown "Earth To Sea" (delivery in 2013)
- Teachers from 15 basic schools around the National Park participated in a workshop building on concepts and methods shared at a workshop held in 2011.
- The highlight for public awareness was the development of two new, linked websites: [www.blueandjohncrowmountains.org](http://www.blueandjohncrowmountains.org) and [www.jcdt.org.jm](http://www.jcdt.org.jm) and a Facebook Page – Blue Mountains, Jamaica with regular posts.

### Recreation and Tourism Programme

JCDT continued to seek funds for full implementation of the Blue Mountains Sustainable Tourism Programme and received endorsement from the Minister of State in the Ministry of Tourism and Entertainment. A meeting with the Deputy Director of Tourism, Jamaica Tourist Board was also positive with promises for assistance starting with

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approval of Misty Bliss 2013. Following proposals to the Inter-American Development Bank and the Jamaica Social Investment Fund's Rural Economic Development Initiative (REDI) Project, meetings were held and it is hoped that funds will be forthcoming in 2013.

This Programme does not have a full-time Programme Officer and responsibilities are shared between staff members, particularly the Administrative Manager. Highlights were:-

- Major repairs to the Gordon Town to Redlight and Greenwich Trail were completed and work started at Holywell to continue through to 2013 with funding from the Tourism Enhancement Fund (TEF) through the Tourism Product Development Company (TPDCo) for infrastructural improvements.
- The Oatley Mountain Trail was repaired and signs updated with funding from JCDT's Forest Conservation Fund Capacity Building Project.
- Work started on repairs and improvements to the water catchment at Holywell which will hopefully result in increased flows (with EFJ funding)
- 22 schools and other groups visited Holywell for educational tours. This exceeded the target of 20 but the numbers need to be increased.
- Unfortunately, visitation and income decreased across both recreation areas by 16% and 9% respectively. Increased marketing in 2013 should help.

### Governance and Administration Programme

- Co-management Committee meetings were not held and the Co-management agreement was extended with renewal indicated by NEPA in 2013. JCDT plans to return to organising regular Co-management meetings and to establish an Advisory Committee for the National Park in 2013.
- About 12 proposals were prepared during 2012 with 4 approved and starting in 2012, 1 approved for 2013 start and 3 being considered for 2013. This does not include funding from NEPA or the Jamaica National Parks Trust Fund. Just over JA\$21 million in new funds were raised to cover all deficits for 2012.
- Despite not having a formal training programme or funds for training, all staff, particularly Rangers participated in training activities.

In addition, through the NEPA National PA System Programme, work started on the preparation of a Business Plan for the BJCMNP.

### **CHALLENGES**

Challenges continue to be related mainly to limited resources, particularly financial, human and vehicles. Despite our best efforts at efficiency and a very hard-working staff, the limited number of personnel – particularly administrative, affected the meeting of time-lines and achievement of targets. Lack of a Chief of Corps from 2011 resulted in the

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Conservation Science Officer, Mr. Marlon Beale playing that role for almost the whole year. The organisation was also challenged to find a suitable Executive Director and in October contracted Dr. Susan Otuokon, a former Executive Director to act part-time in the position for a year inclusive finding and mentoring a new Executive Director.

**Staff Complement – 2012**

Executive Director (ED)	- Stacy-ann Robinson (March – August)		
	- Susan Otuokon (from October)		Ranger Corps
Administrative Manager (AM)	- Donna Fray	Chief of Corps (C/Corps)	- Bernard Gentles (December)
Conservation Science Officer (CSO)	- Marlon Beale*	Station Chief, Holywell	- Herma Nathan Dawes
Education & Community		Station Chief, Portland Gap	- Rudolph Poyser
Outreach Officer (EECO)	- Wellington Taylor	Ranger	- Ryan Love
Accountant	- Howard Irons (part-time)	Ranger	- Roger Thompson
Accounts Clerk	- Rohainia Lawrence	Ranger	- Marlon Hamilton
Receptionist/Bookings Clerk	- Kantalin Robinson	Trainee Ranger	- Jermy Schroeter (September)
Office Attendant	- Valma “Mavis” Powell		

\*for most of 2012, Marlon Beale acted as Chief of Corps

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**BJCMNP Enforcement and Compliance Programme** – 5 Year Goal: To stop encroachment of the Park boundary and destruction of the forest and wildlife within.

This Programme is linked to JCDT’s Strategic Plan Goal 1, Objective 1.1

Main Funding (2012): NEPA Management Fee (2011/12and 2012/13)

Persons Responsible: Marlon Beale (CSO); Chief of Corps – Bernard Gentles - December

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans																				
<p>1. Repair Ranger Stations</p> <p>2. Recruitment and orientation of new Chief of Corps</p> <p>3. Recruitment and orientation of 2 new Park Rangers</p> <p>4. Routine Patrols</p>	<p>1. All by Dec 31</p> <p>2. C/Corp hired and working by May 30</p> <p>3. Rangers hired and working by May 30</p> <p>4. At least 9/mth</p>	<p>1. H/well ranger station – deck was refurbished, bathroom repairs. Minor repairs to flooring at P/Gap station</p> <p>2. Chief of Corps – Mr. Bernard Gentles was finally employed starting 4th December following a long and discontinuous process which included consideration of internal promotion.</p> <p>3. Only 1 Ranger employed starting 3<sup>rd</sup> September after interviews in June. In-house &amp; field training conducted between September – December and evaluation in December.</p> <p>4. Average of 8 patrols/mth for 2012 (Total: 96)</p> <table border="1"> <thead> <tr> <th>Month</th> <th># Patrols</th> <th>Month</th> <th># Patrols</th> </tr> </thead> <tbody> <tr> <td>January</td> <td>10</td> <td>July</td> <td>8</td> </tr> <tr> <td>February</td> <td>8</td> <td>August</td> <td>9</td> </tr> <tr> <td>March</td> <td>7</td> <td>September</td> <td>10</td> </tr> <tr> <td>April</td> <td>7</td> <td>October</td> <td>8</td> </tr> </tbody> </table>	Month	# Patrols	Month	# Patrols	January	10	July	8	February	8	August	9	March	7	September	10	April	7	October	8	<p>1. Target partially achieved</p> <p>2. Target achieved but 6 months late</p> <p>3. Target achieved but 3 months late</p> <p>4. Target 89% achieved</p>	<p>Lack of a Chief of Corps had a major impact on the implementation of the Programme and had a negative impact on the Conservation Programme as the Conservation Science Officer was doubling up on his duties.</p> <p>Re: repairs – no major repairs were needed at Ranger Stations though more needed at Portland Gap. Funds have been sought under the JSIF REDI Peak Area Improvements Proposal</p>
Month	# Patrols	Month	# Patrols																					
January	10	July	8																					
February	8	August	9																					
March	7	September	10																					
April	7	October	8																					

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements				Results	Comments/Plans
5. Organise Joint Agency Patrols 6. Implement Threats/Impacts Monitoring System 7. Record incidents and observations on patrol 8. Take action on ID of breaches 9. Conduct in-house & external training	5. As needed 6. See M & E Prog. 7. As above 8. As appropriate 9. At least 2 sessions by Dec 31	May	9	November	8	5. Target achieved 6. Target achieved 7. Target achieved 8. Target achieved 9. Target achieved	
		June	7	December	5		
		5. Joint Patrols: 5 plus assistance to NEPA during Bird Shooting Season					
		6. See below under Monitoring & Evaluation Programme					
		7. On GIS (see attached) 8. Reports by phone call to NEPA/FD 9. 2 training sessions all Rangers: March 6 -7 & April 23 – 24:1 <sup>st</sup> Aid/CPR - HEART Foundation					
		Nov 29: Customer Service Training - 3 Rangers participated in Forestry Dept training - 1 Ranger went to Trinidad & Tobago for Social Marketing training with the National Invasive Species Project					
		10. No action					
		11. No action					

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>10. Mapping of farms near boundary as appropriate</p> <p>11. Conduct specific patrols e.g. river poisoning, GSB</p> <p>12. Rangers assist with other Programmes as required</p>	<p>10. As needed</p> <p>11. As required</p> <p>12. As required</p>	<p>12. Rangers played major role in other Programmes:-</p> <ul style="list-style-type: none"> <li>- Conservation – supervision &amp; implementation of invasive sp. eradication, reforestation, wilding &amp; seedlings collection.</li> <li>- Monitoring &amp; Evaluation – bird and fresh water monitoring</li> <li>- Education &amp; Public Involvement – interpretive enforcement &amp; conducting guided tours for schools etc. at Holywell</li> <li>- Recreation &amp; Tourism – weekend visitor management; supervision of repairs to Gordon Town – Redlight – Greenwich Trail and at Holywell under TEF/TPDCo. Project and EFJ Water Harvesting Project.</li> </ul>	<p>10. Target not achieved</p> <p>11. Target not achieved</p> <p>12. Target achieved</p>	

JAMAICA CONSERVATION AND DEVELOPMENT TRUST



Rangers discover burnt out reforested areas at Cinchona



Charcoal kiln in the Fruitful Vale area just outside Park boundary



Penlyne Castle Trail Reconnaissance re: repairs needed



Newest Ranger, Jermy Schroeter (I) with new Chief of Corps,  
Bernard Gentles in vehicle



JAMAICA CONSERVATION AND DEVELOPMENT TRUST

**BJCMNP Conservation Programme** – 5 Year Goal: To maintain and enhance the remaining area of closed broadleaf forest and component species of plants and animals.

This Programme is linked to JCDT’s Strategic Plan Goal 1, Objectives 1.2 and 1.4

Main Funding (2012): Forest Conservation Fund (Forest Conservation) and (Soil Stabilisation)

Person responsible: Conservation Science Officer – Marlon Beale

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>1. Invasive Species Control</p> <p>(a) Mt. Horeb/Fairy Glade – Wild Ginger (<i>Hedychium</i>) (existing 3.75ha controlled)</p> <p>(b) Blue Mtn. Peak Trail – Wild Coffee (<i>Pittosporum</i>) (existing 5ha controlled)</p> <p>(c) Holywell – Woodford Rd. (<i>Pittosporum</i>) and Blue Mahoe &amp; Oatley Mtn. Trails (<i>Hedychium</i>)</p> <p>(d) Cinchona – (<i>Pittosporum</i>) (existing 2.27ha controlled)</p> <p>2. Holywell Nursery</p> <p>(a) Propagation of native, broadleaf species for use in forest rehabilitation</p> <p>ai. Holywell – at least 5 species</p>	<p>1a. Maintain existing; Add 1.25ha by Nov</p> <p>1b. Maintain existing &amp; add 2ha</p> <p>1ci. Woodford Rd maintained</p> <p>1cii. Trails maintained</p> <p>1d. Maintain existing &amp; add 2ha</p> <p>2ai. Holywell - 6,000</p>	<p>1a. Existing 3.75ha checked - did not need active maintenance. Only 0.92 ha added. Total now: 4.65ha</p> <p>1b. Maintenance conducted but no area added as most sites identified are outside NP boundary, on private lands</p> <p>1c. Holywell area and trails checked for Wild Coffee (<i>Pittosporum</i>) and Wild Ginger (<i>Hedychium</i>)</p> <p>1d. Site visits to check status</p>	<p>1a. Maintenance: 100%. Addition: 30% achieved</p> <p>1b. Maintenance: 100%. Addition: 0%</p> <p>1c. Maintenance: 100%</p> <p>1d. Maintenance: 100%. Addition: 0%</p> <p>2a(i) 78% Target achieved</p> <p>2aii. Not achieved</p>	<p>Target achievement was reduced due to time limitations of the CSO acting as C/Corps, vehicle challenges and identifying suitable land for additional invasive species control.</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
aii. Holywell – endangered species aiii. Hagley Gap – at least 3 species  (b) Propagation & sale (seek buyers) of lumber, landscaping, and other commercial species - # seedlings:-  3. Reforestation - Priority Sites (a) Conduct Reforestation on 15 ha in the upper Yallahs watershed (b) Maintain 10 ha from previous years  4. Promotion & Facilitation of Research (a) Send Research Prospectus/Management Plan to	tree seedlings  2aii. Holywell - 50 tree seedlings  2aiii. Hagley Gap – 3,000 tree seedlings  2bi. H/well - 1,000 seedlings  2bii. H/Gap – 500 seedlings  3a. 15 ha  3b. Maintain 10ha By Dec 31:-	2ai. 4,682 total: 3,902 natives and 780 native lumber)  2aii. No endangered species seedlings  2aiii. 1,924seedlings: 1,437 natives and 487 native lumber  2bi. 1,055 commercial plants produced. There were total sales of \$37,460 of plants & cut flowers from Holywell & Portland Gap respectively  2bii. No commercial plants at Hagley Gap  3a. Total of 15.2ha reforested/rehabilitated (14.2 in November and 1 ha in July/August) in Cinchona/Bellevue area  3b. 14 ha maintained.	2aiii. 64% Target achieved  2bi. 100% Target  2bii. Target not achieved  3a. 100% Target achieved  3b. Target exceeded  4a.30% Target.	2aii. Work in previous years to find endangered species wildings was not successful and there was no time to follow up this year with less Rangers. Plans for 2013 include producing seedlings for private sector and this will result in funds for an individual to find seeds and wildings.  4a. Did not actively seek or follow up researchers.

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>universities and seek their partnership</p> <p>(b) Examine all research applications (sent by NEPA) and reply with comments</p> <p>(c) Maintain and advertise Research Data-base</p> <p>(d) Learning/training and exploration in partnership with researchers in the Park - accompany researchers in field</p> <p>(e) Repatriation &amp; use of research results - Obtain reports, interpret results, promote (e.g. media) and use to guide Park Management as</p>	<p>4a. Partnerships with at least 3 research institutions</p> <p>4b. 100% of research requests examined and responded to</p> <p>4c. 100% of researchers applying through NEPA entered into database &amp; d/base promoted (website etc.)</p> <p>4d. At least 25% of researchers accompanied into the field on at least 1 occasion</p> <p>4e. Obtain reports from at least 25% of researchers who conducted research in 2011.</p>	<p>4. Research</p> <p>4a. Partnership with 1 research institution:-</p> <p>(i) UWI – M.Sc. student (Integrated Urban &amp; Rural Environmental Management) for Hazard Mapping Project.</p> <p>4b. All 7 research applications received from NEPA were responded to</p> <p>4c. Data-base maintained but not promoted</p> <p>4d. No researchers were accompanied in the field nor were reports obtained. One researcher was to present their report but did not show up to meeting at Forestry Dept.</p>	<p>4b. Target achieved</p> <p>4c. Target 50% achieved</p> <p>4d. Target not achieved</p> <p>4e. Target not</p>	

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>applicable.</p> <p>(f) Participate in relevant national committees</p> <p>(g) Promote work through publications &amp; participation in conferences, presentations to universities etc.</p> <p>5. Conservation Targets – record all sightings etc. from patrols, communities on GIS</p>	<p>4f. Participate as appropriate</p> <p>4g. At least 1 publication &amp; 2 presentations on the Park</p> <p>5. Maps and data on species</p>	<p>4e. No researchers provided reports/papers except Shauna Lee Chai – paper from earlier research.</p> <p>4f. CSO &amp; ED attended numerous meetings of national committees.</p> <p>4gi. 1 paper published PARKS 18.2 (International Journal for Protected Areas &amp; Conservation. 2 Presentations: 1 PPT to CARIMAC Society 2/12 &amp; 1 Poster Presentation at IUCN World Conservation Congress, Jeju – South Korea, 9/12.</p> <p>5. On-going entry of sightings to GIS, but map not yet produced.</p>	<p>achieved</p> <p>4f. Target achieved</p> <p>4g. Target achieved</p> <p>5. Target 50% achieved</p>	

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Cinchona – looking out at reforestation



Rangers looking for native tree seedlings



Native Tree Seedlings being delivered to Cinchona for reforestation

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p><b>World Heritage Site (WHS) Nomination</b></p> <p>Pursue WHS status for BJCMNP to raise global status, attention and possibility for funding</p> <ol style="list-style-type: none"> <li>1. Attend National Technical Committee meetings</li> <li>2. Update relevant stakeholders</li> <li>3. Continue local, regional &amp; international lobbying and promotion of site</li> <li>4. Source funding for the BMST Programme (see R&amp; T Prog)</li> <li>5. Assist cultural heritage festivals (see C/Heritage Prog)</li> <li>6. Begin re-writing of Nomination Dossier</li> </ol>	<ol style="list-style-type: none"> <li>1. All meetings</li> <li>2. Notes or Information disseminated</li> <li>3. At least one event; letters sent out</li> <li>4. Funding sourced</li> <li>5. Assistance provided</li> <li>6. Funds sourced and process initiated</li> </ol>	<ol style="list-style-type: none"> <li>1. Attended all 5 meetings held</li> <li>2/3a. Meetings organized &amp; held with Minister of Youth &amp; Culture &amp; with new Ambassador to the EU &amp; UNESCO</li> <li>2/3b. Information provided to Col Lumsden, Charles Town Maroon Council on request</li> <li>2/3c. Outreach to Diaspora through JA50 celebrations</li> <li>2/3d. S. Otuokon organised meeting with IUCN WHS Dept and World Conservation Monitoring Centre 4/4/12 and liaised with IUCN WHS Experts at meeting in Jeju 9/12</li> <li>4. See R &amp; T Prog</li> <li>5. See Cultural Heritage Programme (below)</li> <li>6. Proposal to CHASE Fund prepared and sent by JCDT (with support letters from JNHT and NEPA) but was turned down. A decision by JNHT &amp; National WH Committee with respect to the withdrawing (or not) of the nomination for cultural criteria must be taken to move forward and access funding for the studies and rewriting for the nomination.</li> </ol>	<p>Targets only partially achieved due to challenges outside JCDT's control.</p>	<p>Press for decision by JNHT and National WHS Committee and seek funds for further action to ensure a successful nomination as soon as possible (but likely not by 1/14 proposed deadline).</p>

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<p><b>Cultural Heritage Conservation</b></p> <p>With help from the JNHT and other agencies and organizations, support the conservation of cultural heritage as an important component of the BJCMNP.</p>	<p>2. Assist Moore Town Maroon Council to improve Nanny Bump/Falls</p> <p>2. Assist Charles Town Maroon Council with Conference</p> <p>3. Sign MOUs with Maroon Councils &amp; Bowden Pen Farmers' Association</p>	<p>1. With funds from JCDT/FCF Capacity Building Project helped Moore Town Maroon Council to improve Nanny Falls – steps/rails.</p> <p>2. With funds from JCDT/FCF Capacity Building Project helped Charles Town Maroon Council to improve Asafu Yard &amp; Museum for Maroon Conference,</p> <p>Also, provided funds from JCDT/FCF Capacity Building Project to the Bowden Pen Farmers' Association (BPFA) for improvements at Ambassabeth &amp; Cunha Cunha Pass Trail.</p> <p>3. No work on MOUs though some discussion with BPFA in December.</p>	<p>2. 100% Target achieved</p> <p>3. 100% Target achieved</p> <p>In addition, assistance provided to another CBO for conservation of cultural heritage</p> <p>4. Target not achieved</p>	
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**BJCMNP Monitoring and Evaluation Programme – 5 Year Goal:** To track and record both the threats and the changes to ecosystem health, so that it is possible to assess whether or not the Park is achieving its over-arching conservation goal.

This Programme is linked to JCDT's Strategic Action Plan Goal 1, Objective 1.3

Main Funding (2012): NEPA Person responsible: Conservation Science Officer – Marlon Beale

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>1. Threats and Impacts Monitoring (GIS)</p> <p>1a. Collect &amp; enter threat/impact information from Patrols (photo &amp; location) into GIS &amp; prepared 2011 Report/Map</p> <p>1b. Establish 2 more Permanent Photo-Monitoring Points</p>		<p>1ai. Jan. – Nov. data entered</p> <p>1aii. UWI MSc. Student contracted &amp; 2011 Report/Map prepared Sept, 2012</p>	<p>1a. Targets achieved though delayed</p>	<p>CSO acted as C/Corps most of year and so had limited time for data analysis &amp; reporting</p>

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>2. Forest Area Monitoring Obtain information from S. Chai – Ph.D. research; Discuss options with FD; Seek JDF assistance.</p> <p>3. FW Macro-invertebrate Monitoring 3a. Sample sites in both dry and wet seasons 3b. Analyse data and Prepare Report</p> <p>4. Bird Monitoring 4a. Complete establishment of Points and Monitoring for Winter Season – Vinegar Hill/Claverty Cottage 4b. Monitor all Points for Breeding Season 4c. Analyse 2010/2011 data and Prepare Report 4d. Begin point establishment and monitoring for Winter Season in another of the five established areas</p>	<p>1ai. Every patrol – on-going 1aii. Map by Mar 31 1b. At least 8/12 existing points photographed by Dec 31</p> <p>3. Forest Area Monitoring Report by Dec 31</p> <p>3a. 12 sites twice 3b. Report</p> <p>4a. 120 points established &amp; counted by April 30 4b. 120 points counted by June 30 4c. Report by Aug 31 4d. At least 60 points established and counted by Dec 31</p>	<p>1b. 7/12 sites photographed</p> <p>2.No action</p> <p>3. FW Monitoring done in January/February (dry season). Wet season monitoring was not done in Oct/Nov due to bad weather including Hurricane Sandy in October. No data analysis was conducted nor report prepared.</p> <p>4. Monitoring in Vinegar Hill/Claverty Cottage for Non-Breeding Season completed in March/April and for Breeding Season Monitoring was completed between July –and September. 100% of data was entered between Sept. and Nov. The report has not been prepared</p>	<p>1b. Target 88% achieved</p> <p>2. Target not achieved</p> <p>3. Target 50% achieved for data collection but 0% for reporting</p> <p>4. Target achieved for monitoring (a/b) - though late; this didn't allow time for data analysis &amp; report-ing so</p>	<p>December data will be entered and 2012 Report/Map prepared by end February, 2013.</p> <p>Heavy rain is challenging as it often prevents access into river. The FW monitoring will be conducted in Jan/Feb 2013 and a report prepared by March 30.</p> <p>The Bird Monitoring Report will be done in 2013.</p>



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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
			Reporting Target (c) not achieved and new site (d) could not be started.	



Rangers conducting Freshwater Monitoring



Susan Otuokon with BJCMNP poster presentation at IUCN Congress

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Murals painted on Moore Town Maroon Council Office & Visitors' Centre



Changing rooms at Charles Town Asafu Yard, Maroon Museum & River Park

**BJCMNP Education and Public Involvement Programme – 5 Year Goal:** To raise support for conservation of the National Park's natural and cultural heritage and improve resource management and the sustainability of livelihoods, particularly in Buffer Zone communities

This Programme is related to JCDT's Strategic Plan Goals 2 and 3, Objectives 2.1, 2.2 and 2.5

Main Funding (2012): FCF Capacity Building, FAO Disaster Risk Management, NEPA National PA System Small Grant, EFJ Buff Bay River Poisoning

Person Responsible: Education and Community Outreach Officer (ECOO): Wellington Taylor

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
1. Facilitate capacity building of Park's buffer zone communities, for sustainable livelihoods & natural resources management 1ai. Town-square awareness meetings re: BJCMNP/JCDT 1aii. Liaise with CBOs to plan activities	1. By Dec 31:- 1ai. (10 communities – 1 mtg each) 1aii. At least 3	1ai Total of 15 community meetings held mainly in 4 <sup>th</sup> quarter:- 3 re: River Poisoning: Balcarres, Spring Hill & Tranquility, Portland 2 re: Disaster Preparedness – Hall's Delight, St Thomas 10 re: BJCMNP in Reach, Minto/Penlyne, Westphalia, Cascade, Bath, Ginger House, Claverty Cottage (2), St. Peters, Sherwood Forest and	1ai. Target exceeded	1ai. Funding from EFJ River Buff Bay River Poisoning Project, FAO & NEPA National PA System Small Grant Project

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<p>1aiii. Sustainable livelihood activities/projects being implemented</p> <p>1aiv. 4 completed Business Plans (3 community ventures and Holywell)</p> <p>1b. Training of community members especially youth/young adults in sustainable livelihoods</p> <p>1c. Involve community members including Youth PATH, in Park management activities</p>	<p>CBOs</p> <p>1aiii. At least 2 communities</p> <p>1aiv. 4 completed Business Plans</p> <p>1bi. At least 3 youth in business 1bii. At least 1 training workshop for youth 1c. 25 (incl. Park staff)</p>	<p>Cooper's Hill</p> <p>1aii. 7 communities helped with planning– see below plus 3 (see above) helped with planning for River Poisoning Project (focus group meetings)</p> <p>1aiii. 7 communities involved in project implementation:-</p> <p>3 communities assisted with funding for projects to improve tourism ventures as per Business Plans: Moore Town - Nanny Falls Trail &amp; Museum Improvement; Charles Town - Asafu Yard &amp; Museum Improvements; Ambassabeth - Visitors' Centre &amp; Trail Signage. Signs mounted in all 3 of these communities.</p> <p>Hall's Delight assisted with preparation of Disaster Preparedness Plan and activities to reduce landslides with funding from the FAO.</p> <p>1aiv. 4 Business Plans completed &amp; distributed: Charles Town, Moore Town, Bowden Pen Farmers' Association tourism ventures &amp; Holywell</p> <p>1b. No youth operated businesses nor training specifically for youth but community members (17) including youth involved in training conducted: First Aid/CPR at HEART Foundation 6- 7/3 &amp; 23 – 24/4</p> <p>1c. Over 25 community members involved in Park mgmt e.g. 8 in</p>	<p>1aii. Target exceeded</p> <p>1aiii. Target achieved</p> <p>1aiv. Target achieved</p> <p>1bi. Target not</p>	<p>1aiv. Business Plans prepared by Karin Wilson/Hugh Cresser (started in late 2012) with funds from the FCF</p> <p>1b. Challenges re: youth in business – most are seeking employment.</p>
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		reforestation, 4 as Park Rangers, 1 Receptionist/Bookings Clerk, 1 part-time assistant to ECOO, 2 part-time nurseries, 10 part-time Rec. Areas	<p>achieved</p> <p>1bii. Target exceeded</p> <p>1c. Target achieved</p>	Intend to continue in 2013 – if FCF Capacity Building Project #2 approved
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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>2. Target buffer zone schools to engender care of the Park, in collaboration with communities, particularly in the 4 targeted communities</p> <p>2a. Intensive work in schools</p> <p>2b. Visits to at least 50 buffer zone schools with a ppt presentation</p> <p>2c. Buffer Zone teacher training workshop</p>	<p>2a. At least 3 schools</p> <p>2b. Visits to at least 20 basic &amp; 30 primary schools</p> <p>2c. At least 1</p>	<p>2a. 2 visits to Woodford, Craighton &amp; Cascade All Age Schools to support environmental projects: Woodford- Vegetable Garden, Craighton- Fruit Tree Garden, Cascade- Vegetable Nursery.</p> <p>2b. 30 primary schools visited for 2012; 30 copies of “Earth to Sea” DVDs made for distribution in 2013 at request of teachers. See list of schools and dates visited at Appendix 1.</p> <p>2c. Teacher Training Workshop held at Holywell for Buffer Zone Basic Schools (15) from Portland, St. Thomas and St. Andrew on March 30. The focus was on their use of knowledge obtained in the 2011 workshop re: incorporating techniques and information suitable for the early childhood years.</p>	<p>2a. Target achieved</p> <p>2b. Target 60% achieved</p> <p>2c. Target achieved</p>	<p>2b/c. Decision taken not to visit basic schools in 2012 due to resource challenges. For basic schools, the focus was on training for teachers.</p>

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<p>3. Increase public awareness about the Park through Communications</p> <p>(a) Media Releases/Info sent out and follow up for response e.g. site visits; Interview Opportunities</p> <p>(b) Website up, in-use &amp; being up-dated</p>	<p>3a. Coverage – 5 times in print or electronic (+ events)</p> <p>3b. Web-site up-to-date, maintained and 200 hits/mth</p>	<p>3a. 12 media releases disseminated – 5 printed:</p> <p>11/3 JA Observer re: JCDDT/Fundraising &amp; Tourism activities</p> <p>20/3 Gleaner re: JCDDT/Fundraising &amp; Tourism activities</p> <p>2/6 Gleaner re: Labour Day Portland Gap Clean-up</p> <p>25/9 JA Observer: Holywell</p> <p>28/11 JA Observer: BJCMNP presentation at the IUCN World Conservation Congress in Sept.</p> <p>- Paid advertising: Nationwide &amp; KOOL FM – FAO &amp; World Water Day</p> <p>- TVJ Morning Time (23/3) &amp; KOOL FM (20 &amp; 24/3) &amp; RJR (22/3) interviews</p> <p>3b. New linked websites completely up end June:</p> <p><a href="http://www.blueandjohncrowmountains.org">www.blueandjohncrowmountains.org</a> &amp; <a href="http://www.jcddt.org.jm">www.jcddt.org.jm</a></p> <p>FB Pages up &amp; regular posts (at least 2/mth)</p>	<p>3a. Target achieved</p> <p>3b. Target achieved</p>	

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Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>4. Increase public awareness/support for the Park through Interpretation at Recreation Areas</p> <p>(a) Conduct educational tours/packages at H/well</p> <p>(b) Signage at Holywell</p> <p>(c) Improve Interpretation at other Recreation Areas/Ranger Stations</p>	<p>4a. Provide content &amp; materials, training and personnel for visits</p> <p>4b. As per Plan</p> <p>4c. Visibly improved</p>	<p>4a. New materials not developed. Rangers &amp; Community youth involved in providing guide/interpretive services for visitors</p> <p>4b/c. No additional signage at Holywell or Portland Gap but 4/5 signs installed in Buffer Zone Communities: at Millbank Ranger Station, In Charles Town, Moore Town and Cascade. One more to be installed in Mavis Bank (challenges with KSAC resulted in delays).</p>	<p>4. Specified target not achieved but significant new achievement with signs</p>	<p>4. The signs were funded under the FCF Capacity Building Project and aim to build community pride in being a National Park Community Buffer Zone</p> <p>(see photo below)</p>
<p>5. Exhibitions</p> <p>Participate in exhibits/expos etc. as possible to raise awareness about JCDDT and the BJCMNP</p>	<p>5. At least 3 events</p>	<p>5. Participation in 7 events:-</p> <p>2 mini-expos: World Water Day (March) EFJ Earth Day (April)</p> <p>4 mini-exhibits: AZMart, UWI, Loshusan's and Sanaa Studio, Liguanea in June &amp; IUCN World Conservation Congress Poster Exhibition Sept, 2012</p>	<p>5. Target exceeded</p>	

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Construction of stairs down to Nanny Falls for safety and improved access



First Aid/CPR Training involving staff and community members



Cascade Community Greenhouse built under another project still in use by Cascade School



Woodford students fill out forms for the presentation post-test

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Basic school teachers from Buffer Zone schools participate in workshop at Holywell



BJCMNP exhibit at Sanaa Studio/Burger King, Liguanea

**BJCMNP Recreation and Tourism Programme – 5 Year Goal:** To provide recreational opportunities for local and international visitors, using ecotourism principles, to generate income and support for the Park. This Programme is related to JCDT’s Strategic Plan Goal 6, Objective 4.4 and Goal 2, Objective 2.1.

The basic operations of the Park’s Recreation Areas run mainly on income they generate, but their management and supervision is subsidized by JCDT through implementation by the Executive Director (marketing), Administrative Manager (sales and logistics), Receptionist/Clerk (bookings and sales), Park Rangers – particularly Station Chiefs (visitor & site management). Funding continues to be sought for the implementation of the Blue Mountains Sustainable Tourism Plan including support for a Programme Officer.

Main Funding (2012): Recreation Area Income, TPDCo./TEF Holywell and Trail Improvement Project.

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
1.Organise events for maximum profit with limited environmental impact – other activity	1. US\$5,000 profit in JA\$ by Dec 31	1a. No event at Recreation Areas but one event at Mona Reservoir in 3/2012 raised about JA\$equivalent of US\$1,100.	1. Target not achieved	1. Started fundraising in October and raised sponsorship of 50% of Misty Bliss budget.



JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>2. BJCMNP Recreation Areas - Seek funds for &amp; implement Blue Mtns Sustainable Tourism Prog. (BMSTP):-</p> <p>a. Seek funds to Employ full-time Officer for Marketing BJCMNP Recreation Areas &amp; Programme</p> <p>b. Continue Product Development at Holywell:-</p> <p>(i) Refurbish "Tuck-Shop" to Café and Gift Shop</p> <p>(ii) Signage</p> <p>(iii) Oatley Mountain Trail repairs &amp; maintenance</p> <p>(iv) Waterfall Trail maintenance</p> <p>(v) Continue water quality monitoring</p>	<p>2. Funds obtained for Prog. by Dec 31</p> <p>a. Officer employed</p> <p>bi. Repaired &amp; operating</p> <p>bii. Signage in place</p> <p>biii. Repaired /maintained by June 30</p> <p>biv. By June 30</p>	<p>2. IDB indicated interest in possible support for BMSTP proposal submitted in 2011 &amp; requested a full proposal; Also showed interest in support for BM carbon project feasibility study as part of BMSTP. Proposal submitted in November but IDB Officer recommended waiting for IDB Agenda Review in January, 2013.</p> <p>2a. Funds for full-time Officer being sought from IDB</p> <p>2b. Funds sourced from the Tourism Enhancement Fund (TEF) through the Tourism Product Development Company (TPDCo.). Repairs completed on the Gordon Town to Redlight to Greenwich Trail</p> <p>(i) Work on "Tuck Shop" will start in 2013 under TEF</p> <p>(ii) Old interpretive signs on Oatley Trail replaced (FCF)</p> <p>(iii) Oatley Trail repairs and maintenance conducted under NEPA 2011/12 &amp; FCF Capacity Building/Education.</p> <p>(iv) Waterfall Trail repairs under TEF and Water Catchment Trail under EFJ.</p> <p>(v) Holywell water treatment and testing continued. Work on improving water supply continued under EFJ funding - Hurricane Sandy &amp; Christmas holidays delayed work.</p> <p>(vi) General maintenance was on-going; no major work.</p> <p>(vii) TPDCo. &amp; Fire Dept. visited &amp; made recommendations. Holywell lease addressed.</p> <p>(viii) See (v)</p> <p>c. Submitted proposal to JSIF REDI Project in early June for</p>	<p>2. Target not achieved but significant interest shown</p> <p>2a. Target not achieved</p> <p>2b. Targets partially achieved particularly re: trails and water supply</p>	<p>2. Will follow up with IDB in 2013</p> <p>2a. Funds to fill position requested in IDB proposal</p> <p>2b. Inadequate funds to do repairs necessary for TPDCo license.</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>(vi) General improvements</p> <p>(vii) TPDCo Certification achieved</p> <p>(viii) Improve water source &amp; ensure potable water</p> <p>c. Product Development – Portland Gap &amp; Blue Mountain Peak Trail – seek funds for implementation</p> <p>d. Product Development and fee collection system in the Rio Grande Valley established (see g. below)</p>	<p>bv. System working</p> <p>bvi. Improvements made</p> <p>bvii. Certification achieved</p> <p>bviii. Improved &amp; working</p> <p>c. Funds obtained for Projects</p> <p>d. Sign MOUs with</p>	<p>Peak Trail Improvements. Site visit conducted. Request for letter from NEPA and possibly NLA addressed. NEPA sent their letter. Followed up with JSIF but Project Officer no longer with organization and couldn't find anyone to assist.</p> <p>Received donation and community assistance to conduct minor repairs to Peak Trail (from Hurricane Sandy). Two major garbage clean-ups – Labour Day and Nov/Dec.</p> <p>d. No action except for some discussion in December</p> <p>e. See Education &amp; Public Involvement Programme report above re: assistance to Moore Town and Charles Town Maroon Councils and Bowden Pen Farmers Association</p> <p>fi. Media release sent to the Observer and Children's Own in May. The Observer used the information 25/9 but not certain about the Children's Own. TV:-</p> <ul style="list-style-type: none"> <li>A children's feature – "Mini Matters" was filmed at Holywell on June 2<sup>nd</sup>. The feedback from the Presenter was</li> </ul>	<p>2c. Targets not achieved</p> <p>d. Target not achieved</p>	

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

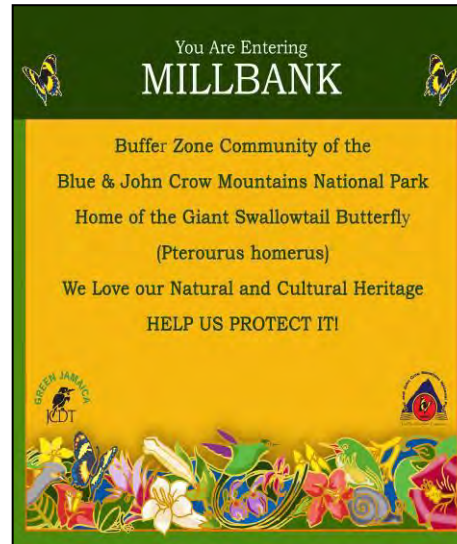
Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>e. Facilitate Community Product Development as per BMST Plan (infrastructure &amp; training)</p> <p>f. Marketing</p> <p>(i) General Holywell Marketing</p> <p>(ii) Blue Mtns Sustainable Tourism Marketing Plan</p>	<p>CBOs</p> <p>e. Repairs and Development initiated</p> <p>fi. Radio/TV advt. Information to 100 schools; advt/article - Children's Own</p> <p>fii. As per Plan</p>	<p>that the staff was very hospitable and Ranger Poyser who conducted the Tour was a superb Tour Guide. The Feature was aired on TVJ on June 15<sup>th</sup> with a repeat on June 19<sup>th</sup>.</p> <ul style="list-style-type: none"> <li>• Feature on TVJ – Kids Say - Hiking Trip episode at Holywell was aired on Saturday August 11 and episode 2 on August 18</li> </ul> <p>fii. Printing of Blue Mountains Experience brochure (created in 2008 under IDB BMST planning project) Distribution of brochures at several exhibits and expos (see above).</p> <p>g. No action except for brief discussion with BPF</p> <p>h. 22 schools/institutions visited Holywell for tours or field trips</p> <p>i.No funds sought; preliminary discussions with UWI re: studies.</p> <p>3. Revenue and visitation at Holywell decreased by 9% from 2011. Revenue at Portland Gap remained almost the same although visitation decreased by 16%. Total decrease in</p>	<p>e. Target exceeded</p> <p>f. Target partially achieved</p>	<p>Although major funding needed for the BMST Programme was not sourced for product develop and marketing, some funds were sourced from JCDT's FCF Capacity Building which allowed for significant assistance to 3 CBOs - \$400,000 each for improvements to tourism ventures in addition to office equipment and furniture.</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans
<p>g. Sign MOUs with</p> <p>(i) Charles Town Maroons</p> <p>(ii) Moore Town Maroons</p> <p>(iii) Bowden Pen Farmers Association</p> <p>h. Educational packages for schools/colleges</p> <p>i. Seek funds to improve and maintain Environmental Management System at all Recreation Areas</p> <p>3. Increase revenue from Holywell &amp; Portland Gap</p>	<p>g. Sign MOUs</p> <p>h. 20 schools hosted</p> <p>i. Obtain funding</p> <p>3. By 30% over 2011 (JA\$4million) by Dec 31</p>	<p>revenue of 7%.</p>	<p>g.Target not achieved</p> <p>h. Target exceeded</p> <p>i.Target not achieved</p> <p>3. Target not achieved.</p>	<p>Increase promotions through events in 2013.</p>



Refurbished sign on Oatley Mountain Trail



One of Five Buffer Zone Community Signs



One of many garbage clean-ups at Portland Gap, Peak Trail

**BJCMNP Administration and Governance Programme – 5 Year Goal:** To provide efficient, effective and sustained management that will allow the Park to meet its overarching and other goals. This Programme links with JCDT’s Strategic Plan Goal 5, Objectives 4.1 – 4.3

Main Funding (2012): Project Administrative Fees and JCDT support for Executive Director who is the Acting Park Manager, and JCDT Administrative staff who provide administrative support for the BJCMNP. Person Responsible: Executive Director (ED) – Stacy-ann Robinson (March – August) Susan Otuokon (Oct – Dec)

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
1. Liaise with Buffer Zone Community Groups  2.Co-Management Committee meets	1. Meetings/activities support Park mgmt - 6 communities  2. 3 mtgs/yr	1. Liaised only as related to capacity building and recreation/tourism - See Education & Public Awareness Prog.  2. Separate Meetings with NEPA & FD held & relevant issues addressed e.g. re: delegation, lease, co-management MOU, and carbon trading feasibility. Co-management meetings	1.Target partially achieved (5/6 communities.  2.Target 25% achieved	It is very challenging to organise meetings due to inadequate administrative resources and further it is very difficult to get

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
<p>3. Finalise Park Management Plan 2011-2016</p> <p>4. Project Development and Management</p> <p>5. Human Resource Development/Management</p>	<p>3. Document approved</p> <p>4. Develop, Manage &amp; Implement as per Park Plan</p> <p>5. 10 Training days</p>	<p>were not held in 2012</p> <p>3. Management Plan approved by NRCA February 2012 but due to lack of human resources work did not start on disseminating the document until December, 2012</p> <p>4. 12 project proposals prepared and 4 approved and started in addition to NEPA Management Fee and JNPTF Grant. 1 project received approval for start in 2013 and 3 are still being considered. 9 projects were managed for the year to support programmatic work.</p> <p>Monthly Ranger &amp; Prog Mgmt meetings held and 2 staff meetings. NEPA Audit &amp; 2011 Annual Report submitted.</p> <p>5. Training as follow (over 20 training days total):-</p> <p>Rangers (all) – First Aid/CPR – new certification &amp; refresher, Rangers (3) – Forestry Legislation with Forestry Dept Rangers (1) Social Marketing re: Alien Invasive Species.</p> <p>ED – Carbon Markets, World Heritage Sites</p> <p>CSO – Caribbean Emerging Wildlife Leadership Programme (2012 – 2014)</p> <p>ECOO – Association of Development Agencies Proposal &amp;</p>	<p>3. Target achieved</p> <p>4. See other programmes</p> <p>5. See above</p>	<p>representatives from the various agencies to attend on the same day. At least two proposed meetings were postponed. 2008 had 3 meetings and 2007 only 1.</p> <p>Improvements needed in project reporting accuracy and timeliness.</p>

JAMAICA CONSERVATION AND DEVELOPMENT TRUST

Planned Tasks/Activities	Targets/Proposed Outputs	Achievements	Results	Comments/Plans for 2008
<p>6. World Heritage Site Nomination</p> <p>7. Fundraising – raise funding to cover budget – GOJ, JNPTF, donors, sponsors, events etc.</p>	<p>6. See above</p> <p>7. JA\$20-30M</p>	<p>Project Design Training including climate change &amp; gender issues (October).</p> <p>Rangers, Receptionist/Bookings Clerk, Admin Manager, Accounts Clerk and Office Attendant – Customer Service Training – JA Customer Service Association (Nov 29)</p> <p>6. Limited progress in 2012 – see above</p> <p>7. Over \$21million in new funds were approved in 2012 such that the year ended without a deficit. However, there is a deficit of about \$20million for the 2013 budget about 50% of which will be covered assuming NEPA approves the 2013/14 Management Fee budget. About 25% will be covered if existing proposals are approved and the remaining 25% still needs to be raised by JCDT.</p>	<p>6. See below</p> <p>7. Within the target</p>	



**View from Oatley Mountain Trail, Holywell, BJCMP**



JAMAICA CONSERVATION AND DEVELOPMENT TRUST

**Appendix 1 – List of Schools visited for 2012**

1. Mt Fletcher Primary (15/5),	2. Tower Hill Primary (15/5),
3. Mt. James All Age (15/5),	4. Bowden Hill Primary (17/5),
5. Penlyne Castle Primary (18/5),	6. Minto Primary,
7. Charles Town Primary (21/5),	8. Tranquility Primary & Infant,
9. Johnson Mountain (22/5),	10. Birnamwood Primary (28/5),
11. Buff Bay Primary (28/5),	12. Trinityville Primary (29/5),
13. Cedar Valley Primary & Junior High (29/5),	14. Westphalia All Age (30/5),
15. Hall's Delight Primary & Junior High (30/5),	16. Reach Primary & Infant (31/5),
17. Cascade Primary & Junior High Sch (6/6),	18. Bath Primary & Junior High (4/6),
19. Bellevue Primary (5/6),	20. Moore Town Primary & Junior High (5/6),
21. Clifton Primary (8/6),	22. Grove Primary (8/6),
23. Woodford Preparatory (8/6),	24. Mount Hermon Primary & Junior High (11/6),
25. Shirley Castle Primary (11/6),	26. Craighton Primary (14/6),
27. Content Gap Primary (15/6),	28. Woodford Primary (4/7),
29. Windsor Primary (27/7),	30. Cooper's Hill Primary (27/7)



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H. E. Mrs Vilma Kathleen Mc Nish  
Ambassador Extraordinary and Plenipotentiary  
of Jamaica to Belgium  
Permanent Delegate  
Permanent Delegation of Jamaica to UNESCO  
Avenue Hansen Soulie, 77  
1040 Brussels  
Belgium

19 December 2014

### **IUCN Evaluation of Blue and John Crow Mountains – Request for Supplementary Information**

Dear Ambassador,

The joint IUCN / ICOMOS World Heritage technical evaluation mission to Blue and John Crow Mountains was undertaken by Ms Melissa Marin and Mr Tilman Jaeger (representing IUCN) from 27 October to 2 November 2014. The evaluators greatly appreciated the excellent support and co-operation provided by your colleagues in the preparation and implementation of the mission, and the kind welcome of the State Party throughout the mission. Please convey our sincere thanks to all of the officials, scientists and contributors that assisted the mission.

The IUCN World Heritage Panel is in the course of examining World Heritage nominations for natural and mixed properties, and cultural landscapes. This process will conclude in March 2015. At its first meeting last week, the IUCN Panel examined in detail each nomination dossier, reports and desktop reviews of field evaluators and external reviewers, as well as other references regarding the nominated properties. In this case, as the nomination is for a mixed site, we are coordinating our efforts with ICOMOS, who are considering the cultural values of the nomination.

As noted in previous correspondence, IUCN seeks to develop and maintain a dialogue with States Parties during the evaluation process. The Panel greatly appreciated the quality of the nomination that has been prepared, but also noted some points where additional information is required, and we would be grateful for the State Party's response on the following points:

1. Please would the State Party provide updated checklists on the species within the nominated property supported with spatial maps using the results of the most contemporary research available, and noting carefully which species are recorded from within the boundaries of the property.
2. Please would the State Party submit a map showing the agreed alignment of the 2016 Management Plan zonation that covers the nominated property, with the area included in the World Heritage proposal.
3. Please would the State Party provide more in depth information on the approach that it intends to take towards addressing the threats to the property that emanate from use in the buffer zone and the implications of those threats on the nominated property.
4. Please would the State Party indicate the commitment it is able to make to providing improved financial resource allocation in support of the work of the JCDT in relation to the future management of the property, if it was agreed to be inscribed on the World Heritage List, and confirmation that the level of finance is regarded as sufficient to meet the management needs of the nominated property and its buffer zone.

We would appreciate your response to the above points as soon as possible, in order to facilitate the evaluation process, but **no later than the 28 February 2015**, as per paragraph 148 of the Operational Guidelines. Please note that any information submitted after this date will not be considered by IUCN in its evaluation for the World Heritage Committee. It should be noted, however, that while IUCN will carefully consider any supplementary information submitted, it cannot properly evaluate a completely revised nomination or large amounts of new information submitted at the last minute. So we request to keep your response concise and respond only to the above requests.

**Supplementary information should be submitted officially in three copies to the UNESCO World Heritage Centre in order for it to be registered as part of the nomination.** An electronic copy of any supplementary information to both the UNESCO World Heritage Centre ([a.balsamo@unesco.org](mailto:a.balsamo@unesco.org)) and IUCN Headquarters ([christelle.perruchoud@iucn.org](mailto:christelle.perruchoud@iucn.org)) would also be helpful.

Taking into account your response, IUCN will formulate its final recommendation to the World Heritage Committee which will meet from 28 June to 8 July 2015 in Bonn, Germany.

Please do not hesitate to contact Ms Christelle Perruchoud, World Heritage Programme Assistant (Tel: +41 22 999 0358; Fax: +41 22 999 0002; email: [christelle.perruchoud@iucn.org](mailto:christelle.perruchoud@iucn.org)) if you have any questions, or if you would wish to arrange a meeting or phone call to discuss this request.

Please allow me to reiterate our thanks for your support of the World Heritage Convention and for the conduct of IUCN's recent mission. We look forward to your kind cooperation in furnishing responses to the abovementioned points.

Yours sincerely,



Tim Badman  
Director - World Heritage Programme

cc. Jamaican National Commission for UNESCO, Mr Everton Hannam, Secretary-General  
UNESCO World Heritage Centre, Mr Cesar Moreno-Triana and Mr Alessandro Balsamo  
IUCN Regional Office Mesoamérica e Iniciativa Caribe, Dr. Grethel Aguilar Rojas, Regional Director  
ICOMOS, Mrs. Regina Durighello



REPLY OR SUBSEQUENT  
REFERENCE TO THIS  
COMMUNICATION SHOULD  
BE MADE TO THE  
PERMANENT SECRETARY  
AND THE FOLLOWING  
REFERENCE QUOTED:

No MYSC.495/9/2

**Ministry of Youth & Culture**  
4-6 Trafalgar Road  
Kingston 5  
Jamaica, West Indies  
Tel: 876- 978-7654  
Fax: 876-927-8380

February 26, 2015

Ms. Regina Durighello  
Director -World Héritage Programme  
International Council on Monuments and Sites (ICOMOS)  
11 rue de Seminaire de Conflans  
94220 Charenton-le-Pont,  
France

Dear Ms. Durighello:

**Re: Blue and John Crow Mountains (Jamaica) – Additional information III**

We thank you for your letter dated January 16, 2015 and for the opportunity to respond to the key queries outlined by ICOMOS and subsequently facilitating a Skype meeting as a follow to that request.

We trust that the enclosed information has sufficiently addressed your queries. We have sought to be detailed and clear in enunciating the work that is taking place at the site, and our plans to build on the existing management structures. The people and Government of Jamaica are cognizant of the tremendous work that must go into maintaining a World Heritage Site, and as such collective responsibility will be brought to bear on the overall management of the Blue and John Crow Mountains.

Kindly find the attached information requested. We remain available to respond to any further queries/clarifications requested on the nomination.

Yours sincerely,

Lisa Hanna, MP  
Minister

cc: H- E. Mrs. Vilma Kathleen McNish, Ambassador Extraordinary and Plenipotentiary of Jamaica to Belgium, Permanent Delegate, Permanent Delegation of Jamaica to UNESCO  
Mr. Mauro Rosi and Mr. Cesar Moreno-Triana, UNESCO World Heritage Centre  
Mr. Tim Badman, IUCN



REPLY OR SUBSEQUENT  
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COMMUNICATION SHOULD  
BE MADE TO THE  
PERMANENT SECRETARY  
AND THE FOLLOWING  
REFERENCE QUOTED:

No **MYSC.495/9/2**

**Ministry of Youth & Culture**  
**4-6 Trafalgar Road**  
**Kingston 5**  
**Jamaica, West Indies**  
**Tel: 876- 978-7654**  
**Fax: 876-927-8380**

February 26, 2015

Mr. Tim Badman  
Director - World Héritage Programme  
International Union for Conservation of Nature (IUCN)  
11 rue de Seminaire de Conflans  
94220 Charenton-le-Pont,  
France

Dear Mr. Badman:

**Re: IUCN Evaluation of Blue and John Crow Mountains – Request for Supplementary Information**

Further to the captioned subject, please find enclosed/attached responses to key questions outlined by IUCN on December 19, 2014. We wish to again extend our thanks to IUCN for the opportunity to provide additional information on the Blue and John Crow Mountains and subsequently facilitating a Skype meeting as a follow to that request.

We trust that the enclosed information has sufficiently addressed your queries. We have sought to be detailed and clear in enunciating the work that is taking place at the site, and our plans to build on the existing management structures. Be assured that the State Party remains committed to ensuring that the diverse natural and heritage values associated with the Blue and John Crow Mountains will be responsibly conserved and safeguarded.

Kindly find the attached information requested. We remain available to respond to any further queries/clarifications requested on the nomination.

Yours sincerely,

Lisa Hanna, MP  
Minister

cc: H- E. Mrs. Vilma Kathleen McNish, Ambassador Extraordinary and Plenipotentiary of Jamaica to Belgium, Permanent Delegate, Permanent Delegation of Jamaica to UNESCO  
Mr. Mauro Rosi and Mr. Cesar Moreno-Triana, UNESCO World Heritage Centre  
Mrs Regina Durighello, ICOMOS

GOVERNMENT OF JAMAICA

RESPONSE TO THE INTERNATIONAL COUNCIL ON  
MONUMENTS AND SITES (ICOMOS)  
FOR THE  
NOMINATION OF THE

CULTURAL AND NATURAL HERITAGE  
OF THE  
BLUE AND JOHN CROW MOUNTAINS



Supplementary Information provided on  
The cultural and natural heritage of the  
Blue and John Crow Mountains, JAMAICA

In response to the request for additional information from ICOMOS on the Blue and John Crow proposed world heritage site, outlined below is the supplementary information as provided by Jamaica, which is supported by a detailed work plan and associated statements addressing mining and funding queries.

**Section 1**

The tangible heritage of the Maroons consists mainly of archeological sites and trails and so is limited in terms of buildings or possessions, as these were elements the Maroon warriors forsook in order to gain and maintain their freedom. Nanny Town situated in the Stony River Valley in the heart of the BJCM was the spiritual and command center of the Windward Maroons and due to its remoteness was only accessible by secret trails now referred to as the Nanny Town Cultural Heritage Route (NTCHR). Some of these routes were eventually mapped by the British colonial authorities in the 19<sup>th</sup> century. It was these trails that the colonial authority navigated in their attempt to destroy the administrative and command military center of Nanny Town. These incursion attempts by the British were foiled due to the intricate network of Nanny Town and its associated outposts atop inaccessible peaks that served the multiple purpose of surveillance points, places of refuge for the women and children, and as secret provision grounds.

Within this context, there are several battle sites, burial sites, villages, look out points, trails e.g. Cunha Cunha Pass, Corn Puss Gap, Sambo Hill, Nanny Falls Trail, trails to Pumpkin Hill and Watch Hill etc and also physical features e.g. waterfalls such as Quao Falls that form a part of the tangible heritage of the Windward Maroons. The tangible heritage of the Windward Maroons are therefore imbedded in the natural landscape of the BJCM which will require archaeological research i.e. surveys and site identification to find new sites and to preserve known sites.

**Mining**

The natural and cultural resources are indispensable for Jamaica's social, economic and environmental development, how we choose to utilize these assets is critical. Careful informed decisions must be paramount in seeking that balance between preservation, mining and other development. The government and the people of Jamaica recognize the importance of the Blue and John and Crow Mountains to the socioeconomic wellbeing of the country. Its initiative to partner with the Windward Maroons and other stakeholders is a clear demonstration of the government's commitment to preserve the site and to galvanize this preservation for future generation by endeavoring to have it designated a World Heritage Site.

Supplementary Information provided on  
The cultural and natural heritage of the  
Blue and John Crow Mountains, JAMAICA

Over the decades since the designation of the Park and before, no mining or quarry license has been granted for the Blue and John Crow Mountains, however, the Ministry of Science, Technology, Energy and Mining has issued five prospecting licenses in the area. None of these prospecting areas are located within the nominated property, but they are contiguous with the buffer zone. The Ministry of Science, Technology, Energy and Mining is cognizant of the issue and is committed to working with the Blue and John Crow Mountain Co-management team to alleviate this infringement.

*Current Legal Framework and Legislations*

The Blue and John Crow Mountain is protected under the Forest Act (1996) and Forest Regulations (2001), the Natural Resources Conservation Authority Act (1991) and the National Parks Regulations (1993) as well as the Jamaica National Heritage Trust Act (1985). Through these pieces of legislation, mining is prohibited and any mining in this protected area would require permits. Currently the investigations through the prospecting licences require that ecologically sensitive and archeologically important sites should be avoided. Further, the National Minerals Policy states that mining would not be allowed within IUCN Category I and II Protected Areas. The current policy (Government of Jamaica, 1997) on the National System of Protected Areas, section 8.6.6 states:

Mining and other developments which permanently alter the environment may be permitted but will require special permits or licences. Where it is in the national interest to consider this use, an EIA and identification of appropriate mitigation measures will be required. These developments will require approval by the NRCA.

The National Parks Regulations, Section 15 and Forest Regulations 37(c) prohibit mining except with the written permission of the Authority (NRCA) or the Conservator of Forests.

The National Minerals Policy 2010 – 2030 (Ministry of Energy & Mining, 2011) states that mineral exploitation in areas protected under different pieces of legislation and equivalent to the World Conservation Union's (IUCN) categories I and II, as outlined in the Policy for the National System of Protected Areas, will not be undertaken, unless mandated by Cabinet.

Specific actions to be taken over the next three (3) years are described in the attached Blue and John Crow Mountains Protected Areas Workplan. It should be noted that the site's Management Plan is to be reviewed and updated between 2015 and 2016, with the assistance of the German Development Cooperation (GIZ) through their regional Caribbean Aqua-Terrestrial Solutions Project.



Supplementary Information provided on  
The cultural and natural heritage of the  
Blue and John Crow Mountains, JAMAICA

Attached are statements from the Ministry of Science, Technology, Energy Mining and the National Environment and Planning Agency (Appendix 1 - 2).

**First phase 6-12 months**

The following activities will be carried out within the 2015/2016 financial period (April 2015-March 2016). The programs below will all be included in the upcoming 2017-2022 management plan, based on a review of the existing 2011-2016 plan. The review will begin in 2015, with meetings among all stakeholders, especially members of the surrounding communities.

- **Patrolling and protection**

The Jamaica National Heritage Trust (JNHT) has an agreement with the three main Windward Maroon communities and through this Memorandum of Understanding dated November 10, 2014 (attached), will facilitate management of the tangible cultural heritage resources of the site. Further, in including the Windward Maroons, the JNHT has begun the process of building a cadre of Maroon Heritage Assistants from which Park Rangers will emanate. This team will be involved in all archeological and monitoring activities of the nominated property and buffer zones. Within the 2015/2016 financial year, funds are being made available to provide stipends for this team as well as to hire Maroon Park Rangers who are not only suitably trained in natural heritage protection but also have the traditional management of the site at the forefront of their actions. The workshops planned and referenced in the work plan will train Maroons and current Park Rangers in the conservation of tangible cultural heritage. Based on the program planned, this will include training in site surveys and identification, monitoring and assessment, evaluation/excavation/research. Refer to attached work plan section - Cultural Heritage Programme.

The involvement of at least two additional Park Rangers (from Maroon communities) will strengthen the Ranger Corps. Further, the JCDT is in the final process of establishing a system to assist community members in contacting the Park HQ to alert to any threats they observe to the natural and/or cultural heritage. This system as well as funds anticipated for additional Rangers, will also be used to involve community members in patrols – within their own communities, thus reducing the number of JCDT Rangers that need to be sent out on a patrol. As an example instead of sending three (3) Rangers, two (2) can be sent to work with one or two community members as there will be stipends available for community members. More funds are being sought for Rangers additional to these but it must be noted that the Forestry Department (FD) has over six (6) Forest Rangers working in the Eastern Zone. Further, the

Supplementary Information provided on  
The cultural and natural heritage of the  
Blue and John Crow Mountains, JAMAICA

National Environment and Planning Agency (NEPA) has fifteen (15) Enforcement Officers who are called on to address specific issues including prosecution.

Regarding active permits to hike on the trails, this applies to the Blue Mountain Peak Trail and funding is anticipated from the Jamaica Social Investment Fund – Rural Enterprise Development Initiative Project to establish a sentry post at Portland Gap to better facilitate a clear halt to allow for inspection of permits. Further, associated with this project (which will include improvements to the accommodation facilities at Portland Gap) there will be public awareness campaign to inform all hikers, local guest houses, tour guides, tour companies etc. about the permits.

It should be noted that since 2014, the existing National Park Rangers have had training sessions on cultural heritage preservation.

- **Management Structure And Plan**

The BJCM nominated property as a part of the BJCM National Park currently has a method of participatory management, through the managers of the Park – the JCDT and government agencies - National Environment and Planning Agency, Forestry Department and the Jamaica National Heritage Trust. This Co-management committee has technical representatives from each of these agencies that are fully capable of managing the nominated property and buffer zone and currently carry out their responsibilities in conjunction with the Maroon Councils and Jamaica Conservation and Development Trust. Other members that are a part of this committee are the representatives from the Maroon Councils and the Institute of Jamaica through the African Caribbean Institute of Jamaica/Jamaica Memory Bank (ACIJ). See organogram below and refer also to Appendix 3 on Management of the BJCMNP.

The objectives of conservation of the tangible heritage will be spearheaded by the JNHT through its Archaeology Division and the intangible heritage by the ACIJ. The JNHT has already organized a core of Archaeologists, Artifacts Officers, Heritage Analyst, Heritage Inventory Officer, and Archaeological Field Assistants to carry out the work of the preservation of the cultural heritage. Crucial in this core team is the Maroon Liaison Officer and the Maroon Cultural Assistants that will form an equal partner in this management and conservation process.

The BJCMNP conservation program for the tangible heritage will include the following:

1. Site Survey and Identification
2. Site Monitoring
3. Site Evaluation and Excavation

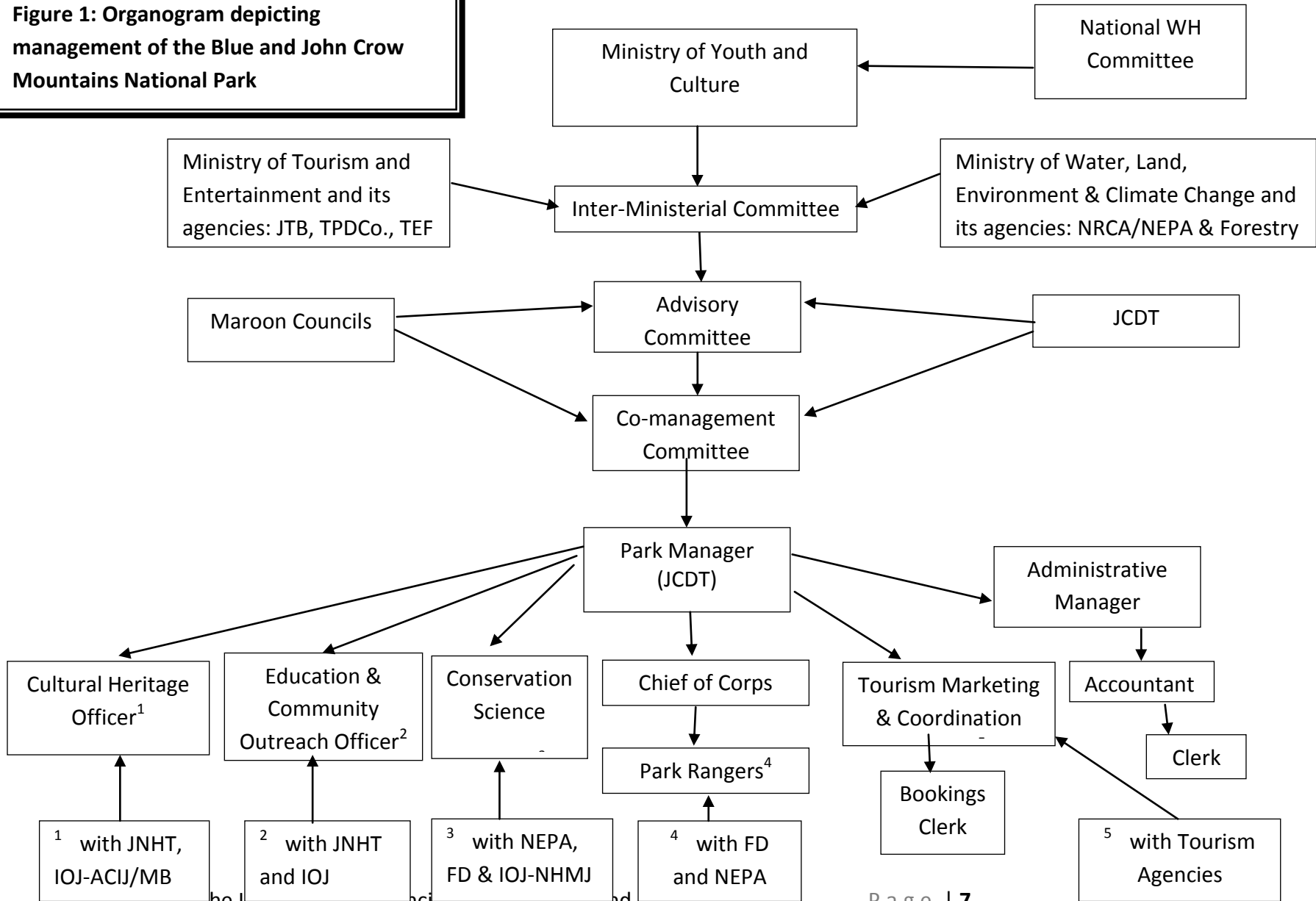
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4. Archaeological Workshop/Lectures
5. Site Inventory
6. Site Development, maintenance and Conservation
7. Risk Management Plan for Sites under Threat.

With the preparation of the new Management Plan for the site, a more integrated approach is being used amongst the organizations involved, jointly with the Maroon Councils so that the new plan (2017-2022) and structure will be more cohesive. This approach linked to what has already been happening with the co management of the site, will result in an expansion of the new Management Plan to cover in a more comprehensive manner the intangible and tangible cultural heritage.

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**Figure 1: Organogram depicting management of the Blue and John Crow Mountains National Park**



- **Intangible Heritage And Traditional Management**

The new Management Plan will pay particular attention to clarifying how tradition is maintained or change is managed, how the relationship between local communities and the property management system will be nurtured and sustained and how local communities will direct the future of the property through participatory decision-making processes and a participatory forum.

Three broad levels of management exist in relation to the nominated property:

1. The Maroon Councils of Moore Town, Charles Town and Scott's Hall were established as far back as the 18<sup>th</sup> century and were directly part of the outcome of the treaty arrangements with the British Colonial authorities at the end of the first Maroon War. By virtue of these arrangements, these Maroon communities were afforded a great level of autonomy over their internal affairs. This centuries old system of internal governance continues to operate in these communities in the contemporary situation. These councils are headed by leaders given the designated title of Colonel, and their membership includes female and male members of the specific communities, some of whom are designated Captains and Majors. The councils are formed through processes of selection and/or election. These councils have the responsibility of protecting the heritage of the communities in addition to dealing with day-to-day issues affecting their members, including dispute resolution, the management and protection of sacred sites and community development;
2. The Blue and John Crow Mountains National Park Co-Management Committee,
3. The Blue and John Crow Mountains National Park Advisory Committee

The latter two management initiatives are part of a governance structure for the sustainable oversight of the national park and recognize the importance of the tangible and intangible cultural heritage of the site as well as the critical role of the Maroon communities in their preservation. Consequently, both of these include representatives from the Maroon Councils, in addition to the presence of the Institute of Jamaica through the ACIJ/JMB and Natural History Museum of Jamaica.

However, it should be noted that the participatory fora are described in the Governance and Administration Programme of the current Management Plan and in addition to the Advisory and Co-management Committees, a new committee has been established May 2013 – the

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Maroon Community Advisory Committee, specific to the needs and concerns of the Maroon communities and addressing cultural heritage issues in particular. These fora and processes will be formalized within the new Management Plan but are already functioning.

The ACIJ/JMB will play a critical role in ensuring the comprehensive coverage of the intangible cultural heritage in the new Management Plan. The agency is engaged in ongoing work with the Windward Maroon communities. Continuous research and documentation activities form part of the annual work/operational plans of the organization with the cooperation of the Maroon Councils and communities. There is also the involvement of the Maroon communities in the national Intangible Cultural Heritage (ICH) Stakeholder Network capacity building initiatives and continual archiving of the elements of Maroon ICH. This builds on recent work done under the auspices of the ICH Convention as well as the earlier work done in the wake of the 2003 UNESCO declaration of the musical heritage of the Moore Town Maroons as, “...a masterpiece of the oral and intangible heritage of humanity.” (UNESCO 2003).

Arising from the 2003 declaration, a major project was undertaken, spearheaded by the Institute of Jamaica through the African Caribbean Institute of Jamaica/Jamaica Memory Bank and with substantial funding support from UNESCO through the Norway Funds-In-Trust, to document and preserve this heritage, which is itself of Outstanding Universal Value, by undertaking a number of initiatives. These included, inter alia:

- The outlining of specific aims and objectives of the project, in line with the proposal submitted and subsequent award of funding by UNESCO;
- Conducting an oral history project on the history of Moore Town;
- Training community members, particularly youth, in research and documentation techniques as part of capacity building for the community to engage in the protection of its unique cultural heritage;
- Establishing a Maroon archive within the community to house documents related to Maroon history, in particular the history of Moore Town, with a mirror archive at the ACIJ/JMB ;
- Providing necessary equipment and training in their use to support community involvement in the research and documentation exercise;
- Supporting a programme of transmission workshops, in which the elders of the community introduced children and youth to various aspects of their cultural heritage. This included workshops on drum making and drumming techniques, songs and dance

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techniques, elements of craft making and traditional food preparation. These workshops involved over one hundred (100) participants and some sixteen (16) tradition bearers in the various areas of cultural expertise; and

- The establishment of a Maroon herbal garden to highlight elements of the pharmacopoeia of the Windward Maroons that forms a critical part of their tangible and intangible cultural heritage.

In undertaking this initiative, a project committee, comprising members of the Moore Town Maroon Council, UNESCO representatives, a representative of the Maroon Secretariat, and the Institute of Jamaica (including the ACIJ/JMB), was established to oversee operations. The project was formally concluded in 2007.

Following on the successful conclusion of this project, the Moore Town Maroon Council has continued the work of cultural heritage preservation, cultural transmission in the various areas of intangible cultural heritage and has added new elements. The initiatives include:

- Continuing the drum making workshops and passing the techniques of Maroon drumming to young Maroons;
- Initiating a programme of visiting sacred sites, battle sites with the young of the community and using the sites in traditional ways
- The setting up of an authentic Maroon village for the community –not necessarily for visitors, but mainly for educating younger generations of community members about the traditional practices of the Maroons
- Passing on knowledge about the preparation of traditional food dishes
- Exercising greater control over actions within the forest such as requiring, for example, the cutting down trees, to have the consent of the Maroon Council as a means of ensuring the sustainable use of natural resources

The management planning process is participatory and has ensured that community workshops are held in each of the Maroon communities (in addition to other local communities). These workshops use participatory processes to assess management over the previous period and make recommendations and plans for the new document. As part of this process, the ACIJ will be conducting research, investigations, meetings and workshops (in association with the Maroon Councils and the other organisations) to define objectives and activities for sustaining the intangible cultural heritage, in the face of threats.

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The new Management Plan will include a detailed definition of the traditional management system, which is through the Maroon Councils – Moore Town, Charles Town and Scotts Hall and the Colonel of each Council liaises with the relevant organisations directly and through the various committees. The new Management Plan will clearly state what the desired state of conservation would be and what the critical objectives ought to be. This will only be possible through a facilitated workshop process.

- **Heritage Impact Assessment**

The BJCM nominated property, is a no-go area for large scale infrastructural development. Under the NRCA, JNHT and FD Acts, this area is a no-development area and is considered a conservation area. However, limited access for cultural and natural heritage tourism is permitted within restricted areas primarily along the specified trails. The site also affords low impact development in specified areas, particularly along the routes and specific archeological sites in the form of story boards and signs. The draft preservation scheme promulgates the regulations in place which govern the cultural heritage of the site. It is the regulation that is designed to safeguard the OUV of the site and its buffer zone. This is a draft document and will be in force within 12 months, as this is a document bound by law; it requires extensive discussions with all key stakeholders and the public in general.

Further, as the site is co-managed by the three Government agencies, any proposed large-scale development, requires a permit from each of the three agencies. For a permit to be granted, by law an environmental impact assessment and a heritage/archeological impact assessment must be conducted in order to facilitate an informed decision, keeping in the forefront the preservation of the Outstanding Universal Value of the nominated property. In addition, as the site is a sacred site for the Windward maroon community, any development on any scale must have their involvement from the level of the Advisory committee and operationally at the Co management Committee.

The new Management Plan will address the issue of Heritage Impact Assessments in detail.

- **Impact Of Tourism**

Many secret trails have not survived the ravage of time, some have been transformed into thoroughfares while other trails such as the Cunha Cunha Pass Trail and Corn Puss Gap although originally cut by the Maroons were later used by the British and much later by Jamaicans as



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access routes e.g. market trails. These routes are the tangible remains of the Nanny Town Cultural Heritage Route with the military command center Nanny Town that led to many of the battle sites, look outs, escape routes and places of refuge for the maroon men, women, and children. For heritage conservation, the known and open trails will be kept clearly defined and accessible and their features or points of interest highlighted through signs and other forms of interpretation.

Trails will be tightly managed by the Co-management Committee of the National Park which includes representation from the JCDT, Maroon Communities, JNHT, FD and NEPA.

Trails that are currently open within the nominated area and buffer zone will remain opened within the BJCMNP namely the Blue Mountain Peak Trail, Cunha Cunha Pass and sections of Corn Puss Gap. Presently the Peak Trail is managed by JCDT, Cunha Cunha Pass and sections of Corn Puss Gap are managed by the Bowden Pen Farmers Association (BPFA) in conjunction with JCDT. Plans will be made in regard to the special use of the routes to Nanny Town which are currently not trails but pathways known only to elders of the Maroon communities.

In agreement with the Maroon communities, JCDT and JNHT, no additional trails will be allowed to be opened in the property. It is acknowledged that while a small number of community members have indicated an interest in opening additional trails, the JCDT and JNHT has through continued dialogue explained the negative consequences that are associated with this for the natural and cultural heritage of the Park. This dialogue is ongoing and will be further addressed in the community workshop/training planned on sustainable tourism. Further, the National Park Management Plan makes strong statements against additional trails and to open trails will require a permit from NEPA, FD and the JNHT.

The existing trails are being used by both JCDT and the BPFA as heritage attractions which help generate income for heritage management. These activities are regulated by the National Park and Forestry regulations and through the promulgation of the BJCMNP Preservation scheme of the JNHT Act. Under the Recreation and Tourism Programme, a Blue Mountains Sustainable Tourism Plan was prepared with funding from the Inter-American Development Bank (IDB) and included the Maroon communities in the Rio Grande Valley and Charles Town. In addition, the necessary studies are being organised to determine the carrying capacity of these trails and sites, to establish Limits of Acceptable Change procedures and prepare guidelines for the development and management of trails to be strengthened be strengthened. These will all be components of the new Management Plan.

- **Maintenance And Monitoring**

The monitoring of the tangible aspects of the Maroon cultural heritage will be carried out through the JNHT with strong collaboration from the Maroon communities. Through the formation of a cadre of Maroon Cultural Assistants and JCDT Park Rangers equipped in both natural and cultural heritage knowledge, along with Forestry Department and NEPA Enforcement officers, the nominated property is adequately monitored for both its cultural and natural significance. It should be noted that the Cunha Cunha Pass and Corn Puss Gap Trails along with the Quao River Sacred Site is managed by a local community-based organization – the Bowden Pen Farmers Association (BPFA) which comprises inhabitants of the Upper Rio Grande Valley who are as Maroons are under the Moore Town Maroon Council leadership. This is done in close association with the JCDT and the JNHT, with the latter having been asked to conduct archaeological surveys of the site.

There are numerous archaeological sites within the BJCM that contain the material evidence necessary for more in depth understanding of the Windward Maroons and their struggle for freedom. Whilst the historical documents have been exhausted, the material evidence and their interpretation from these sites remain primary and authentic sources for maroon history and culture. Nanny Town and Seamans Valley are the only sites that were subjected to extensive scientific archaeological research. Nanny Town falls within the boundaries of the nominated property, while Seamans Valley falls within the buffer zone. This aspect of the management plan will therefore focus on the preservation and management of Nanny Town, the Nanny Town cultural heritage route, battle sites and refuge areas.

The following strategic actions will be carried out in the management of the tangible cultural heritage of the BJCMNP.

1. Site survey and identification of archeological sites
2. Site visit and monitoring of trails and archeological sites
3. Site evaluation/excavation and research
4. Recruiting members of the Maroon community to assist with actions 1-3
5. Workshops and training to facilitate actions 1-3 for Maroons and Park Rangers
6. Site inventory facilitating creation of a site database
7. Risk assessment for the tangible cultural heritage
8. Site development, maintenance and conservation

#### **1. Site survey and identification**

There are several archeological sites including burial and other sacred sites within the nominated property and buffer zone that have yet to be identified and with the direct

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permission and involvement of the Windward Maroon Council, the exact locations of the following sites will be determined and they will be surveyed over a 3 year period, starting 2015.

<u>Sites and trails</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
Kattawood (Woman's Town)	√		
Woman's Town Trail	√		
Brownsfield	√		
Cornwall Barracks	√		
Nanny Falls	√		
Mammee Hill		√	
Gun Barrel		√	
Johns Hall		√	
Pumpkin Hill		√	
Watch Hill		√	
Old Crawford Town		√	
Marshall Hall			√
Guys Town			√
Dinner Time			√

## 2. Site Visit and Monitoring of trails and archeological sites

Sites will be regularly visited by the trained cadre of Maroon Cultural Assistants in conjunction with the JNHT technical team. These cultural assistants will be trained in the identification of particular features and to determine disturbances, if any. Further, the cultural assistants will be trained in using a checklist document that will aid in the monitoring of the tangible cultural heritage of the nominated property. Below is the plan to monitor the cultural sites, and the

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initial cadre of Cultural Assistants who will be recruited through the Maroon Colonels of Moore Town, Charles Town and Scots Hall. Importantly, as some site's locations remain to be identified, the schedule for monitoring may change based on exact location of these sites and access to them.

Sites and Trails	Every month	3 months	6 months
Nanny Town		X	
Corn Puss Gap	x		
Cunha Cunha Pass	x		
Woman's Town	x		
Blue Mtn Peak Trail	x		
Quao sacred site	x		
Sites in Golden Vale		X	
Guys Town			x
Pumpkin Hill		X	
Watch Hill		X	
Johns Hall			x
Gun Barrel		X	
Mammee Hill		X	
Brownsfield			x
Dinner Time			x
Lookout Hill		X	
Three Finger Spring	x		
Marshall Hall			x

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Sites and Trails	Every month	3 months	6 months
Comfort Castle	x		
Cornwall Barracks	x		
Moore Town	x		
Nanny Falls	x		
Hayfield	x		
Katta Wood		x	
Charles Town	x		
Scotts Hall	x		

### 3. Site Evaluation/Excavation and Research

Based on the requested involvement by the Maroon community the following 3 sites will be evaluated by archeological excavation. They include the Quao sacred site which will be carried out in the 2015/2016 financial year, Kattawood /Womans Town will be investigated in the 2016/2017 financial year and Brownsfield will be investigated within the 2017/2018 year. The JNHT has been collaborating with the University of the West Indies – Archeology Department, in terms of the research and excavation of sites in the BJCM, and this will be strengthened as further evaluation continues. The excavations will be done with Maroon Cultural Assistants and guides, with the full collaboration and participation of the Windward Maroon councils in these activities. Importantly, research will be carried out on all sites identified and surveyed.

### 4. Archaeological Workshop /Lectures/ Stakeholder Meetings

Three main workshops will take place during 2015 to develop the capabilities of the Maroon community and build capacity. The workshops will start in the following locations based on the expressed interest of the communities in being involved. Additional sites will follow within 2016, based on interest and need.

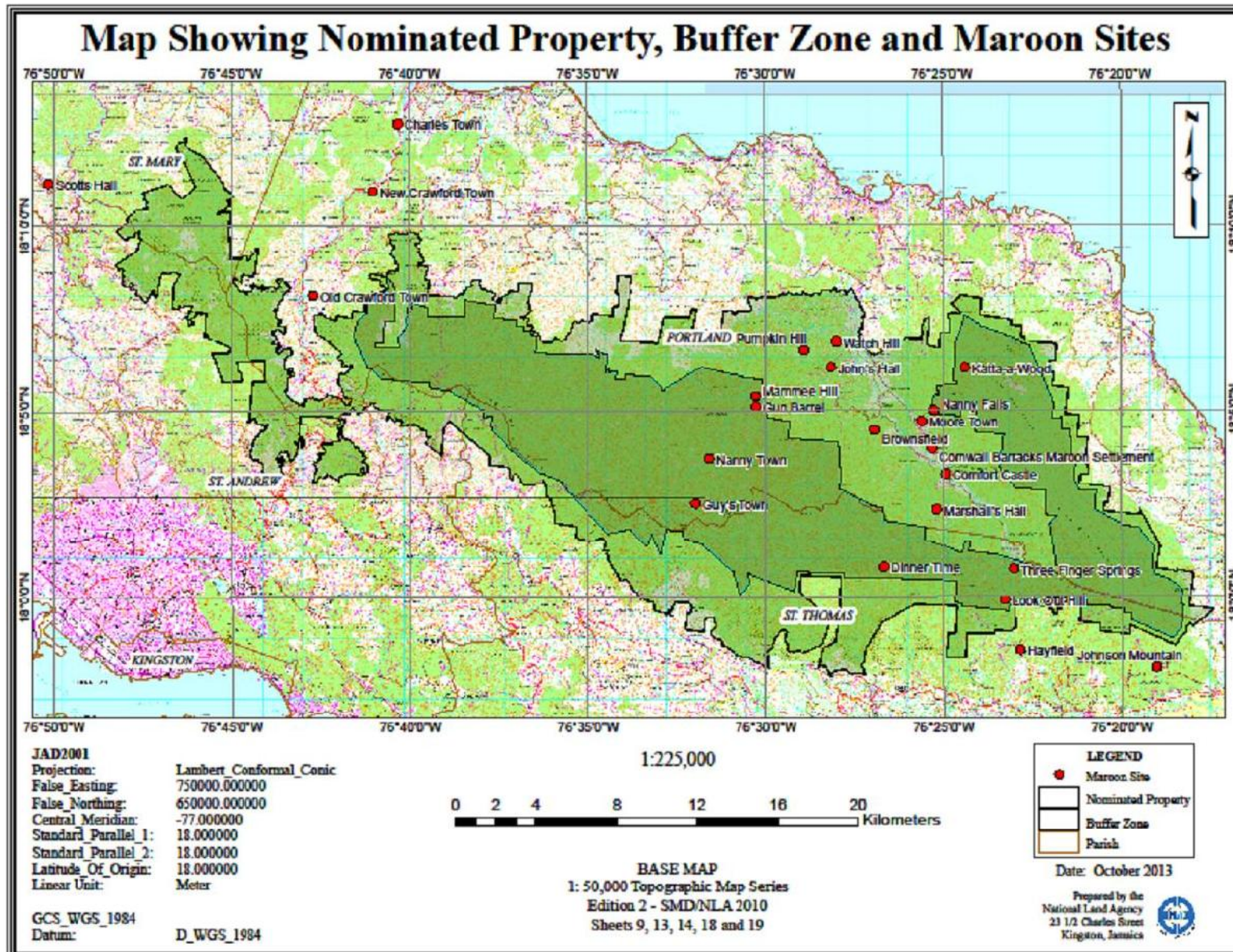
- Golden Vale
- Bowden Pen
- Hayfield

#### **5. Site Inventory Facilitating Creation Of A Site Database**

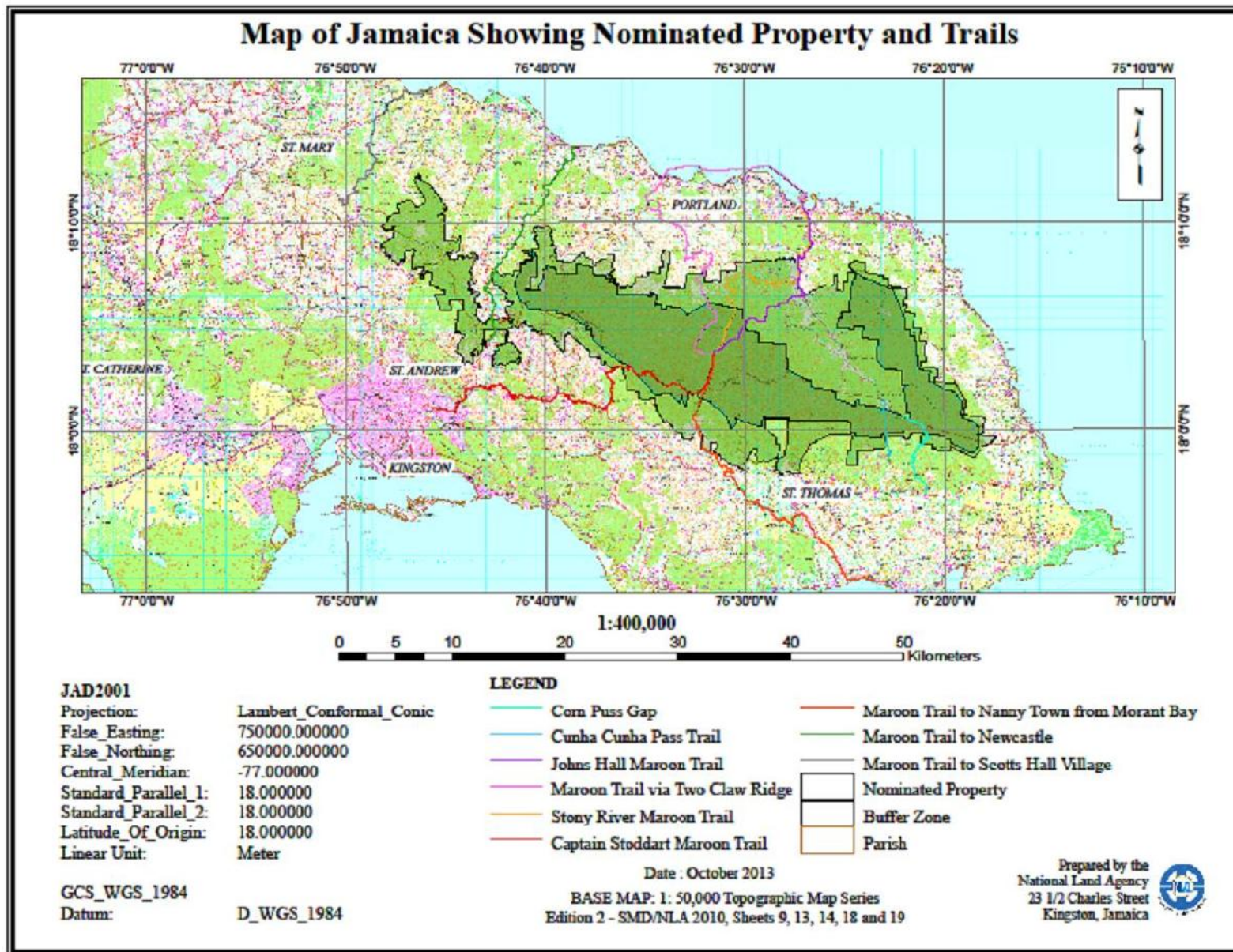
The JNHT has already created a national inventory of heritage sites. From this national inventory, a local inventory has been extracted specifically for the BJCM of which a database will be developed over the period of the 2015/2016 financial year. Refer to the section on Cultural Heritage Preservation Programme in the work plan. As additional sites are identified, surveyed and monitored the information will be inputted into the database.

The information from the BJCM inventory has been used to create a GIS site distribution map for the site. GIS generated maps include not only the Maroon sites, but trails as well. It is this GIS information that the National Land Agency utilized to produce the maps for the nomination dossier. Please see maps below indicating trails and sites within the BJCM and its buffer zone.

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## **6. Risk Management**

The BJCMNP already has a Disaster Preparedness, Risk and Emergency Management Plan which focuses particularly on the Park's recreational areas at Holywell and the Portland Gap/Peak Trail area. These are the sites with highest risk as the forest is resilient to natural disasters such as hurricanes. However, the protection of the tangible cultural heritage is not fully considered. This Plan is being reviewed and updated through a workshop process scheduled for March 10 – 12, 2015 during which vulnerability and risk assessment will be conducted. Further, through the review of the BJCMNP 2011-2016 management plan, the tangible cultural heritage will be considered in detail and addressed in the new management plan cycle. A risk management plan for each site will be developed with the considerations being geared towards Trails, Nanny Town and other sacred archeological sites. The plan for this will commence in the first quarter of the 2015/2016 financial year.

## **7. Site Development, Maintenance And Conservation**

A plan for site development, maintenance and conservation of the tangible cultural heritage will be developed within the 2015/16 financial year. This plan will look at maintenance and conservation systems within the 2017-2022 BJCMNP management plan.

JNHT along with the Maroon communities and Park management will maintain the trails that are currently being used. Signs and story boards will be placed by trails and archeological sites agreed on in discussions with Maroons and Park management.

- **Capacity Building And Training**

The JNHT, through planned workshops will be training the local community in the conservation and treatment of the tangible cultural heritage of the site. The community has already been heavily involved in the existing maintenance and monitoring. A capacity building and training strategy will be formulated and included in the new Management Plan and associated action plans.

Training of local community members, including in particular, Maroon communities has been a focus of the JCDT in management of the National Park with the Maroon communities having received, through JCDT funding support, training in First Aid and CPR, Business Planning, Tour Guiding and Hospitality amongst other areas.

Further to this, through the Caribbean Capacity Building Programme (CCBP), the University Of Technology, Jamaica (UTech) is identified as one of the Caribbean universities participating in

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the Caribbean Plan of Action for World Heritage 2015-2019. Through the programmes already in place the University is already mobilized and willing to provide the necessary training and succession for the communities around the nominated area. Further, additional expertise lodged at UTech in World Heritage will be used as part of wider efforts to develop capacity building and training in communities. The capacity building strategy will be developed on within the new management plan, with a view to providing through UTech and hands-on interaction from the JNHT, IOJ and other relevant agencies the necessary skills that will ensure a succession policy for the effective management of the property.

○ **Funding**

Jamaica recognizes the significance of this site and so has sought to address the funding support it needs. Several government ministries and grant agencies have committed to fund the activities within the participatory work plan. Through the Ministry of Youth and Culture, specifically its agencies - the Jamaica National Heritage Trust and the African Caribbean Institute of Jamaica/Jamaica Memory Bank, funding is already in place for the protection and maintenance of the tangible and intangible cultural heritage of the site. Funding for capacity building within Maroon Councils particularly amongst youth has been considered within the Ministry of Youth and Culture through its agencies. ACIJ and JNHT have committed funds to manage the cultural programmes outlined in the work plan.

Currently, the JCDT receives support for management of the nominated property and its buffer zone (Blue and John Crow Mountains National Park) from the Natural Resources Conservation Authority (NRCA) through the National Environment and Planning Agency (NEPA). This amounts to about 40% of recurrent, operational expenditure e.g. for the existing Ranger Corps and their work not only in Enforcement & Compliance but also Conservation, Monitoring & Evaluation and the other Park management programmes. The remaining recurrent expenditure is sourced from the Jamaica National Parks Trust Fund, Forest Conservation Fund, fundraising by the JCDT and revenue from the National Park's Recreational Areas. In addition, the Ministry of Water, Land, Environment and Climate Change through the Forestry Department provide financial and technical support under its Eastern Zone Forest Reserve management activities – in particular, enforcement.

These sources will continue into the future. The State Party has prepared a 3 year budget for improved financial resource allocation in support of the work of the JCDT in relation to the future management. The plan is that these funds will be sourced from:-

- (i) regular budgetary funding from the Ministry of Finance and Planning through the Ministry of Youth and Culture and its agencies (Jamaica National Heritage Trust

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- (JNHT), Institute of Jamaica – Natural History Museum (NHMJ) and African Caribbean Institute (ACIJ). These funds would be for amongst other line items: additional Park Rangers, research and documentation of cultural heritage and flora and fauna inventories;
- (ii) project funding from the Ministry of Tourism and Entertainment through its Tourism Enhancement Fund (TEF) - particularly for
- critical infrastructural improvements – Peak Trail/Portland Gap and Holywell – which would allow for increased income-generating opportunities at the Park’s Recreation Areas and increased trail access control.
  - support for at least 3 – 6 years of critical operational expenditure particularly (a) the Tourism Marketing & Coordination Officer – to allow JCDT to successfully implement the Blue Mountains Sustainable Tourism Programme which would help to generate more income not only for the Park but for the local communities with an emphasis on the Maroon communities first and (b) the Cultural Heritage Officer – who is required for the WHS and to liaise with the Tourism Officer.

In addition,

- (iii) The Ministry of Water, Land, Environment and Climate Change through its agency, NEPA is processing an application on behalf of the JCDT to change the legislation to increase the existing user fees at the National Park’s recreation areas. Revenue would be doubled or even tripled (without increasing visitation) by changing the existing legislation to allow the higher fees which visitors indicate they are willing to pay.
- (iv) Funding from the Jamaica Social Investment Fund (JSIF) is expected to support major refurbishing of Portland Gap accommodations (allowing the Park to charge more for the facilities);

Further,

- (v) JCDT has sourced funding which will make improvements at Holywell (the National Park’s main recreation area) during 2015, which will help to justify increased entry/user fees and allow for an increase in cabin rental fees:-
- Forest Conservation Fund – JA\$12,933,000 (about US\$113,447) including JA\$2,635,000 improvements at Holywell and Peak Trail, JA\$1,000,000 for Marketing, JA\$785,000 for training e.g. First Aid/CPR for Rangers & Recreation Area staff and Teacher Training for local community teachers.
  - US Department of Interior (National Parks Service) – workshop which will provide guidance for preparation and upgrading of an Environmental

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Management System including Climate Change Mitigation/Adaption Plan and Disaster Preparedness, Risk and Emergency Management Plan for the National Park

- US Department of Interior (National Parks Service) –improved Interpretation vis a vis Climate Change in the Visitors Centre and Picnic Area at Holywell
- UNDP/GEF NEPA National Protected Areas System Strengthening Project – Merchandise/Souvenirs, Marketing of a new tour, improvements on trails and activities for children at Holywell.

These additional resources, particularly those from the Government of Jamaica through the Ministry of Finance and Planning, Ministry of Youth & Culture and the Ministry of Tourism and Entertainment -Tourism Enhancement Fund, will provide sufficient additional funds for effective management of the nominated property and buffer zone. Further, with the focus on strengthening income generating capacity and building local community capacity for their participation in management, sustainability will be ensured through the Ministry of Youth and Culture.

Attached are the statements from the Ministry of Youth and Culture, National Environment and Planning Agency, Ministry of Tourism and Entertainment and the Forest Conservation Fund (Appendices 4-7).

○ **Boundaries**

A plan for systematically marking the boundaries of the nominated property is currently being discussed within the Co-management Committee. The process has started as signs have already been placed at roads and trails that enter the nominated property and buffer zone. Over time, the objective is to place markings along rivers, trails, roads that enter the nominated property and buffer zone. Activities related to delineating boundaries are found within the

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- **Second Phase 18-24 months**

Activities within this frame are described in the 3 Year work plan and will also be placed in the 2017-2022 management plan and fully elaborated on.

**Inventorying And Documentation**

**Jamaica National Heritage Trust**

The site inventory has already been created through the JNHT, with plans in place to develop the site database within the 2015/2016 financial year. Based on the identification and inventory along with monitoring and any required research/evaluation, the database would include these layers of information.

The creation of an inter disciplinary team consisting of Archeologists, Anthropologists, Cultural landscape specialists and a GIS mapping expert would be greatly beneficial for the site. This technical team is actually already within the scope of the agencies on the Co management Committee, in the form of Archeologists, Historians, Anthropologists from the JNHT and IOJ-ACIJ and GIS mapping expertise through the Forestry Department.

All tangible artifacts recovered from the nominated property are now stored at the JNHT and the University of the West Indies. Artifacts related to the intangible heritage are at the Institute of Jamaica and with the Maroon colonels at the 3 Maroon Towns. An inventory of these artifacts (which will form a part of the database) that are in the possession of the Colonels will be carried out. These artifacts however will remain in the custody of the Colonels.

A complete cultural landscape map to include both tangible and intangible heritage components would greatly benefit the level of documentation of the site. Over the next two years, the creation of this map will be generated to include both the intangible aspects of the property along with the tangible.

**African Caribbean Institute of Jamaica**

The work done under the Moore Town project has formed the basis for a new round of collaboration with the Maroon communities through initiatives currently being pursued as part of the action plan coordinated by the ACIJ/JMB under the aegis of the UNESCO funded Intangible Cultural Heritage Project. This project evolved out of Jamaica's acceding to the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage and has as one of its primary activities the establishment of a stakeholders' network which has included from the outset the Windward and Leeward Maroon communities. Another major action is the

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expansion and updating of inventories of Intangible Cultural Heritage. It is envisaged that as part of this action, the database of Maroon ICH will be further expanded utilizing the Audio Visual Information Data Access (AVIDA) database. Workshops have already been held with community members on the use of this technology and plans are in train to continue the process so as to:

- (a) continue to encourage the systematic documentation, cataloguing and archiving of ICH elements of the Windward Maroons; and
- (b) enhance the technical capacity of members of the community to actively engage in the process of inventory building.

The intention is for the database to provide both access to the bibliographic data about the collection as well as links to digitized items. It will enable researchers within and external to the community to search the bibliographic information and retrieve information from files in the digital repository both on site at the Maroon Cultural Centre in Moore Town, the ACIJ/JMB library as well as on-line.

### **Traditional Practices And Protection Of Natural Resources**

Fishing and harvesting of shrimp, fish and freshwater snails does not occur within the boundaries of the National Park and therefore not within the boundary of the nominated property or its buffer zone. Harvesting of freshwater resources does occur within the Rio Grande Valley within the Protected National Heritage. Traditional practices e.g. using spears and baskets result in the reaping of smaller amounts of fish and so some younger community members have been using more modern practices. Two projects have been implemented in the last five years – first in the Rio Grande Valley and most recently in the Buff Bay Valley. It is clear that the public awareness and educational activities will have to be on-going and further that traditional practices will have to be promoted possibly in association with themes of pride and skill. This will be an area for special attention as it is recognized that Windward Maroon heritage is closely tied to streams, rivers and freshwater resources.

Further with respect to the rivers and streams, JCDT is collaborating with NEPA for improved chemical monitoring of some of the rivers and has trained Maroons from Scotts Hall as First Responders for river pollution. A project is to be implemented in Scotts Hall in 2015 to focus on improving agricultural practices which are having a negative impact on the health of rivers.

## **Appendices**



**Appendix 1: Statement on mining- The Ministry of Science, Technology, Energy and Mining**

**MINING STATEMENT FOR THE**

**BLUE AND JOHN CROW MOUNTAINS WORLD HERITAGE NOMINATION**

The Government of Jamaica through the Ministry of Science, Technology, Energy and Mining (MSTEM) is committed to the sustainable development and management of the island's resources. We continue to evaluate how resources are explored, cognizant of the importance of balanced development.

In consideration of the proposed World Heritage site of the Blue and John Crow Mountains, it is to be noted that there are five (5) Special Exclusive Prospecting Licenses (SEPLs) that are currently in force, which cover areas located in the parishes of St. Thomas, Portland and St. Andrew. The SEPL's authorize the licensees to conduct exploration/prospecting activities for specific minerals within the designated areas and which, as far as possible, avoid any archeological and ecologically sensitive areas. The MSTEM, through its agency, the Mines and Geology Division, ensures that these conditionalities are upheld.

While the MSTEM recognizes the significance of culturally and naturally rich sites such as the Blue and John Crow Mountains, subject to the decision of Cabinet, it will pursue all necessary avenues to ensure the impact of any mining activities which may occur in the future is minimized as far as possible, through the application of progressive rehabilitation measures. We indicate our commitment to assist in the maintenance of the outstanding universal value, integrity and authenticity of the Blue and John Crow Mountains.



Phillip Paulwell, MP

Minister of Science, Technology, Energy and Mining

February 26, 2015



**Appendix 2: Statement on mining - The National Environment and Planning Agency**



**NATIONAL ENVIRONMENT & PLANNING AGENCY**

10 & 11 Caledonia Avenue, Kingston 5, Jamaica W.I. Tel: (876) 754-7540/3 Fax: (876) 754-7595-6 Tollfree: 1-888-991-500  
E-mail: ceo@nepa.gov.jm, Website: <http://www.nepa.gov.jm>

**Statement from the National Environment and Planning Agency**

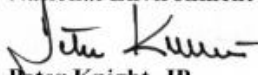
The Mines and Geology Division of the Ministry of Science, Technology, Energy and Mining (MSTEM) grants Special and Exclusive Prospecting Licences and Leases for mining in Jamaica. The NRCA Act and its regulations require that a permit be obtained from the NRCA for specific categories of enterprise, construction or development of which mining is one such category.

Additionally, an Environmental Impact Assessment (EIA) may be required if it is considered that the proposed activities are likely to have a negative impact on the environment. The Natural Resources (National Parks) Regulations, 1993; also state that mining shall not be conducted in a national park without the NRCA's permission or except in keeping with the provisions of a licence granted under any other enactment.

The Agency's position with respect to mining in the nominated property is guided by the Government of Jamaica's policies and legislation. Jamaica's National Minerals Policy; *Fostering Sustainability in Jamaica's Minerals Industry*, which was prepared by the Ministry of Energy and Mining in 2011 states that mineral exploitation will not be undertaken in protected areas equivalent to the International Union for Conservation of Nature (IUCN) categories I and II, unless mandated by Cabinet. The policy also states that the impact assessment of any decision should **"...fully reflect the economic cost of the natural resources and eco-systems of the protected areas that might be affected."** The Blue and John Crow Mountains nominated property would be equivalent to the IUCN category II.

The Agency remains committed to supporting efforts regarding the designation of the Blue and John Crow Mountains as a World Heritage Site.

**National Environment & Planning Agency**



**Peter Knight, JP**  
**Chief Executive Officer/Government Town Planner**

Any reply or subsequent reference to this communication should be addressed to the Chief Executive Officer, to the attention of the officer dealing with the matter, and the reference quoted where applicable.

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*A Government of Jamaica Agency*

### **Appendix 3**

## **DESCRIPTION OF BJCM SITE MANAGEMENT, CONSERVATION & MONITORING**

### **1. Management of the Cultural and Natural Heritage of the Blue & John Crow Mountains**

As the Blue and John Crow Mountains site is managed under 3 different pieces of legislation governed by 3 different agencies in addition to the Maroon communities, a collaborative approach has been taken which involves these and other key stakeholders. This approach is useful as it makes the best use of the resources available.

Currently, in terms of legislative and national governance, the highest level of management is at the Ministerial level:-

- (i) Cultural Heritage under the Ministry of Youth & Culture (MoYC) - through its agencies – the Jamaica National Heritage Trust (JNHT) and the Institute of Jamaica (IOJ) – both the African Caribbean Institute/Jamaica Memory Bank (ACIJ/MB) and the Natural History Museum of Jamaica (NHMJ). It should be noted that the MoYC is the State Party's Focal Point for the World Heritage Convention.
- (ii) Natural Heritage under the Ministry of Water, Land, Environment & Climate Change (through its agencies – the Natural Resources Conservation Authority (NRCA) – which is the Board of the National Environment and Planning Agency (NEPA) and the Forestry Department.

There are two main groups of Maroons in Jamaica; those in the east – the Windward Maroons, were the first group to form and the last to sign the Peace Treaty with the British in 1739. Maroon communities are autonomous and guided by their own laws and Councils which are recognised by the Government of Jamaica. There are three main Windward Maroon areas/communities each with its own Council:-

- (i) Moore Town Maroon Council - with responsibility for the Rio Grande Valley (from Fellowship to Bowden Pen) with the Council based at Moore Town – this is the largest group
- (ii) Charles Town Maroon Council
- (iii) Scotts Hall Maroon Council

The Jamaica Conservation and Development Trust (JCDDT) a non-government organisation and registered charity with over 25 years of experience in protected area management is responsible for day-to-day management of the site within which the nominated property is located.

#### **1.1 Committees**

The National World Heritage Committee was established by the Ministry of Youth and Culture in February 2014, under the chairmanship of the Minister of Culture, to provide general oversight of Jamaica's management of its World Heritage programme and ensure the preservation of the nation's protected cultural and natural heritage sites. Specific duties include ensuring Jamaica adheres to the World Heritage Convention; advising on national and

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international trends, policies and programmes in the management of World Heritage Sites; monitoring the management of designated World Heritage Sites and protected national cultural and natural sites; assisting in the formulation and execution of a sustained public education programme on World Heritage and protection of national heritage sites in general; assisting in compilation of nomination dossiers for World Heritage Status and recommending technical support where and when required in compilation of dossiers.

The work of the National WHC strengthens the existing management structure for the Blue and John Crow Mountains National Park (of which the nominated property is the core Preservation Zone). The Management of the site is guided by a number of committees with implementation by a number of organisations, in particular the JCDT and the Maroon communities supported by government agencies. These relationships are described in the tables and organisational chart below.

Currently there is an active Advisory Committee which as per the National Park's Management Plan functions to provide strategic guidelines for the management of the site. The government agencies with legislative mandates for management of protected areas within the Blue and John Crow Mountains (NRCA/NEPA, Forestry Department and the JNHT) have signed a Co-management Agreement. This has formally established the existing Co-management Committee that has been in operation since the first co-management agreement in 2000 and which is responsible for operational management and includes other key stakeholders as described in Table 1.1. In order to strengthen the management and conservation of the site, the Minister of Youth and Culture will seek to establish an Inter-Ministerial Committee within the next 9 months. The governance structure would therefore remain as it is now except for the addition of this Inter-Ministerial Committee (Table 1.1 and Figure 1 below):-

**Table 1.1 Management Committees of the Blue & John Crow Mountains National Park**

<b>Name of Committee</b>	<b>Function</b>	<b>Representation</b>
BJCM WHS Inter-Ministerial Committee (to be established)	Ensure the necessary financial and other support to ensure the OUV is retained and management is at WHS standards.	<ul style="list-style-type: none"> <li>• Ministry of Youth &amp; Culture (MYC)</li> <li>• Ministry of Water, Land, Environment &amp; Climate Change (MWLECC)</li> <li>• Ministry of Tourism &amp; Entertainment</li> <li>• Ministry of Finance &amp; Planning</li> </ul>
Advisory Committee	Supports effective & efficient management by promoting & facilitating collaboration & cooperation between stakeholder agencies and organisations.	<ul style="list-style-type: none"> <li>• MYC and its agencies:-               <ul style="list-style-type: none"> <li>○ JNHT</li> <li>○ IOJ – ACIJ/MB</li> <li>○ IOJ – NHMJ</li> </ul> </li> <li>• MWLECC and its agencies:-               <ul style="list-style-type: none"> <li>○ NRCA/NEPA</li> <li>○ Forestry Dept.</li> </ul> </li> </ul>

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Name of Committee	Function	Representation
		<ul style="list-style-type: none"> <li>○ National Water Commission</li> <li>○ National Land Agency</li> <li>● Ministry of Tourism &amp; Entertainment and its agencies:               <ul style="list-style-type: none"> <li>○ Jamaica Tourist Board</li> <li>○ Tourism Product Development Company</li> </ul> </li> <li>● Windward Maroon Council</li> <li>● JCDT</li> <li>● Planning Institute of Jamaica</li> <li>● Coffee Industry Board</li> <li>● Social Development Commission</li> <li>● Jamaica Hotel &amp; Tourist Association</li> <li>● Community Representatives (5)</li> </ul>
Co-management Committee	Responsible for Operational management of the Site	<ul style="list-style-type: none"> <li>● NEPA</li> <li>● Forestry</li> <li>● JNHT</li> <li>● JCDT</li> <li>● Windward Maroon Council</li> <li>● IOJ-ACIJ/JMB</li> <li>● IOJ-NHMJ</li> </ul>
Maroon Communities Advisory Committee	Responsible for ensuring full participation of the Maroon communities in management of the site, in particular the preservation of the tangible and intangible cultural heritage.	<ul style="list-style-type: none"> <li>● Moore Town Maroon Council</li> <li>● Charles Town Maroon Council</li> <li>● Scotts Hall Maroon Council</li> <li>● Bowden Pen Farmers Association</li> <li>● JNHT</li> <li>● IOJ-ACIJ/MB</li> <li>● JCDT</li> </ul>

### 1.2 Agreements

There are a number of formal agreements which describe and support the relationships between the organisations with responsibility for, and involved in, management of the cultural and natural heritage of the Blue and John Crow Mountains (Table 1.2 below).

**Table 1.2 Formal Agreements between organisations**

Type of Agreement	Signatories	Purpose of Agreement
Collaborative Management  This tri-partite agreement	<ul style="list-style-type: none"> <li>● Natural Resources Conservation Authority (NRCA)/National Environment and Planning</li> </ul>	Clarifies roles of each agency in management of overlapping area of jurisdiction and agrees to

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<b>Type of Agreement</b>	<b>Signatories</b>	<b>Purpose of Agreement</b>
was finalised in November, 2014. Prior to this, similar agreements involved only the NRCA, Forestry Dept. and JCDDT.	Agency (NEPA) <ul style="list-style-type: none"> <li>• Forestry Department</li> <li>• Jamaica National Heritage Trust (JNHT)</li> </ul>	collaboration and coordination. Establishes the Co-management Committee which involves other key stakeholders.
Delegation Agreement  This agreement has been renewed on a regular basis since 2002.	<ul style="list-style-type: none"> <li>• Natural Resources Conservation Authority (NRCA)/National Environment and Planning Agency (NEPA)</li> <li>• Jamaica Conservation and Development Trust (JCDDT)</li> </ul>	NRCA delegates its authority and responsibility for management of the National Park to the JCDDT but agrees to provide support including financial.
Memorandum of Understanding (MOU)  These agreements were signed in November, 2014.	<ul style="list-style-type: none"> <li>• JNHT</li> <li>• Each Maroon Council:- <ul style="list-style-type: none"> <li>○ Moore Town</li> <li>○ Charles Town</li> <li>○ Scotts Hall</li> </ul> </li> </ul>	Agrees to work together for the preservation of Windward Maroon cultural heritage and to work with JCDDT as delegated manager of the National Park.

### 1.3 Management Operations

The day to day management of the site is guided by the BJCMNP Management Plan. This is a five year plan with the current document spanning 2011 – 2016. The revision of this document will begin at the end of 2015 and will use a participatory process involving all the stakeholders. The opportunity will be used to update information, assess operations and improve on current strategies and approaches.

Based on this 5 year plan, the JCDDT as Chair of the Co-management Committee pulls together an annual work-plan with input from the relevant stakeholders. This work-plan sets targets and assigns responsibilities and the Co-management Committee meets quarterly to assess progress and see how the relevant organisations can work better together to enhance target achievement and efficiency.

The Management Plan and Annual Work-Plan are programme-based and each programme has goals and objectives aimed at protecting the values and resources and addressing the threats which may impact them. The programmes are the responsibility of BJCMNP staff at JCDDT or where positions are not currently filled, staff at other agencies. The BJCMNP staff liaise with staff at other organisations to ensure implementation of the programmes and their relevant strategies and actions. The National Park Rangers are critical staff members as led by the Chief of Corps, they implement much of the National Park management programmes e.g. supervising invasive species control, visitor management, patrols, community outreach, monitoring. Table 1.3 below summarises the Park’s management programmes and indicates responsibilities.

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#### 1.4 Work Plan 2015/16

The government financial year runs from April to March, hence the annual work-plan for 2015/16 is currently being prepared (see draft attached). Annual reports are required by the Co-management Agreement and are generally prepared by the JCDT.

**Table 1.3 Management Programmes and Operations**

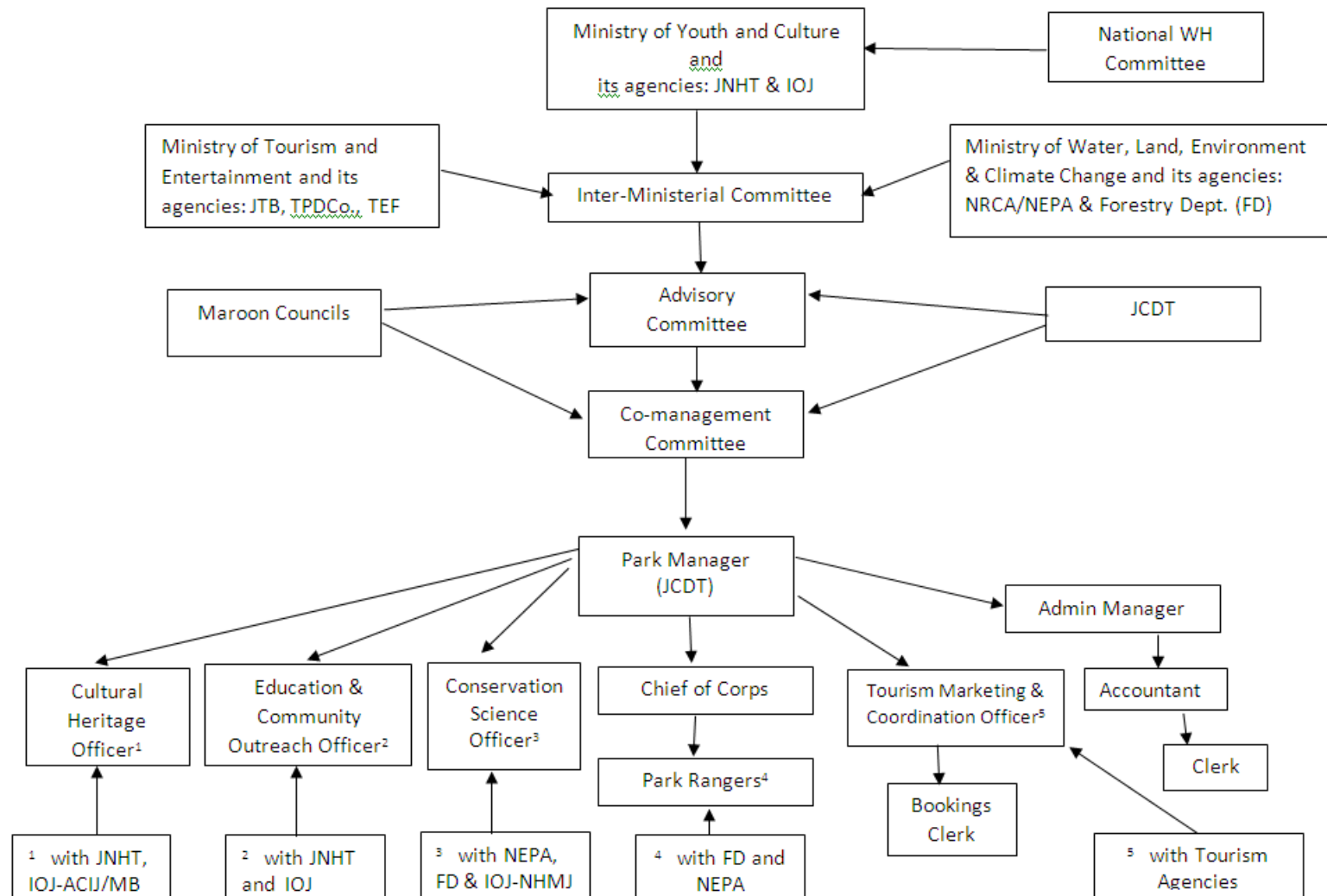
<b>Programme</b>	<b>Addresses</b>	<b>Responsibility</b>	<b>BJCMNP Staff &amp; other Organisations involved in Implementation</b>	<b>Examples of Activities</b>
Conservation of Natural Heritage	Deforestation & Forest Degradation e.g. by Slash & Burn Agriculture Climate Change	Conservation Science Officer	Park Manager Chief of Corps & Park Rangers  Forestry Dept.	Invasive Species Control; Forest Rehabilitation
Monitoring & Evaluation of Natural Heritage	Need to assess changes in biodiversity status in order to evaluate management effectiveness	Conservation Science Officer	Park Manager Chief of Corps & Park Rangers  IOJ - NHMJ Forestry Dept.	Photo-Monitoring Bird, Stream and Forest Cover Monitoring
Preservation of Cultural Heritage ( tangible and intangible)	Loss of heritage – as much of the tangible is underground and the need to keep youth interested in a modern world	Cultural Heritage Officer	Park Manager  Maroon Councils  JNHT IOJ -ACIJ/JMB	Assistance with Festivals and Tourism; Site surveys, Archaeological & ethnographic studies
Monitoring & Evaluation of Cultural Heritage (tangible and intangible)	Need to assess changes in cultural heritage status in order to evaluate management effectiveness	Cultural Heritage Officer	Maroon Councils JNHT IOJ-ACIJ/JMB	Sites/Trails visits & checks Activities e.g. festivals
Enforcement & Compliance	Discouraging breaches of legislation and encouraging compliance	Chief of Corps	Park Rangers  NEPA/FD/JNHT	Patrolling to identify & deter breaches and taking legal action
Education & Public Involvement	Inadequate skills for sustainable livelihoods &	Education & Community Outreach	Park Rangers  IOJ - ACIJ/JMB	Visits to community schools;

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<b>Programme</b>	<b>Addresses</b>	<b>Responsibility</b>	<b>BJCMNP Staff &amp; other Organisations involved in Implementation</b>	<b>Examples of Activities</b>
	inadequate understanding of heritage & its importance.	Officer	IOJ-NHMJ	Skills training Public awareness e.g Face-Book
Recreation & Tourism	Income generation for the Site Inadequate sustainable livelihood options for local communities	Marketing & Tourism Coordination Officer	Park Manager Administrative Manager Receptionist/ Bookings Clerk	Managing Park's Recreation Areas Assisting local community tourism ventures
Governance & Administration	Collaboration & Coordination between stakeholders to ensure Site goals are met. Programme, project & financial management Fundraising.	Park Manager	Administrative Manager Accountant  Committee representatives	Organising meetings and consultations Proposal writing

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Figure 1: Organogram depicting management of the Blue and John Crow Mountains National Park




Prepared by the Technical Committee - BJCM WHS Nomination, 19/1/15

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**Appendix 4: Statement on Funding Commitment – Ministry of Youth and Culture**



REPLY OR SUBSEQUENT  
REFERENCE TO THIS  
COMMUNICATION SHOULD BE  
MADE TO THE PERMANENT  
SECRETARY AND THE  
FOLLOWING REFERENCE  
QUOTED:

NO: **MYSC.495/9/2**

**Ministry of Youth and Culture**  
**4-6 Trafalgar Road**  
**Kingston 5**  
**Jamaica, West Indies**  
**Tel: 876-978-7654**  
**Fax: 876-978-7072**

**STATEMENT OF FUNDING FROM THE MINISTER OF YOUTH AND CULTURE RE  
JAMAICA'S BID FOR WORLD HERITAGE STATUS, BLUE AND JOHN CROW  
MOUNTAINS**

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The Government of Jamaica (GOJ) commits in its annual budget financial and technical support for protecting and safeguarding tangible and intangible cultural heritage programmes. These funds are made available through the agencies which fall under the Ministry of Youth and Culture, the Ministerial body that has direct oversight of Jamaica's cultural heritage.

Building on its current management programmes for the island's cultural heritage sites and assets, the Government actively supports World Heritage and its recognition that inscription of same, will require additional and continued sustained funding. The approach that has been taken within the Ministry of Culture is one of partnership and inclusiveness, acknowledging that heritage preservation is our collective responsibility. As such, we are pleased with the inter-ministerial management committee that now forms part of the Management for the Blue and John Crow Mountains.

The responsible agency of the Ministry of Water, Land, Environment and Climate Change, as well as the Ministry of Tourism and Entertainment, have both committed support to help shape a strong World Heritage programme for the nominated property and its buffer zone. The required funding support will become available within Year One of inscription, with funding agreed based on the scope of projects to be undertaken at the Site in each ensuing Budget Year.

As a Small Island Developing State, we recognize the impact that World Heritage status may have on Jamaica's tourism product, and as a country with a rich and diverse culture, we are aware that safeguarding our outstanding cultural heritage sites such as the Blue and John Crow Mountains for present and future generations is important to the sustainable development of our country. The relevant entities of Government have committed to supporting the nominated property through their portfolio responsibilities, in order to address critical management components such as Natural and Cultural Heritage Conservation; Enforcement and Compliance; Sustainable Tourism; and Monitoring and Evaluation.

Importantly, the Ministry of Youth and Culture is itself committing that each financial year World Heritage initiatives will continue to be budgeted, particularly those programmes that support capacity building for community members, in particular the Windward Maroons.

We are attaching as part of the Appendices, Statements of Commitments from the relevant Government entities, to supporting the funding requirements that will be necessary to ensure that the heritage values of Blue and John Crow Mountains are maintained.

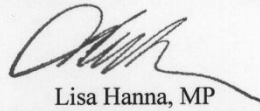
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**STATEMENT OF FUNDING FROM THE MINISTER OF YOUTH AND CULTURE RE  
JAMAICA'S BID FOR WORLD HERITAGE STATUS, BLUE AND JOHN CROW  
MOUNTAINS**

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As the Minister that has led the charge in strengthening Jamaica's position in World Heritage, I wish to reiterate the commitment of the Government of Jamaica and other stakeholders to ensure that the integrity, authenticity and Outstanding Universal Value associated with the Blue and John Crow Mountains remains a distinction today, tomorrow and well into the future.



Lisa Hanna, MP  
Minister of Youth and Culture  
February 2015

Supplementary Information provided on  
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Blue and John Crow Mountains, JAMAICA

**Appendix 5: Statement on Funding Commitment – National Environment and Planning Agency**

  
**NATIONAL ENVIRONMENT & PLANNING AGENCY**

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10 & 11 Caledonia Avenue, Kingston 5, Jamaica W.I. Tel: (876) 754-7540/3 Fax: (876) 754-7595-6 Tollfree: 1-888-991-5005  
E-mail: ceo@nepa.gov.jm, Website: http://www.nepa.gov.jm

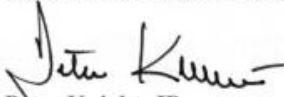
**Statement of Financial Commitment  
National Environment and Planning Agency**

The Natural Resources Conservation Authority (NRCA) has for more than fourteen years delegated management responsibility to the Jamaica Conservation and Development Trust (JCDDT), under the NRCA's Act of 1991. The NRCA has provided annual financial support to the JCDDT and is expected to continue to provide financial support, to assist in the management of the National Park. The National Environment & Planning Agency (NEPA) and the NRCA look forward to the continuing good working relationship with the JCDDT to ensure the sustainable management of the National Park.

**National Environment and Planning Agency**

  
**Peter Knight, JP**  
**Chief Executive Officer/Government Town Planner**

Any reply or subsequent reference to this communication should be addressed to the Chief Executive Officer, to the attention of the officer dealing with the matter, and the reference quoted where applicable.

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**Appendix 6: Statement on Funding Commitment – Ministry of Tourism and Entertainment**



**MINISTRY OF TOURISM AND ENTERTAINMENT**

*Office of the Minister*

1ST & 3RD FLOORS, 64-70 KNUITSFORD BOULEVARD, KINGSTON 5, JAMAICA, WEST INDIES  
TEL: (876) 920-4945-6 • FAX: (876) 906-0198 • email: wykeham.mcneill@mot.gov.jm

**Statement of Commitment  
Ministry of Tourism and Entertainment**

The Ministry of Tourism and Entertainment and its agencies wishes to use this medium to officially state its endorsement, funding support and commitment of Jamaica's nomination of the Blue and John Crow Mountains (BJCM) for inscription to the UNESCO-World Heritage List.

Through the Ministry's Tourism Enhancement Fund (TEF) we are committed to promoting growth and development in Jamaica and encouraging better management of environmental resources in Jamaica. With this in mind, the Ministry is committing its continued funding support of the site in critical management areas such as Natural Heritage Conservation; Cultural Heritage Conservation Programme; Enforcement and Compliance Programme; Education and Public Involvement Programme; Recreation and Tourism Programme and Monitoring and Evaluation Programme.

We anticipate a favourable evaluation of this majestic feature of Jamaica's natural and cultural heritage, as we continue our funding support of the Blue and John Crow Mountains.

  
Honourable Dr. Kenneth Wykeham McNeill, MD, MP  
Minister  
February 2015

**Appendix 7: Statement on Funding Commitment – Forest Conservation Fund**

## Forest Conservation Fund

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February 23, 2015

**Statement of Financial Commitment  
Jamaica Protected Areas Trust/Forest Conservation Fund  
and  
Environmental Foundation of Jamaica**

The Jamaica Protected Areas Trust (JPAT)/Forest Conservation Fund (FCF) has been partnering with the Jamaica Conservation and Development Trust (JCDT) for eight (8) years. The JPAT/FCF has provided financial support through grant funding to the JCDT and is expected to continue to provide financial support until 2017. The amount of J\$33.65M has been committed to the organisation until 2017 to implement two (2) projects entitled Capacity Building for Forest Conservation and Sustainable Livelihoods – Phase 2, and Reforestation and Sustainable Agriculture for Soil Stabilization in the Blue Mountains.

Additionally, the JPAT/FCF is on the cusp of consolidation with the Environmental Foundation of Jamaica (EFJ) which has over fifteen (15) years experience working with JCDT. Over the years, the EFJ has provided financial support in excess of J\$55M, towards the management of the Blue and John Crow Mountains National Park.

The existing entities and the consolidated entity which will retain the EFJ name expect to continue working with JCDT, and look forward to continuing a good working relationship with the JCDT to ensure the sustainable management of the Blue and John Crow Mountains National Park.



Allison Rangolan McFarlane (Mrs.)  
Executive Director, Jamaica Protected Area Trust/Forest Conservation Fund  
Acting Co-CEO and Programme Manager, Environmental Foundation of Jamaica

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Blue and John Crow Mountains, JAMAICA

**Appendix 8: Memorandum of Understanding between the JNHT and Windward Maroons**



**MEMORANDUM OF UNDERSTANDING**

**BETWEEN**

**THE JAMAICA NATIONAL HERITAGE TRUST**, a body corporate and existing under and by virtue of the **JAMAICA NATIONAL HERITAGE TRUST ACT**, with offices at 79 Duke Street, in the city and parish of Kingston (hereinafter called “the JNHT”)

**AND**

The **WINDWARD MAROONS** the traditional settlers and occupiers of the Blue and John Crow Mountains through their representatives comprising their Advisory Council (hereinafter called “the Maroons”)

**WHEREAS** the JNHT pursuant to the Jamaica National Heritage Trust Act has the mandate to declare, protect, promote, conserve and encourage the preservation of Jamaica's national heritage.

**AND Whereas** the Blue and John Crow Mountains (BJCM) a designated protected national heritage boasts a rich tradition of the cultural heritage of the Maroons and endemic flora and fauna which are among the world's most noted.

**AND Whereas** the Maroons are independent and culturally eminent communities nestled in the declared protected areas of the Blue and John Crow Mountains and immediate environs since the sixteenth century and have been integral to its protection, preservation, and sustenance.

**AND Whereas** the JNHT through the Government of Jamaica is desirous of having the nominated and protected areas of the Blue and John Crow Mountains declared a World Heritage Site under UNESCO for its cultural and natural significance.

**SCOPE OF AGREEMENT:**

This Memorandum of Understanding represents a significant partnership between the Government of Jamaica through the JNHT and the Maroons which recognizes the traditional rights of the Maroon people, engenders trust, cooperation, respect for the diversity and tradition of the Maroon way of life and is in keeping with the mandate of the JNHT to protect and preserve our cultural and natural heritage and provides the platform to highlight this rich cultural tradition to the world.

**1. THE JNHT AGREES TO:**

- 1) Maintain a register of archaeological sites, preservation and conservation work to be undertaken in the protected areas.
- 2) Manage and implement preservation and conservation plans in the nominated and protected areas.
- 3) Manage and approve proposals for archaeological and historical research and the interpretation of research findings regarding the protected areas.
- 4) Publish a list of accessible sites in the protected areas which are open to the public and any other sites to be determined thereafter.

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- 5) Provide institutional support through preservation scheme which demands interaction with protected sites, the management, enforcement and surveillance of Maroon settlements, Nanny Town Cultural Heritage Routes, flora and fauna.
- 6) Issue permits for all archaeological research to be undertaken in the protected areas of the BJCM.

**2. THE MAROONS AGREE TO:**

- a) Participate in the decisions affecting the protected areas and liaise with the JNHT, the Blue and John Crow Mountains Management Team in the formation and implementation of programmes to manage and preserve the protected areas.
- b) Use the flora and fauna, including hunting and gathering for traditional purposes only. This will be done in a judicious manner that will maintain the cultural and natural assets of the BJCM in keeping with their traditions, best environment practices and the provisions under the JNHT, Forestry Department, and Natural Resources Conservation Authority (NRCA) legislative schemes.
- c) Adhere to and observe all the guidelines for the preservation and protection of the nominated areas and its environs under the preservation schemes of the JNHT, the Forest Reserves and the NRCA through its agent, the National Environment and Planning Agency (NEPA) in their use of the nominated and protected areas and its environs.
- d) Carefully manage and conduct their activities in keeping with best management practices including, but not limited to, responsible use of fire as not cause destruction or alteration of the Crown lands and protected areas.
- e) Perform cultural and traditional lifestyle and practices in a manner that will not prejudice the world heritage status of the BJCM.
- f) Observe best environment practices that will improve protect and preserve the natural and cultural values of the protected areas, in particular visitor use, while enhancing the development of heritage tourism.
- g) Support the work of the JNHT, NEPA through the Jamaica Conservation and Development Trust (JCDDT) and the Forestry Department in the management, preservation and protection of the natural and cultural assets of the BJCM.

**3. NOW THE PARTIES HAVE AGREED THAT:**

- 1) Respect for Maroon culture and tradition will be paramount in the management, planning and decision making process for the treatment of the protected areas of the Blue and John Crow Mountains.
- 2) The parties will cooperate to accomplish various heritage tourism goals to market the National Park of the Blue and John Crown Mountains as a world heritage site and to ensure the benefits derived therefrom are enjoyed by the Maroons and other vested stakeholders, chiefly the Jamaican people.

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- 3) They will undertake to develop and implement a public outreach plan with particular emphasis on the importance of maintaining the integrity of sacred sites and protected areas and the need for public stewardship in the protection and preservation of such sites and areas.
- 4) The highest regard shall be given to the importance of effective environmental practices and commitment to long term management of the flora and fauna of the protected areas of the BJCM.
- 5) Access to the protected areas by visitors and research interests will be subject to prior dialogue and arrangement between the Parties and NEPA through the JCDT, which manages the National Park of the BJCM. The Maroons will provide to the JNHT and the JCDT details of the general purpose of visit, places to be visited, the number of visitors and any other reasonably relevant information required by the JNHT and the JCDT.
- 6) This Memorandum of Understanding will foster greater collaboration between the Maroons, the JNHT, the Forestry Department and NEPA through the JCDT to manage and preserve the protected areas of the BJCM and to ensure that it maintains its position on the world heritage list while not encroaching on the rights of the Maroons.

**4. DISPUTE SETTLEMENT**

The parties covenant to use their best efforts to abide by the terms in this Memorandum of Understanding. In the event of any dispute or differences arising out of the interpretation, implementation, and application of the provisions herein same shall be settled amicably through mutual consultation or negotiation between the parties without reference to any third party.

**5. INDEMNITY CLAUSE**

The Maroons through their Advisory Council hereby agrees jointly and severally to wholly indemnify the JNHT, their representatives, employees, agents and properties from and against all actions, demands, proceedings, prosecutions, and the like arising out of any loss, damage or injury following from this agreement or whatsoever.

**6. DURATION OF AGREEMENT**

This agreement shall be effective from the signing hereof and the parties may terminate by notice in writing at any time subject to one (1) month's notice.

**IN WITNESS WHEREOF** the parties hereto have set their hands and executed this Agreement on this the 10<sup>th</sup> day of November 2014.

Signed by and on behalf of  
**JAMAICA NATIONAL HERITAGE TRUST**  
By **AINSLEY HENRIQUES, CHAIRMAN**

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) **AINSLEY HENRIQUES**

in the presence of :

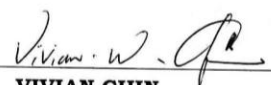
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) **KADENE CAMPBELL**  
**Attorney-at-Law**

WITNESS



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Signed by and on behalf of  
**JAMAICA NATIONAL HERITAGE TRUST**  
By **VIVIAN CHIN, EXECUTIVE DIRECTOR**

)  
)   
) **VIVIAN CHIN**

in the presence of :

  
**KADENE CAMPBELL**  
**Attorney-at-Law**


WITNESS

**Signed for and on behalf of the WINDWARD MAROONS by:**

**SCOTTS HALL MAROONS**  
By **NOEL PREHAY, COLONEL**

)  
)   
) **NOEL PREHAY**

in the presence of:

  
**RODENE ROSE**

WITNESS

  
**SIGNATURE**

**CHARLESTOWN MAROONS**  
By **FRANK LUMSDEN, COLONEL**

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) **FRANK LUMSDEN**

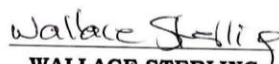
In the presence of:

  
**DERRICK GRAY**

WITNESS

  
**SIGNATURE**


**MOORETOWN MAROONS**  
By **WALLACE STERLING, COLONEL**

)  
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) **WALLACE STERLING**  
**COLONEL W. G. STERLING**  
**Mooretown Maroons**

In the presence of:

  
**CHARMAINE SHACKLEFORD**

WITNESS

  
**SIGNATURE**

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**Blue and John Crow Mountains National Park (BJCMNP) - Nominated Property & Buffer Zone 3 Year Joint Work-plan (Jan, 2015 – December 2017)**

In providing a 3 year work plan for the Blue and John Crow Mountains National Park, in which is contained both the nominated property and the buffer zone, the Co management committee determines that it has adequately provided for the management of all aspects of the nominated area and its buffer zone in respect to the preservation of the cultural and natural heritage of the Blue and John Crow Mountains.

BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
<b>ENFORCEMENT &amp; COMPLIANCE PROGRAMME</b> – Whilst the BJCMNP Rangers employed to the Jamaica Conservation and Development Trust (JCDT) are the core team; Forestry Department (FD) also conduct patrols to monitor incidents of encroachment and compliance with notices served. Ideally, the number of Park Rangers should be 15 but currently there are 6 persons employed. To rectify the shortfall, The Government of Jamaica through the Ministry of Youth and Culture will ensure that the additional Park Rangers are in place. The intention is to use some of these funds to employ Rangers from the Maroon community and to provide stipends for community assistance e.g. Accompany Rangers on patrol near their communities. The National Environment and Planning Agency (NEPA) has a team of Enforcement Officers and these are called on as needed to implement enforcement action.												
<b>Objective 1: Increase level of presence and effectiveness of Enforcement Officers – by patrolling property, sharing personnel, conducting training and increasing number of Rangers</b>									<b>Outcome:</b> Decrease in illegal activities and (outside the protected area) those harmful to natural and cultural heritage values.			
1.1 Conduct routine patrols									2015 - 2016: 130 patrols/yr 2017: 140 patrols/yr N.B.: FD conducts additional patrols	JCDT: Chief of Corps (C/Corps) & Park Rangers Corps	Funded: NEPA	
1.2 Organise Joint Agency Patrols									1.2 At least 1 Joint Agency Patrol/mth - shows strength of unity and numbers	JCDT: C/Corps liaises with other agencies	Funded: NEPA & FD	
1.3 Organise patrols during "off" hours									2015 – 2016: At least 6 "off" hours patrols/yr ; 2017: At least 10	JCDT: C/Corps, Park Ranger Corps	Funded: NEPA	
1.4a Prepare Training Manual									2015: Training Manual Draft finalised by Sept 30, 2015	JCDT: C/Corps liaising with other agencies	Funded: NEPA	
1.4b. Conduct training sessions									2015: At least 5 sessions e.g. First Aid & CPR, legislation(NEPA/FD) & field skills (JDF)	JCDT: C/Corps	Funded 2015: Forest Conservation Fund (FCF)	
1.5 Employ additional Park Rangers									1.5 At least 2 suitably qualified full-time Rangers of Maroon heritage & funds for community Ranger honoraria	Ministry of Youth & Culture (MoYC)	Funded by Government of Jamaica (GOJ)	
<b>Objective 2: Address &amp; Resolve breaches of legislation</b> - JCDT Park Ranger Corps observe, warn & report breaches; FD &/or NEPA or JNHT Enforcement & Legal Officers investigate & take legal action including prosecution as needed.									<b>Outcome:</b> Decreased illegal and threatening activities			
2.1 Record threats & offences from patrols									2.1 Monthly Report & Map	JCDT: C/Corps	Funded: NEPA	
2.2 Report breaches to NEPA, FD &/or JNHT									2.2 Reports, Emails &/or Letters to relevant agency	JCDT:C/Corps	Funded: NEPA	

BJCMNP 3 Year Co management workplan 2015 – 2017

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BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
2.3 Investigate & Take legal action										2.3 Legal Reports	NEPA, FD or Jamaica National Heritage Trust (JNHT): Legal Officers	Funded: NEPA, FD & JNHT
<b>Objective 3: Improve Boundary Clarity in the Field</b> – whilst the boundaries are clear on maps and with use of GPS units are used, they are not clear in the field/on the ground.									<b>Outcome:</b> Reduction in encroachment of National Park boundary			
3.1 Liaise with NEPA/FD/JNHT re: boundary clarification & demarcation including Nominated property and zones										2015: Plan for improved boundary demarcation by August, 2015 2016: Plan implemented by June, 2016	Park Manager NEPA/FD/JNHT	Funding – Co-management committee agencies
3.2 Conduct mapping & marking (signage) of key sites adjacent to Park boundary										2015: Maps (2) and signage – Holywell Back Road (Communities: Free-town/Woodford to Norbrook). Different areas each year.	Park Manager C/Corps	Small Grants & Sponsorship being sought for signs
<b>Objective 4: Community Outreach &amp; Involvement</b> – Encourage & facilitate involvement of local community members in addressing illegal and threatening activities.									<b>Outcome:</b> Increased involvement of local community members especially Maroons.			
4.1 Rangers liaise with communities										April 2015 on: Rangers stop in communities 2/mth and record of interaction documented	JCDT: C/Corps & Park Rangers	Funded: NEPA
4.2 Liaison system operational (HQ cell phone & # circulated via business card)										March 2015: Telephone Records indicate that community members call to provide information	JCDT: C/Corps & Receptionist	Donation obtained for phone & business cards
4.3 Rangers assist with implementation of all other Programmes										5. Park Management Programmes implemented	JCDT: Park Manager	
4.4 Community meetings with FD, NEPA and JNHT in conjunction with JCDT										Meetings occur separately or together dependent on the nature	FD/NEPA/JNHT/JCDT	
<b>NATURAL HERITAGE CONSERVATION PROGRAMME</b> –To maintain and enhance remaining area of closed broadleaf forest and the flora and fauna of the BJCM. JCDT conducts invasive species control and native species forest rehabilitation and the Forestry Dept. conducts reforestation inside and outside the protected area boundary.												
<b>Objective 1: Between 2011 – 2015 rehabilitate and maintain at least 120 ha of degraded forest in shale &amp; limestone areas.</b> N.B.: Community members implement the reforestation and some of the invasive species control under Park Ranger/FD personnel supervision.									<b>Outcome:</b> Increased forest cover and reduced invasive species.			
(a) Conduct Reforestation										2015/JCDT: At least 8ha in Cinchona & 10ha at Sherwood (private land adjacent to National Park) 2015/FD: Start on 100ha	JCDT: C/Corps, Administrative (Admin) Manager. Park Rangers, FD	JCDT: FCF & private sector FD:GEF/IDB/GOJ

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BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
(b) Maintain acreage planted in previous years										1.1bi JCDT: Maintain 22ha in B/Zone 1.1bii FD: Maintain over 50ha in B/Zone	1.1bi JCDT: C/Corps, Admin Manager, Park Rangers 1.1bii FD	JCDT: FCF, & private sector FD: GEF/IDB/GOJ
(a)Mt. Horeb/Fairy Glade - Wild Ginger Control Find alternative disposal										Maintain existing 6.65ha; Add 1ha. Disposal alternative e.g. composting by April.	JCDT: C/Corps, Park Manager & Rangers	FCF
(b) Blue Mtn. Peak Trail – Check 2/yr & Remove Wild Coffee – <i>P. undulatum</i>										1.2b Peak Trail clear of Wild Coffee	JCDT: C/Corps, Park Manager & Rangers	FCF
(c) Holywell (assorted invasives controlled)										1.2c H/well: Dick's Pond Trail & Freetown Rd clear of W/Coffee	JCDT: C/Corps, Park Manager & Rangers	FCF & private sector
(d) Cinchona – Wild Coffee										1.2d Selected site clear of W/Coffee	JCDT: C/Corps, Park Manager & Rangers	FCF
<b>Objective 2: Propagate and supply native &amp; endemic species for rehabilitation/reforestation</b>										<b>Outcome: At least 18ha in Buffer and Community Buffer Zone with improved biodiversity</b>		
2.1 Propagation of native, broadleaf species for forest rehabilitation										2.1a At least 12,000 native and other seedlings for forest rehabilitation* 2.1b Complete fixing of nursery at Holywell	JCDT: Park Manager, C/Corps & Rangers	FCF & Recreation Pathways
2.2 Propagation & sale of lumber, landscaping & other commercial species to help sustain natives prod'n,										2.2 Produce & sell at least 1,500 plants to help support nurseries	JCDT: Admin Manager, Nursery Worker	FCF & Recreation Pathways
<b>Objective 3: Promote &amp; facilitate research that will inform/assist Park management/conservation</b>										<b>Outcome: Increased information for Park management/conservation</b>		
3.1 Prepare outlines based on Management Plan Research Prospectus										3.1 Outlines for at least 10 priority projects from Research Prospectus sent to 2 universities and posted on website annually	JCDT: Park Manager, Conservation Science Officer	JCDT
3.2 Examine & reply to all research applications sent by NEPA & direct email to researchers re: 3.4 and 3.5.										3.2 Reply to all research applications	JCDT: Park Manager, Conservation Science Officer (CSO)	JCDT
3.3 Maintain & promote Research Data-base										3.3 Updated Research Data-base	JCDT: Park Manager, CSO	JCDT

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BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
3.4 Write requesting to work with/assist researchers in the field										3.4 At least 2 field sessions with researchers	JCDT: Park Manager, CSO	JCDT
3.5 Repatriation & use of research results										3.5 Obtain papers from at least 2 researchers	JCDT: Park Manager, CSO	JCDT
3.6 Participate in relevant national committees										3.6 Committee meeting attendance	JCDT: Park Manager or other as appropriate	JCDT
3.7 Promote work through publications & participation in conferences etc.										3.7 At least one publication and/or presentation per year	JCDT: Park Manager or other as appropriate	JCDT
3.8 Conduct field visits to record & collect species for national data-base										3.8i At least 2 field trips/annum 3.8ii Increased species data on the BJCMNP	Natural History Museum of Jamaica (NHMJ) staff in liaison with JCDT	Funding Government of Jamaica
<b>Objective 4:</b> Implement specific programmes for conservation targets as information becomes available. Conservation knowledge suggests that conservation of the forest ecosystems will help ensure conservation of flora and fauna species and so this has been the focus of most conservation actions. However, as specific information becomes available, it will be used to enhance conservation of targets e.g. epiphytic communities, headwater ecosystems, forest birds, Jamaican Hutia, Boa and Giant Swallowtail Butterfly.									<b>Outcome:</b> Improved conservation of targeted species and faunal groups.			
4a. Identify any additional steps to better conserve the Park's conservation targets and implement as possible										4a. Reports	JCDT: Park Manager	Dependent on funding currently being sought or response from universities
4b. Implement parrot and coney surveys as possible										4b. Report	JCDT: Park Manager	Funding being sought: Whitley Fund for Nature
<b>CULTURAL HERITAGE PRESERVATION PROGRAMME</b> – aims to preserve and conserve the tangible and intangible heritage of the nominated property and its buffer zone (National Park) and the Protected National Heritage in the Rio Grande Valley and satellite Maroon communities. It is a joint effort guided by the Windward Maroon Councils through Maroon Advisory Committee & implemented by Maroon Councils with assistance from JNHT, JCDT, African Caribbean Institute of Jamaica (ACIJ) and Jamaica Intellectual Property Office (JIPO).												
<b>Objective 1:</b> Facilitate the preservation of the tangible cultural heritage of the Windward Maroons e.g. sacred and battle sites, trails, springs, ancestral towns and villages and current sites.									<b>Outcome:</b> Sites and trails are preserved because of studies and documentation leading to increased knowledge ability to preserve the sites.			

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BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
1.1 Site Surveys – 2015 – identify 5 sites 2016 – identify 6 sites 2017 – identify 3 sites										1.1 Reports including GIS coordinates, survey and mapping Inventory records ; 14 sites identified and surveyed	JNHT with Maroon Cultural Assistants	Funding - MoYC
1.2 Site Monitoring – site database created										1.2 Database created and updated regularly	JNHT with Maroon Cultural Assistants	Funding - MoYC
1.3 Site Monitoring– 26 sites and trails to be monitored										1.2 26 Sites and trails are visited on a monthly, 3- month and 6 -month basis based on ease of access	JNHT with Maroon Cultural Assistants	Funding - MoYC
1.4 Site Evaluation/Excavation/Research – 3 sites										1.3 3 Site Reports and updated database	JNHT with Maroon Councils	Funding - MoYC
1.5 Workshops/Meetings - Recruitment - Training of Maroon Cultural Assistants – carried out in 3 Maroon communities										1.4 Plans for Monitoring and Management developed Recruited, Trained Maroon Cultural Assistants	JNHT with Maroon Cultural Assistants	Funding - MoYC
1.6 Purchase of Equipment										1.5 Equipment for Monitoring & Management, excavation	JNHT with Maroon Councils	Funding - MoYC
1.7 Site Development										1.6 Plan created; implementation within 2016/2017 financial year	JNHT with Maroon Councils	Funding - MoYC
1.8 Guidelines for Development and Operations of Trails and Sites										1.7 Comprehensive Set of Guidelines for Development and Operations of Trails and Sites within the BJCM PA, with details for key sites.	JCDT	Funding - Ministry of Tourism (Tourism Enhancement Fund (TEF))
1.9 Develop a plan for site development, maintenance and conservation of the tangible cultural heritage										A detailed plan will be developed	Maroon councils JNHT/ACIJ/JCDT	
<b>Obj. 2: Intangible Heritage:</b> Facilitate the preservation of the intangible heritage of the Windward Maroons – building on the work already implemented on the project ACIJ implemented with the Moore Town Maroon Council following proclamation of their Intangible Heritage as a Masterpiece of Humanity which included documentation and training.										<b>Outcome:</b> Preservation of the intangible cultural heritage of the Windward Maroons including music, dance, language, cuisine, use of herbs, governance, religious and other practices.		
2.1 Research (see below)										See Research (below)	ACIJ with Maroon Councils	Funding - MoYC
2.2 Organise 2 community meetings and a workshop to develop formal strategies to promote, inventory and										Workshop Report and Strategy for Promotion & Preservation of Windward Maroon Cultural Heritage including a Tool for	ACIJ with Maroon Councils, JNHT & JCDT	Funding - MoYC

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preserve intangible heritage including the development of a tool for monitoring & evaluation										Monitoring.		
<b>Objective 3:</b> Promote awareness & appreciation of the cultural heritage of the Windward Maroons and its connections with the natural heritage of the Blue & John Crow Mountains.										<b>Outcome:</b> Pride and increased protection of both natural and cultural heritage. Increased public participation in festivals and tours.		
3.1 Assist Maroon Councils with organisation and sponsorship of festivals (4) & events										Festivals successfully held & documented	JCDT with Maroon Councils	Funding being sought from private sector & TEF
3.2 Develop & Implement Educational & Interpretive tour packages										2015: Tour packages detailed; Visitors Centre at Ambassabeth improved. 2015/16: MOUs – JCDT & Councils Additional Marketing.	JCDT with Maroon Councils	JCDT
3.3 Improve facilities for tours in communities e.g. bathrooms										2015/16: Improvements at Scots Hall, Hayfield & 2016/17: Moore Tow	JCDT with Maroon Councils	Funds: TEF
<b>Objective 4:</b> Promote, facilitate and conduct research to inform management and aid preservation of the cultural heritage and connections with the natural heritage										<b>Outcome:</b> Improved conservation of cultural heritage with increased knowledge, information, documentation and dissemination of information.		
4.1a Conduct research e.g. interviews with Elders re: Intangible cultural heritage (ICH)										4.1ai. 10 Oral History Interviews recorded 4.1aii. Research Report	ACIJ with Maroon Councils	Funds - MoYC
4.1b Authenticate, Archive & Document Intangible cultural heritage										4.1b. A/V documentation of (i) Nanny Day celebrations in Moore Town (ii) Asafu Yard in Charles Town (iii) Expand the existing electronic archives of Mooretown Library & the Jamaica Memory Bank	ACIJ with Maroon Councils	Funds - MoYC
4.1c Dissemination of information										4.1ci. Print brochures on the:- (a) intangible cultural heritage of the BJCM region (b) Safeguarding the intellectual property of the Windward Maroons & the cultural & bio-diversity of the BJCM region (c) Tangible cultural heritage of the BJCM 4.1cii. Use of radio and TV to promote Windward Maroon ICH	ACIJ with Maroon Councils	Funds - MoYC
4.1d Create cultural landscape Map indicating tangible and intangible heritage										Facilitate collaborative meetings Create map by Q6 of 2016 and continue to update		

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BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
4.1d Equipment										4.1d Purchase equipment:- 1 HD video camera, 1 digital still camera, 1 TB hard drive	ACIJ with Maroon Councils	Funds - MoYC
4.1e Outreach/Capacity Building										4.1e Conduct community presentations on the safeguarding of intellectual property of the Windward Maroons in Moore Town, Charles Town & Scott's Hall Conduct community presentations on the preservation of the trails, archaeological and sacred sites	ACIJ with Maroon Councils, JNHT & JCDT	Funds - MoYC
<b>MONITORING &amp; EVALUATION PROGRAMME</b> – This programme aims to track and record both the threats and the changes to ecosystem health, so that it is possible to assess whether or not the BJCMNP is achieving its over-arching conservation goal. Except for Forest Cover monitoring, this work is implemented by JCDT with the collaboration of experts in each field.												
<b>Objective 1:</b> Track, record & mitigate threats from resource use within the National Park.									<b>Outcome:</b> Information to guide mitigation and reduction of threats.			
1.1 Collect & Enter Information from Patrols										1.1a. Information in Monthly Patrol Reports 1.1b. Annual Threats & Offences Map	JCDT: C/Corps	NEPA
1.2 Conduct Permanent Point Photo-monitoring										1.2a. Photos of at least 10 of 12 sites 1.2b. Report on Comparison of photos	JCDT – C/Corps	NEPA
<b>Objective 2:</b> Monitor populations of key, threatened species – Giant Swallowtail Butterfly, Jamaican Coney and Jamaican Boa.									<b>Outcome:</b> Information to help assess population status.			
2. Record all sightings etc. from patrols, monitoring & communities using GIS										2a. Records in Monthly Patrol Reports 2b. Annual Map	JCDT	NEPA
<b>Objective 3:</b> Monitor forest cover and encroachment.									<b>Outcome:</b> Improved information to guide management and enforcement			
3.1 Seek funds for JDF Helicopter Monitoring										3.1 Proposals & Funds	JCDT	Funds to be sought from TEF
3.2 FD completes analysis of Satellite imagery analysis done under EU Project 2014.										3.2 Forest Cover information updated	FD	FD



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BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
<b>Objective 4:</b> Monitor quality of freshwater ecosystems									<b>Outcome:</b> Information to guide management of freshwater ecosystems			
4a Sample sites in both dry and wet seasons 4b Update monitoring approach & data collection; Analyse data; Prepare Report. 4c. Finalise Reports for previous years									4a. 12 sites sampled (May/Nov) 4b. Annual Monitoring reports 4c. Finalised Reports by March annually	JCDT – C/Corps & Rangers	NEPA	
<b>Objective 5:</b> Monitor bird distribution in the BJCMNP – one area/year – 5 year cycle around the Park.									<b>Outcome:</b> Information to guide conservation of birds			
5a. Establish & monitor points for Summer Season: one of 5 established areas 5b. Establish and monitor points for Winter Season in the same area 5c. Analyse data and Prepare Reports (including any climate change findings)									5a. Monitor all 120 points for Summer annually 5b. Monitor all 120 points for Winter annually 5c. Annual Reports produced	JCDT	Partially funded; JCDT seeking small grant or sponsorship	
<b>EDUCATION &amp; PUBLIC INVOLVEMENT PROGRAMME</b> – This programme aims to raise support for conservation of the BJCMNP's natural and cultural heritage and improve resource management and the sustainability of livelihoods, particularly in the communities just outside the Park boundary.												
<b>Objective 1:</b> To facilitate capacity building of at an estimated 120 people in at least 6 communities around the National Park (Buff Bay Valley – including Charles Town, Rio Grande Valley, Millbank & Moore Town – which are Maroon communities) and communities around the Park's recreation areas.									<b>Outcome:</b> Increased support for Park management and increased sustainability of livelihood activities around the National Park.			
1.1 Work with communities to build their technical capacity & implement relevant activities									1.1a. Liaise with CBOs in at least 6 communities to plan activities 1.1b. New sustainable livelihood activities/projects being implemented in at least 2 communities 1.1c Training in monitoring of cultural heritage sites – Maroon Cultural Assistants	JCDT – Education & Community Outreach Officer (ECCO)	GIZ Caribbean Aquatic Terrestrial Solutions (CATS) Project & FCF Capacity Building Project (2015 & 2016)	
1.2 Training of community members especially youth/young adults in sustainable livelihoods									1.2 1.2 2015: 3 communities - including Maroons, will receive 3 days training in sustainable agriculture including demonstration plots for practical work. 2015/6: community members will visit Ambassabeth to see a successful community eco-resort.	JCDT – ECCO	GIZ (CATS) FCF Capacity Building Project	

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BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
1.3 Involve community members in Park management activities as far as possible.									1.3 40 (incl. Park staff & Maroon Councils)	Park Manager & Admin Manager	JCDT	
<b>Objective 2:</b> Increase awareness about the BJCMNP's natural and cultural heritage, importance and management in order to increase the level of support for the BJCMNP.									<b>Outcome:</b> Increased awareness and support for conservation of the heritage of the BJCMNP			
2.1 Local Community - Meetings									2.1 At least 10/year re: Park	JCDT - ECOO	FCF	
2.2 Social Media 2.2a Website maintained & updated 2.2b Facebook Page 2.2c Media Releases or advertorials 2.2d Participate in exhibitions/mini-expos									2.2a Major Update every two years 2.2b. At least 3 posts/mth 2.2c Coverage – 8 times in print or electronic (+ events) 2.2d At least 3/yr	JCDT – Park Manager	FCF	
2.3a Maintain/refresh Visitors' Centre, Holywell									2.3a Improvement/repairs	JCDT – Park Manager	US-DOI Climate Friendly Parks	
2.3b Conduct educational tours as requested									2.3b Provide support as requested	JCDT - ECOO	Self-funded	
<b>2.4 Buffer Zone Schools</b>												
2.4a Intensive work with schools e.g. help with project									2.4a At least 4/yr	JCDT - ECOO	FCF Capacity Bldg Proj	
2.4b Visits to buffer zone schools – presentation and activity									2.4b At least 30 schools/yr (all primary level schools around Park)	JCDT - ECOO	FCF Capacity Bldg Proj	
2.4c Buffer Zone teacher training workshop re: integrating BJCM information & issues into the curriculum									2.4c At least 1 with at least 20 teachers	JCDT - ECOO	FCF Capacity Bldg Proj	
2.5 WHS Awareness Campaign (on inscription)									2.5(i) At least 10 comm. mtgs 2.5(ii) Posters/brochures 2.5(iii) PR: Round Table/Articles & Interviews 2.5(iv) TV/Radio Advts. 2.5(v) Newspaper & Magazine Advts (National/Intl. e.g. WH)	MoYC with JCDT, JNHT, ACIJ, NHMJ, NEPA & FD	Funds being sought from Ministry of Tourism and Entertainment (MTE) through the Tourism Enhancement Fund (TEF)	

Supplementary Information provided on  
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BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
<b>RECREATION &amp; TOURISM PROGRAMME</b> – The goal of this programme is to provide and facilitate the provision of recreational opportunities for local and international visitors using ecotourism and sustainable tourism principles in order to generate income and support for the BJCMNP. The lead on this programme is the JCDT.												
<b>OBJECTIVE 1:</b> Provide and facilitate recreational and educational opportunities geared at raising awareness and support of the BJCMNP, as per existing plans (a Sustainable Tourism Programme which targeted the Maroon communities and those around the Park's recreational areas, was developed between 2006 – 9, with funding from the IDB) and is being implemented in phases.									<b>OUTCOME:</b> Increased number and quality of tours and facilities			
1.1a Enhance "Tuck-Shop" to Café/Gift Shop									1.1a Enhanced building & café operational	JCDT – Park Manager & Admin Manager	TPDCo/TEF	
1.1b Improved cabin interiors									1.1b Improved cabins & all facilities			
1.1c Internal road works									1.1c Road improvements	JCDT – Park Manager	TPDCo./TEF	
1.1d Provide educational tours at Holywell									1.1d At least 45/yr	JCDT – ECOO	Self-funded	
1.2a Peak Trail & Portland Gap Area Improvements & Refurbishing									1.2a Urgent trail repairs done by June with existing funding and funds sourced for major improvements – JSIF.	JCDT – Park Manager & Admin Manager	FCF, NPAS & TPDCo/TEF	
1.2b Address user fee non-payment: meet & establish system: guest houses/tour guides									1.2b System in place		Major funding anticipated from JSIF	
1.3 Establish BM Sustainable Tourism Prog: Park & Community Attractions being marketed & percentage returning to Park management.									1.3a BMST System in place (as per Manual e.g. MOUs with community attractions & tour companies 2016) 1.3b Tours & Events marketed	JCDT – Park Manager & Admin Manager working with Maroon & other communities.	Seeking funding: Tourism Coordination & Marketing Officer	
<b>Objective 2:</b> Generate income to support park management by increasing income from the National Park's recreational areas and the BM Sustainable Tourism Programme by 150% over 5 years. JCDT is responsible and is so far just below the target despite challenges. The current focus is on improving facilities and increasing the number of things for visitors to spend money on e.g. merchandise, camping equipment rental, additional tours and lobbying government to increase the user fees.									<b>Outcome:</b> Increased income for Park management			
2.1 Improve management & supervision									2.1a Employ Tourism Marketing & Coordination Officer 2.1b Staff meetings at least 3/yr	JCDT – Park Manager	Seeking funds	

Supplementary Information provided on  
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BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
2.2 Increase revenue:- 2.2a Increase cabin rental after improvements; marketing; start sale of souvenirs, concessions, tent rentals 2.2b Follow up NEPA re: increase in entry fees										2.2 By at least 150% 2.2a. Increased income 2.2b Increased income	JCDT – Park Manager & Admin Manager	JCDT
<b>Objective 3:</b> Engender community support for the BJCMNP as well as natural and cultural heritage conservation by facilitating benefits to local communities.									<b>Outcome:</b> Increased community support and involvement for natural and cultural heritage preservation			
3.1a Support for community attractions/ventures & capacity building										See above: 1.3 and Cultural Heritage Preservation and Education & Public Involvement Programmes	JCDT – Park Manager	Jamaica Energy Partners (JEP)
<b>Objective 4:</b> Ensure that recreation and tourism activities do not threaten the National Park's biodiversity, provision of ecosystem services and cultural heritage.									<b>Outcome:</b> Environmental impacts mitigated at recreational areas.			
4.1 Revisit Conservation Management Plans developed under USAID and identify possible improvements. 4.2 Climate & Environmentally Friendly Parks Workshop										4.1 Plan for initiating Conservation Management 4.2a Workshop held and Report with Recommendations produced 4.2b Improvements to environmental sustainability made e.g. composting and recycling of PET bottles.	JCDT – Park Manager	2015 – US DOI Climate Friendly Parks
<b>GOVERNANCE AND ADMINISTRATION PROGRAMME</b> – The goal of this programme is to provide efficient, effective and sustained management that will allow the BJCMNP to meet its over-arching conservation and other goals.												
<b>Objective1 :</b> Coordinate management at the policy level comprising key public, private sector and community stakeholders – Advisory Committee (meeting twice/year)									<b>Outcome:</b> Improved support from government agencies and private sector			
1. Organise BJCMNP Advisory Committee meetings										1.Meet twice for the year with minutes	JCDT – Park Manager	JCDT, NEPA, MoYC
<b>Objective 2:</b> Coordinate management at the operational level through regular meetings of the Co-Management Committee.									<b>Outcome:</b> Improved management efficiency and effectiveness through collaborative approaches.			
2.1 Organise Co-management Committee meetings										2.1 Minutes from 3 meetings/year	JCDT – Park Manager	JCDT, NEPA, MoYC
2.2 Organise Maroon Community Advisory Committee Meetings										2.2 Minutes from 3 meetings/year	JCDT – Park Manager	JCDT, NEPA, MoYC

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BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
Liaise with Buffer Zone Community Groups for projects & programmes										2.3 Reports on Joint activities e.g. BPFA	JCDT – Park Manager	JCDT, NEPA, MoYC
<b>Objective 3:</b> To provide supervision, project management, financial management and administrative support for the BJCMNP Programmes									<b>Outcome:</b> Improved effectiveness of management			
3.1 Preparation Annual Plans & Reports										3.1a Annual Report & Work Plan by 26/1/16 3.2 Monthly Reports by 15 <sup>th</sup> of each month 3.3 By 21 <sup>st</sup> or 30 <sup>th</sup> of each relevant month 3.4 Meeting notes & coordination  3.5. Project proposals (at least 6/yr totalling US\$250,000); Successful Project Implementation.  3.6. At least 10 Training days  3.7 Opportunities for collaboration increased 3.8 Risk Assessment & Management Plan prepared & Disaster Preparedness/ Emergency Management Plan updated to include protection of cultural heritage	JCDT – Park Manager & Admin Manager	NEPA & JCDT
3.2 Preparation of monthly & bi-monthly Programme Reports												
3.3 Preparation of project reports												
3.4 Regular meetings:-												
3.4a Programme Management & Rangers' Roster Meetings												
3.4b Staff meetings quarterly												
3.5 Project Development and Management- Develop, Manage & Implement as per Park Plan												
3.6. Human Resource Development/Management												
3.7 Networking and Collaboration												
3.8 Disaster Preparedness, Emergency & Risk Management Plan Updated to include protection of cultural heritage												
<b>Objective 4:</b> To source short- and long-term funding for Park management through grant funding, government subvention, donations, sponsorship and opportunities through the Recreation & Tourism Programme.									<b>Outcome:</b> Improved funding for the BJCMNP			
4.1 Proposals to NEPA & JNPTF										4. Budget need for basic operations and for infrastructural development and plans for improvement for recreational areas and community tourism	JCDT – Park Manager/Executive Director in association with Board, GOJ and other agencies	JCDT
4.2 Follow up proposals to JSIF re: Peak Trail/Portland Gap												
4.3 Proposals to TEF												
4.4 Proposals to donors & private sector												



GOVERNMENT OF JAMAICA

RESPONSE TO THE INTERNATIONAL UNION FOR  
CONSERVATION OF NATURE (IUCN)  
FOR THE  
NOMINATION OF THE

CULTURAL AND NATURAL HERITAGE  
OF THE  
BLUE AND JOHN CROW MOUNTAINS



The Blue and the John Crow Mountains of Jamaica have been identified as two of the Caribbean's 290 Key Biodiversity Areas and two of its 48 Wholly Irreplaceable Sites (BirdLife International, 2010). The area was identified as one of the 200 globally important sites for the conservation of plant biological diversity (WWF/IUCN, 1997). Most recently, Bertzky et al. (2013) identified the Blue and John Crow Mountains National Park as one of the 78 most irreplaceable protected areas for the conservation of the world's amphibian, bird and mammal species.

The nominated property (26 251.60ha) and the section of its buffer zone located within National Park/Forest Reserve (22,000ha, the total buffer zone - 28 494. 01ha) are tropical, montane rainforest much of which is cloud forest between 850m and 2,256m.

Cloud forest has been described as "a rare habitat of tropical mountains" which "make up no more than 2.5% of the world's tropical forests" but harbouring "a disproportionately large number of the world's species" and being "even rarer in the America's forming 1.2% of the tropical forests" (Bubb, P. et al. 2004).

The Ecosystem Profile for the Caribbean Biodiversity Hotspot describes four major terrestrial forest types:

- Tropical/Sub-tropical Moist Broadleaf Forests typical in lowlands throughout the region
- Tropical/Sub-tropical Coniferous Forests which do not exist in Jamaica and
- Tropical/Sub-tropical Dry Broadleaf Forest and
- Shrublands and Xeric Scrub which are not relevant to this discussion.

In Jamaica, tropical moist broadleaf forest exist in the hilly interior of the island but the only montane rain or cloud forest over 1,000m is located in the Blue and John Crow Mountains. Whereas the montane, cloud forest in the Greater Antilles e.g. Hispaniola (Dominican Republic and Haiti) are coniferous, those in Jamaica (located in the Blue and John Crow Mountains) are broadleaf and there are very few native conifers e.g. *Juniperus lucayana* and *Podocarpus urbanii*. The Forestry Department indicates from its 2013 land use determination that the

The high elevation, rugged landscape and the north and south-facing slopes of the mountains have resulted in a wide variety of habitat types within the Blue and John Crow Mountains. Muchoney et al. (1994) identified nine (9) natural communities within the upper montane forest of the Blue Mountains (over 1,000m) and John Crow Mountains (over 600m). These included a unique Mor Ridge Forest (Grubb and Tanner, 1976) characterised by a deep layer (50 cm) of acidic humus with bromeliads on the ground and endangered tree species. Tanner continues to conduct forest ecology studies in this area, with his most recent research work conducted in 2014.

Above 1,800m, the vegetation of the Blue Mountains is more stunted with some species such as *Eugenia alpina* and *Clethra Alexandra* restricted to these altitudes. Above 2,000m the forest is known as Elfin Forest due to the stunted and gnarled appearance of the trees which are



Supplementary Information provided on  
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heavily coated with epiphytes including hanging mosses, ferns and tiny orchids. This forest along with the almost constant mist, creates a spell-binding experience for hikers on the Blue Mountain Peak Trail, who must walk 9km from the nearest coffee farm and 12km from the nearest community for this opportunity.

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A comparison with other forests accorded World Heritage Site status shows that the cloud forests of the Blue and John Mountains are unique and of outstanding universal value and further, that the nominated property is of substantial enough size to accord it protection from threats and ensure its integrity. Further the collaborative management by government, non-government and community are having a positive impact on the addressing of threats. Comparison with the Cockpit Country of Jamaica clearly shows that the latter site is very dissimilar in terms of ecosystems and habitat and hence less flowering plant species, though having similar numbers of faunal species.

**Table comparing the BJCM National Park with other WHS and the Cockpit Country, Jamaica**

<b>Factors</b>	<b>Morne Trois Pitons, Dominica</b>	<b>The Pitons, St. Lucia</b>	<b>Alejandro de Humboldt, Cuba</b>	<b>Garjonay National Park, Canary Islands</b>	<b>Blue and John Crow Mountains, Jamaica</b>	<b>Cockpit Country, Jamaica</b>
Criteria for Inscription	(viii) geological (x) biodiversity	(i) geological (iii) aesthetics	(ix) ecosystems/ ecology (x) biodiversity	(vii) aesthetics (ix) biodiversity	(ix) ecosystems/ ecology (x) biodiversity	Not currently on Jamaica's Tentative List – would likely be nominated under (viii) and (x)
Size (ha)	6,857	2,909	71,140	3,984	48,650 Nominated Property: 26,000	22,327
Highest Elevation (m)	1,342	743	1,175	1,487	2,256	900
Forest Types	<ul style="list-style-type: none"> <li>• Montane rainforest</li> <li>• Montane thicket</li> <li>• Cloud forest above 914m</li> </ul>	Sub-tropical wet forest and marine habitats	<ul style="list-style-type: none"> <li>• Semi-deciduous broadleaf and pine forests</li> <li>• Xeromorphic shrubs</li> <li>• Mangroves</li> </ul>	Laurel forests	Cloud Forest (broadleaf) :- <ul style="list-style-type: none"> <li>• Upper montane forest on lime-stone and on shale (6 variants including unique</li> </ul>	Montane forest (broadleaf) on limestone

Supplementary Information provided on  
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Factors	Morne Trois Pitons, Dominica	The Pitons, St. Lucia	Alejandro de Humboldt, Cuba	Garjonay National Park, Canary Islands	Blue and John Crow Mountains, Jamaica	Cockpit Country, Jamaica
					Mor Ridge) <ul style="list-style-type: none"> <li>• Upper Montane thicket</li> <li>• High altitude scrub</li> <li>• Montane summit savanna</li> </ul>	
		148 plants on Gros Pitons 97 plants on Petit Pitons	1,300 seed plants – 900 endemic to Cuba and 340 endemic to the property	450 plants – 81 endemic to the Canary Islands, 34 to Garajonay, 8 to the property	Over 1,357 flowering plants  Over 200 ferns & their allies  Over 70 liverworts, mosses & lichens	Over 1,000 flowering plants
	7 mammals (bats) 50 birds 12 reptiles & amphibians 12 crustaceans	4 mammals (opossum and 3 bats) 27 birds (5 endemic) 8 reptiles 3 amphibians	3 mammals (1 endemic) 95 birds (5 endemic) 45 reptiles (1 endemic) 21 amphibians (1 endemic)	4 mammals (1 endemic) 27 birds (2 endemic) 3 reptiles (all endemic)	12 mammals (1 endemic - Hutia, 9 native bats including 2 endemics; 2 introduced - Wild Hog & Mongoose)  Birds: Over 100 species including 29 extant endemics & 2 possibly extinct and at least	Mammals: over 6          Birds: 28

Supplementary Information provided on  
The cultural and natural heritage of the Blue and John Crow Mountains, JAMAICA

Factors	Morne Trois Pitons, Dominica	The Pitons, St. Lucia	Alejandro de Humboldt, Cuba	Garjonay National Park, Canary Islands	Blue and John Crow Mountains, Jamaica	Cockpit Country, Jamaica
					<p>43 migrants.</p> <p>Amphibians: 12 – all endemic (5 site-specific)</p> <p>Reptiles: 22 (16 lizards and 6 snakes) – 15 endemics and 1 site-specific endemic</p>	<p>endemics</p> <p>Amphibians: 14</p> <p>Reptiles: 21 (15 lizards and 6 snakes)</p>

**Question 1: Please would the State Party provide updated checklists on the species within the nominated property supported with spatial maps using the results of the most contemporary research available, and noting carefully which species are recorded from within the boundaries of the property**

Species checklists for the Blue and John Crow Mountains nominated property are provided below.

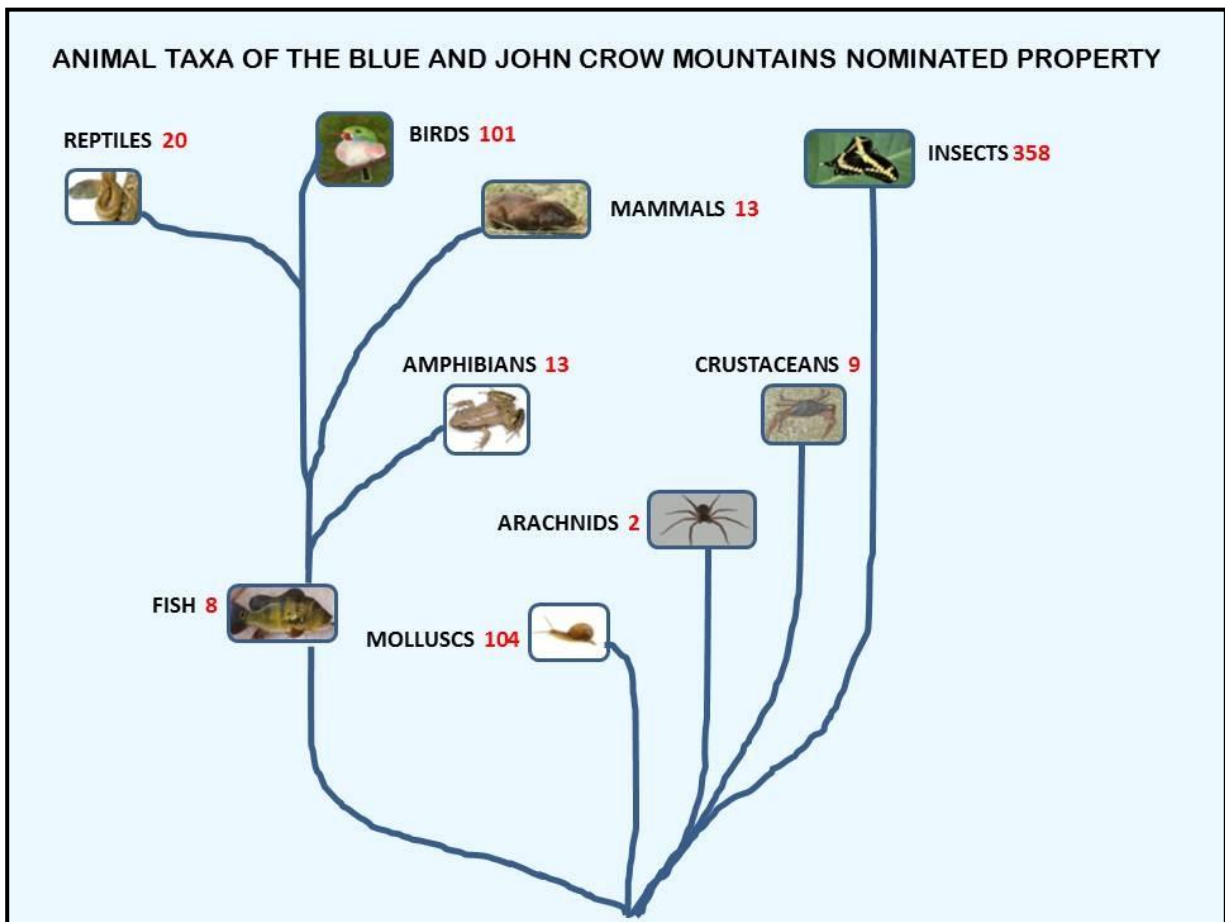
Whilst the State Party can verify that the following species listed exist in the nominated property the spatial distribution maps requested are not possible at this time due to data deficiency with the exception of the Herpetofauna (Amphibians and Reptiles) where information was available from the IUCN Red List and the CaribHerp Websites. In the case of flora herbarium records usually note the collection location of the specimen but this does not impart information on the species wider distribution. However, habitat types and forest conditions of the nominated property suggest that there would be healthy populations of all the fauna of the Blue and John Crow Mountains and wide distribution of the flora throughout the nominated property. Further, based on general observations, it would be expected that the number of exotic species will decline whilst those of native and endemics would increase in the nominated property in contrast with the buffer zone. . The data deficiency in mapping species and their population distributions is mainly due to the limited nature of this aspect of research as well as the focused nature of most investigations within the National Park - most of which has been in the more easily accessible areas outside the nominated property.

Species lists were compiled in the case of flora from herbarium records from the Institute of Jamaica's Herbarium, The University of the West Indies Herbarium and the New York Botanical Garden's records of Britton's field note books. The faunal species lists were compiled from the zoological collection records of the Institute of Jamaica, Jamaica Conservation and Development Trust species observation records and data supplied by researchers (Prof Byron Wilson – Herpetofauna, Dr Eric Garraway – Aphids). Unfortunately, while work has been done on Carbid Beetles, Geometrid and Arctid Moths and Freshwater macro-invertebrates the State Party was unable to secure these lists in time from the respective investigators.

The State Party recognises the limitation on data for species and has started to put plans in place for detailed and rigorous surveys of the whole nominated property, which are lacking, in comparison to other sites on the island due to the type of research which has been conducted in the Blue and John Crow Mountains which has been limited in terms of recent taxonomic surveys, particularly deep within the interior.

**SUMMARY TABLE – FAUNA**

Species	Total Endemic	Total overall	Comments
Mammals	-	13	
Birds	32	101	Detailed list in Appendix 1
Amphibians	12	13	
Reptiles	18	20	
Insects		358	Detailed list in Appendix 1
Fish		8	
Molluscs	44	104	
Arachnids		2	
Crustaceans		9	



**MAMMALS**

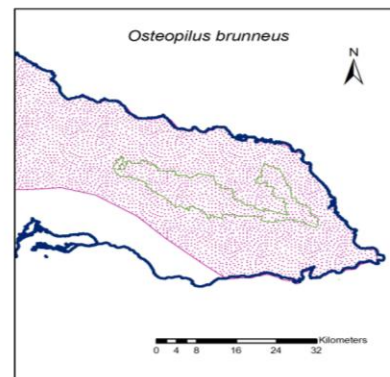
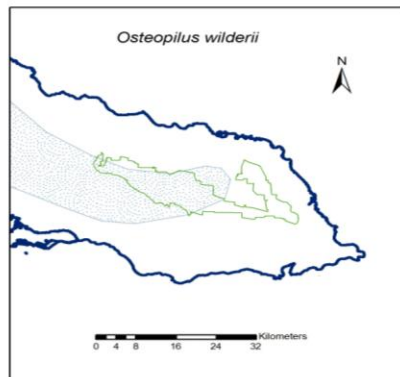
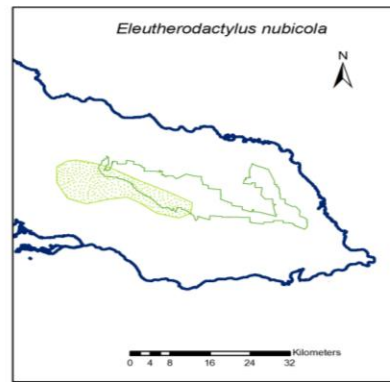
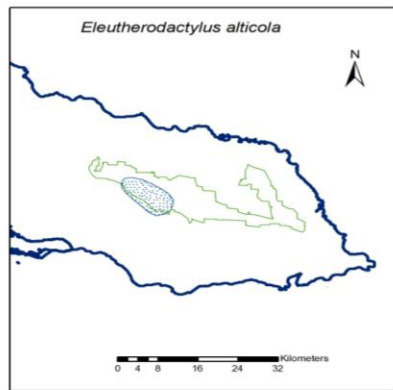
	<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>	<b>Red List Status</b>	<b>Notes</b>
<b>1</b>	Jamaican Hutia/Coney	<i>Geocapromys brownii</i>	Endemic	Vulnerable (Population decreasing)	Oliver and Wilkins, 1988 Maroon communities report the populations are increasing
<b>2</b>	Jamaican Brown Bat	<i>Eptesicus lynni</i>	Endemic	Not assessed	Genoways et al., 2005
<b>3</b>	Jamaican Fig-eating Bat	<i>Ariteus flavescens</i>	Endemic	Least concern	Institute of Jamaica records
<b>4</b>	Leach's Long-tongued Bat	<i>Monophyllus redmani redmani</i>	Native	Not assessed	Genoways et al., 2005
<b>5</b>	Brazilian Free-tailed Bat	<i>Tadarida brasiliensis murina</i>	Native	Not assessed	M. Hodges (ed) 2008
<b>6</b>	Jamaican Fruit Bat	<i>Artibeus jamaicensis</i>	Native	Least concern	Institute of Jamaica records
<b>7</b>	Greater Fishing Bat	<i>Noctilio leporinus</i>	Native	Least concern	Institute of Jamaica records
<b>8</b>	Pallas' Long-tongued Bat	<i>Glossophaga soricina</i>	Native	Least concern	Institute of Jamaica records
<b>9</b>	Pallas' Mastiff Bat	<i>Molossus molossus</i>	Native	Least concern	Institute of Jamaica records
<b>10</b>	Waterhouse's Leaf-nosed Bat	<i>Macrotus waterhousii</i>	Native	Least concern	Institute of Jamaica records
<b>11</b>	Wild Hog	<i>Sus scrofa</i>	Introduced	Least concern (Population trend unknown)	Based on information from local community members and Park Rangers – this animal is within some parts of the Park boundary but mainly in the Community Buffer Zone
<b>12</b>	Mongoose	<i>Herpestes javanicus</i>	Introduced	Least concern (Population trend unknown)	This is an invasive species which damages populations of birds and lizards.

It should be noted that mention has been made of the Introduced White-tailed Deer in the Blue and John Crow Mountains, however observations and discussions with local community members and Park Rangers indicate that this species is only in the lowlands outside the National Park boundary (and therefore significant distance from the nominated property boundary).

AMPHIBIANS

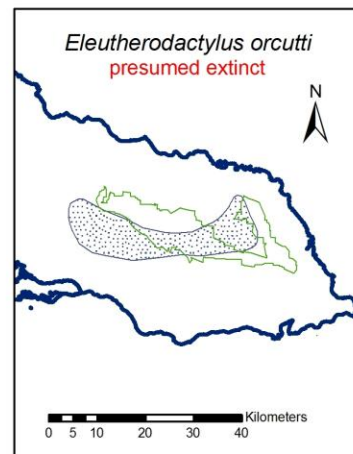
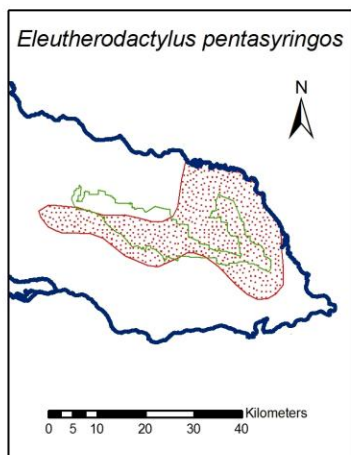
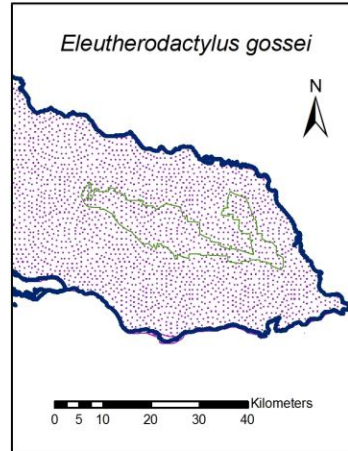
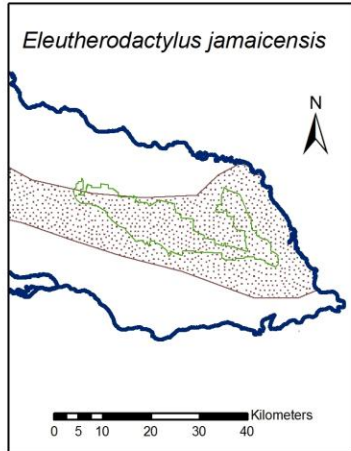
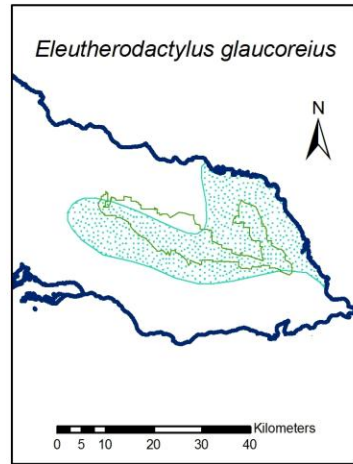
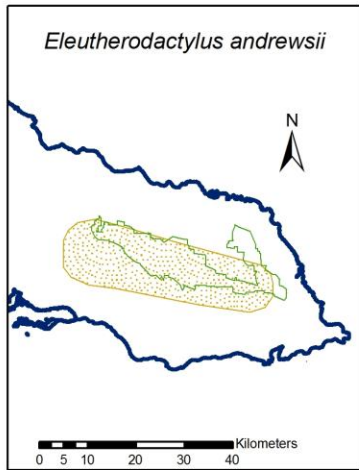
Common Name	Scientific Name	IUCN Status
1 Jamaican Peak Frog	<i>Eleutherodactylus alticola</i>	Critically endangered
2 Jamaican Rumpspot Frog	<i>Eleutherodactylus andrewsi</i>	Endangered (Population decreasing)
3 Portland Parish Robber Frog/ Blue Mountain Rock Frog	<i>Eleutherodactylus glaucoreius</i>	Near threatened (Population decreasing)
4 Jamaican Forest Frog	<i>Eleutherodactylus gossei</i>	Least concern
5 Jamaican Bromeliad Frog	<i>Eleutherodactylus jamaicensis</i>	Endangered
6 Jamaican Red-eyed Frog	<i>Eleutherodactylus nubicola</i>	Endangered (Population decreasing)
7 Jamaican Stream Frog	<i>Eleutherodactylus orcutti</i>	Critically Endangered (Population decreasing)
8 Panton's Robber Frog/ Western Yellow-bellied Robber Frog	<i>Eleutherodactylus pantoni</i>	Near threatened (Population trend unknown)
9 John Crow Yellow-bellied Frog	<i>Eleutherodactylus pentasyringos</i>	Vulnerable (Population decreasing)
10 Jamaican Snoring Frog	<i>Osteopilus crucialis</i>	Endangered
11 Jamaican Green Tree-Frog	<i>Osteopilus wilderi</i>	Endangered
12 Jamaican Laughing Tree-Frog	<i>Osteopilus ocellatus</i>	Least concern (Population trend unknown)
13	<i>Calyptohyla crucialis</i>	

AMPHIBIAN DISTRIBUTION MAPS






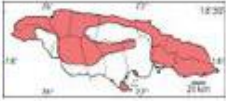














## AMPHIBIAN DISTRIBUTION MAPS









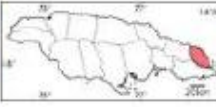




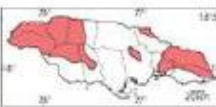


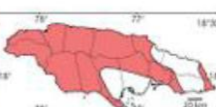






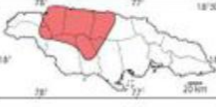


**REPTILES**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>	<b>IUCN Status</b>
<b>Lizards</b>			
<b>1</b> Croaking Lizard	<i>Aristelliger praesignis</i>	Native	Not been assessed
<b>2</b> Yellow-headed Gecko/ White-throated Gecko	<i>Gonatodes albogularis</i>	Native	Not been assessed
<b>3</b> Ocellated Gecko	<i>Sphaerodactylus argus</i>	Native	Not been assessed
<b>4</b> Jamaican Forest Sphaero	<i>Sphaerodactylus goniorhynchus</i>	Endemic	Near threatened (Population trend unknown)
<b>5</b> Jamaican Sharpnosed Sphaero	<i>Sphaerodactylus oxyrhinus</i>	Endemic	Not been assessed Vogel reported sub- species in the Blue Mountains during preparation of 2005 Management Plan
<b>6</b> Jamaican Tail-spot Sphaero	<i>Sphaerodactylus dactnicolor</i>	Endemic	Not been assessed
<b>7</b> Jamaica Giant Anole	<i>Anolis garmani</i>	Endemic	Not been assessed
<b>8</b> Jamaican Turquoise Anole	<i>Anolis grahami</i>	Endemic	Least concern (Population trend unknown)
<b>9</b> Jamaican Gray Anole	<i>Anolis lineatopus</i>	Endemic	Not been assessed
<b>10</b> Opal-bellied Anole	<i>Anolis opalinus</i>	Endemic	Not been assessed
<b>11</b> Blue Mountains Anole	<i>Anolis reconditus</i>	Endemic	Not been assessed
<b>12</b> Jamaican Twig Anole	<i>Anolis valencienni</i>	Endemic	Not been assessed
<b>13</b> Jamaican Galliwasp	<i>Celestus cruscus</i>	Native	Least concern (Popula- tion trend unknown)
<b>14</b>	<i>Celestus hewardii</i>	Native	
<b>15</b>	<i>Celestus molesworthi</i>	Native	
<b>16</b>	<i>Celestus praesignis</i>	Native	
<b>Snakes</b>			
<b>17</b> Jamaican Boa/ Yellow Snake	<i>Epicrates subflavus</i>	Endemic	Vulnerable
<b>18</b> Jamaican Brown Trope	<i>Tropidophis jamaicensis</i>	Endemic	Not been assessed
<b>19</b> Jamaican Red Racerlet	<i>Hypsirhynchus callilaemus</i>	Endemic	Not been assessed
<b>20</b> Jamaican Long-tailed Racerlet	<i>Hypsirhynchus polylepis</i>	Endemic	Not been assessed
<b>21</b> Jamaican Racer	<i>Hypsirhynchus ater</i>	Endemic	Not been assessed
<b>22</b>	<i>Hypsirhynchus jamaicensis</i>	Endemic	
<b>23</b>	<i>Gonatodes albugaris</i>	Native	












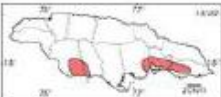
**HERPETOFAUNA DISTRIBUTION MAPS**

→	<p><i>Anolis garmani</i> - Stejneger, 1899 Reptilia   Squamata   Dactyloidae Jamaican Giant Anole Jamaica IUCN Status: Not Assessed</p>		
→	<p><i>Anolis grahami</i> - Gray, 1845 Reptilia   Squamata   Dactyloidae Jamaican Turquoise Anole Jamaica IUCN Status: Not Assessed</p>		
→	<p><i>Anolis lineatopus</i> - Gray, 1840 Reptilia   Squamata   Dactyloidae Jamaican Gray Anole Jamaica IUCN Status: Not Assessed</p>		
→	<p><i>Anolis opalinus</i> - Goss, 1850 Reptilia   Squamata   Dactyloidae Jamaican Opal-bellied Anole Jamaica IUCN Status: Not Assessed</p>		
→	<p><i>Anolis recorditus</i> - Underwood and Williams, 1959 Reptilia   Squamata   Dactyloidae Blue Mountain Anole Jamaica IUCN Status: Not Assessed</p>		
	<p><i>Anolis sagrei</i> - Cocteau in Duméril and Bibron, 1837 Reptilia   Squamata   Dactyloidae Cuban Brown Anole Jamaica IUCN Status: Not Assessed</p>		
→	<p><i>Anolis valencienni</i> - Duméril and Bibron, 1837 Reptilia   Squamata   Dactyloidae Jamaican Twig Anole Jamaica IUCN Status: Not Assessed</p>		
	<p><i>Hemidactylus mabouia</i> - Moreau de Jonnés, 1818 Reptilia   Squamata   Gekkonidae Tropical House Gecko Jamaica - Introduced IUCN Status: Not Assessed</p>		

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	<p><i>Gonatodes albogularis</i> - Duméril and Bibron, 1836 Reptilia   Squamata   Sphaerodactylidae Neotropical Clawed Gecko Jamaica - Not endemic IUCN Status: Not Assessed</p>		
	<p><i>Sphaerodactylus argus</i> - Gessó, 1850 Reptilia   Squamata   Sphaerodactylidae Jamaican Stippled Sphaero Jamaica IUCN Status: Not Assessed</p>		
	<p><i>Sphaerodactylus dactylos</i> - Barbour, 1910 Reptilia   Squamata   Sphaerodactylidae Jamaican Tailspot Sphaero Jamaica IUCN Status: Not Assessed</p>		
	<p><i>Sphaerodactylus gilvitorques</i> - Cope, 1862 Reptilia   Squamata   Sphaerodactylidae Jamaican Collared Sphaero Jamaica IUCN Status: Not Assessed</p>	<p>NO IMAGE</p> 	
	<p><i>Sphaerodactylus goniorhynchus</i> - Cope, 1895 Reptilia   Squamata   Sphaerodactylidae Jamaican Forest Sphaero Jamaica IUCN Status: Not Assessed</p>		
	<p><i>Celestus cruscus</i> - Garman, 1888 Reptilia   Squamata   Anguillidae Jamaican Galliwasp Jamaica IUCN Status: Not Assessed</p>		
	<p><i>Celestus duquesneyi</i> - Grant, 1940 Reptilia   Squamata   Anguillidae Blue-tailed Galliwasp Jamaica IUCN Status: Data Deficient</p>		
	<p><i>Celestus fowleri</i> - Schwartz, 1971 Reptilia   Squamata   Anguillidae Bromeliad Galliwasp Jamaica IUCN Status: Data Deficient</p>		
	<p><i>Celestus hewardii</i> - Gray, 1845 Reptilia   Squamata   Anguillidae Red-spotted Galliwasp Jamaica IUCN Status: Not Assessed</p>	<p>NO IMAGE</p> 	
	<p><i>Celestus microlepharis</i> - Underwood, 1959 Reptilia   Squamata   Anguillidae Small-eyed Galliwasp Jamaica IUCN Status: Data Deficient</p>		

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→	<p><i>Epicrates subflavus</i> - Stejneger, 1901 Reptilia   Squamata   Boidae Jamaican Boa Jamaica IUCN Status: Vulnerable</p>		
→	<p><i>Hypsirhynchus ater</i> - Gosse, 1851 Reptilia   Squamata   Dipsadidae Jamaican Racer Jamaica IUCN Status: Not Assessed</p>		
→	<p><i>Hypsirhynchus callilaemus</i> - Gosse, 1851 Reptilia   Squamata   Dipsadidae Jamaican Red Racerlet Jamaica IUCN Status: Not Assessed</p>		
	<p><i>Hypsirhynchus funereus</i> - Cope, 1863 Reptilia   Squamata   Dipsadidae Jamaican Black Racerlet Jamaica IUCN Status: Not Assessed</p>		
→	<p><i>Hypsirhynchus polylepis</i> - Buden, 1966 Reptilia   Squamata   Dipsadidae Jamaican Long-tailed Racerlet Jamaica IUCN Status: Not Assessed</p>		
→	<p><i>Tropidophis jamaicensis</i> - Stull, 1928 Reptilia   Squamata   Tropidophiidae Jamaican Brown Trope Jamaica IUCN Status: Not Assessed</p>		

**FRESHWATER FISH**

<b>SPECIES</b>	<b>COMMON NAME</b>
<i>Gobiomorus dormitor</i>	Big-Mouth Sleeper
<i>Joturus pichardi</i>	Bobo Mullet
<i>Pomadasys crocro</i>	Burro Grunt
<i>Agonostomus monticola</i>	Mountain Mullet
<i>Sicydium plumieri</i>	Green Stream Goby
<i>Awaous tajasica</i>	River Goby
<i>Centropomus undecimalis</i>	Snook
<i>Anguilla rostrata</i>	American Eel
<b>8 TOTAL</b>	

**ARACHNIDS**

<b>SPECIES</b>	
<i>Polymera cavernicola</i>	
<i>Sphyrotinus guanicae</i>	
<b>TOTAL</b>	<b>2</b>

**CRUSTACEANS**

<b>SPECIES</b>	
<i>Sesarma bidentatum</i>	
<i>Xiphocaris elongata</i> (Gruerin-Menville)	
<i>Xiphocaris gladiator</i> Pocock	
<b>TOTAL</b>	<b>3</b>

**MOLLUSCS**

Family	Genus	Species	JCM	BM	Combined JCM and BM
Helicinidae	<i>Alcacia</i>	<i>affinis</i>	N	N	E
Helicinidae	<i>Alcacia</i>	<i>hirsuta</i>	E		E
Helicinidae	<i>Alcacia</i>	<i>macilenta</i>	E		E
Helicinidae	<i>Alcacia</i>	<i>megastoma</i>	N	N	E
Helicinidae	<i>Eutrochatella</i>	<i>pulchella</i>	N	N	N
Helicinidae	<i>Fadyenia</i>	<i>albersiana</i>	E		E
Helicinidae	<i>Fadyenia</i>	<i>alderiana</i>	E		E
Helicinidae	<i>Fadyenia</i>	<i>arthuriana</i>	E		E
Helicinidae	<i>Fadyenia</i>	<i>dysoniana</i>	E		E
Helicinidae	<i>Fadyenia</i>	<i>poeyana</i>	E		E
Helicinidae	<i>Helicina</i>	<i>neritella</i>	N	N	N
Helicinidae	<i>Lucidella</i>	<i>aureola</i>	N	N	N
Helicinidae	<i>Lucidella</i>	<i>depressa</i>	N		N
Helicinidae	<i>Lucidella</i>	<i>foxi</i>	N	N	E
Helicinidae	<i>Lucidella</i>	<i>lineata</i>	N	N	N
Helicinidae	<i>Proserpina</i>	<i>bidentata</i>	N	N	E
Helicinidae	<i>Wilkinsonaea</i>	<i>jardineana</i>	E		E
Annulariidae	<i>Annularia</i>	<i>pisum</i>	E		E
Annulariidae	<i>Parachondria</i>	<i>aurora</i>	E		E
Annulariidae	<i>Parachondria</i>	<i>simulans</i>		E	E
Neocyclotidae	<i>Cyclochittya</i>	<i>dentistigmata</i>	E		E
Neocyclotidae	<i>Poteria</i>	<i>campeachyi</i>		N	N
Neocyclotidae	<i>Poteria</i>	<i>corrugata</i>	N	N	E
Neocyclotidae	<i>Poteria</i>	<i>varians</i>	N		N
Truncatellidae	<i>Geomelania</i>	<i>elegans</i>	N	N	N
Truncatellidae	<i>Geomelania</i>	<i>parvula</i>	E		E
Truncatellidae	<i>Geomelania</i>	<i>pygmaea</i>	N		N
Truncatellidae	<i>Geomelania</i>	<i>striosa</i>	E		E
Ellobiidae	<i>Carychium</i>	<i>jardineanum</i>	N	N	N
Succineidae	<i>Succinea</i>	<i>latior</i>	N		N
Subulinidae	<i>Allopeas</i>	<i>micra</i>	W	W	W
Subulinidae	<i>Lamellaxis</i>	<i>pallidus</i>	W	W	W
Subulinidae	<i>Leptinaria</i>	<i>unilamellata</i>	W	W	W
Subulinidae	<i>Leptopeas</i>	<i>robertsi</i>	N		N
Subulinidae	<i>Opeas</i>	<i>hannense</i>	W		W
Subulinidae	<i>Subulina</i>	<i>octona</i>	W	W	W
Ferussaciidae	<i>Karolus</i>	<i>consobrinus</i>	W		W
Ferussaciidae	<i>Karolus</i>	<i>iota</i>	N	N	N
Pupillidae	<i>Ptychopatula</i>	<i>dioscoricola</i>	W		W
Pupillidae	<i>Ptychopatula</i>	<i>macneilli</i>	W		W
Vertiginidae	<i>Bothriopupa</i>	<i>tenuidens</i>	W		W
Vertiginidae	<i>Gastrocopta</i>	<i>servilis</i>	W		W
Vertiginidae	<i>Vertigo</i>	<i>gouldii</i>	W	W	W

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Family	Genus	Species	JCM	BM	Combined JCM and BM
Vertiginidae	<i>Vertigo</i>	<i>milium</i>	W		W
Helicodiscidae	<i>Helicodiscus</i>	<i>apex</i>	N		N
Helicodiscidae	<i>Helicodiscus</i>	<i>parallelus</i>		W	W
Spiraxidae	<i>Spiraxis</i>	<i>brevis</i>	E		E
Spiraxidae	<i>Spiraxis</i>	<i>costulosus</i>	N		N
Spiraxidae	<i>Spiraxis</i>	<i>terebella</i>	N		N
Oleacinidae	<i>Costavarix</i>	<i>tenera</i>		E	E
Oleacinidae	<i>Varicella</i>	<i>adamsiana</i>	N	N	E
Oleacinidae	<i>Varicella</i>	<i>castanea</i>	E		E
Oleacinidae	<i>Varicella</i>	<i>costulata</i>	N	N	N
Oleacinidae	<i>Varicella</i>	<i>cylindrica</i>	E		E
Oleacinidae	<i>Varicella</i>	<i>leucozonias</i>	E		E
Oleacinidae	<i>Varicella</i>	<i>levis</i>	N	N	E
Oleacinidae	<i>Varicella</i>	<i>osculans</i>	E		E
Oleacinidae	<i>Varicella</i>	<i>pellucens</i>	N		N
Oleacinidae	<i>Varicella</i>	<i>phillipsii</i>	N	N	N
Oleacinidae	<i>Varicella</i>	<i>procera</i>	N		N
Oleacinidae	<i>Varicella</i>	<i>vicina</i>	N	N	E
Urocoptidae	<i>Anoma</i>	<i>nigrescens</i>	E		E
Urocoptidae	<i>Anoma</i>	<i>sinuata</i>	N	N	E
Urocoptidae	<i>Mychostoma</i>	<i>album</i>	N	N	N
Urocoptidae	<i>Spirostemma</i>	<i>cognatum</i>	N		E
Urocoptidae	<i>Spirostemma</i>	<i>dunkeri</i>	N	N	N
Urocoptidae	<i>Spirostemma</i>	<i>inusitatum</i>	E		E
Urocoptidae	<i>Spirostemma</i>	<i>simile</i>	N		E
Urocoptidae	<i>Urocoptis</i>	<i>lata</i>	N		E
Bulimulidae	<i>Bulimulus</i>	<i>diaphanus</i>		W	W
Bulimulidae	<i>Bulimulus</i>	<i>guadalupensis</i>	W	W	W
Bulimulidae	<i>Drymaeus</i>	<i>immaculatus</i>		N	N
Sagdidae	<i>Aeretrochus</i>	<i>perdepressa</i>	N		N
Sagdidae	<i>Aeretrochus</i>	<i>subpyramidalis</i>	N	N	N
Sagdidae	<i>Corneosagda</i>	<i>immunda</i>	N		N
Sagdidae	<i>Corneosagda</i>	<i>ptychodes</i>	N		N
Sagdidae	<i>Hyalosagda</i>	<i>arboreoides</i>	N	N	N
Sagdidae	<i>Hyalosagda</i>	<i>similis</i>	N	N	E
Sagdidae	<i>Meiophysema</i>	<i>lamelliferum</i>	N	N	E
Sagdidae	<i>Microsagda</i>	<i>angustispira</i>	E		E
Sagdidae	<i>Microsagda</i>	<i>inconspicua</i>	N	N	E
Sagdidae	<i>Proserpinula</i>	<i>discoidea</i>	N	N	N
Sagdidae	<i>Proserpinula</i>	<i>infortunata</i>	N	N	N
Sagdidae	<i>Sagda</i>	<i>spei</i>	N	N	N
Sagdidae	<i>Stauroglypta</i>	<i>peraffinis</i>	N	N	N
Sagdidae	<i>Strialuna</i>	<i>diminuta</i>		N	N
Sagdidae	<i>Zaphysema</i>	<i>olivaceum</i>	E		E

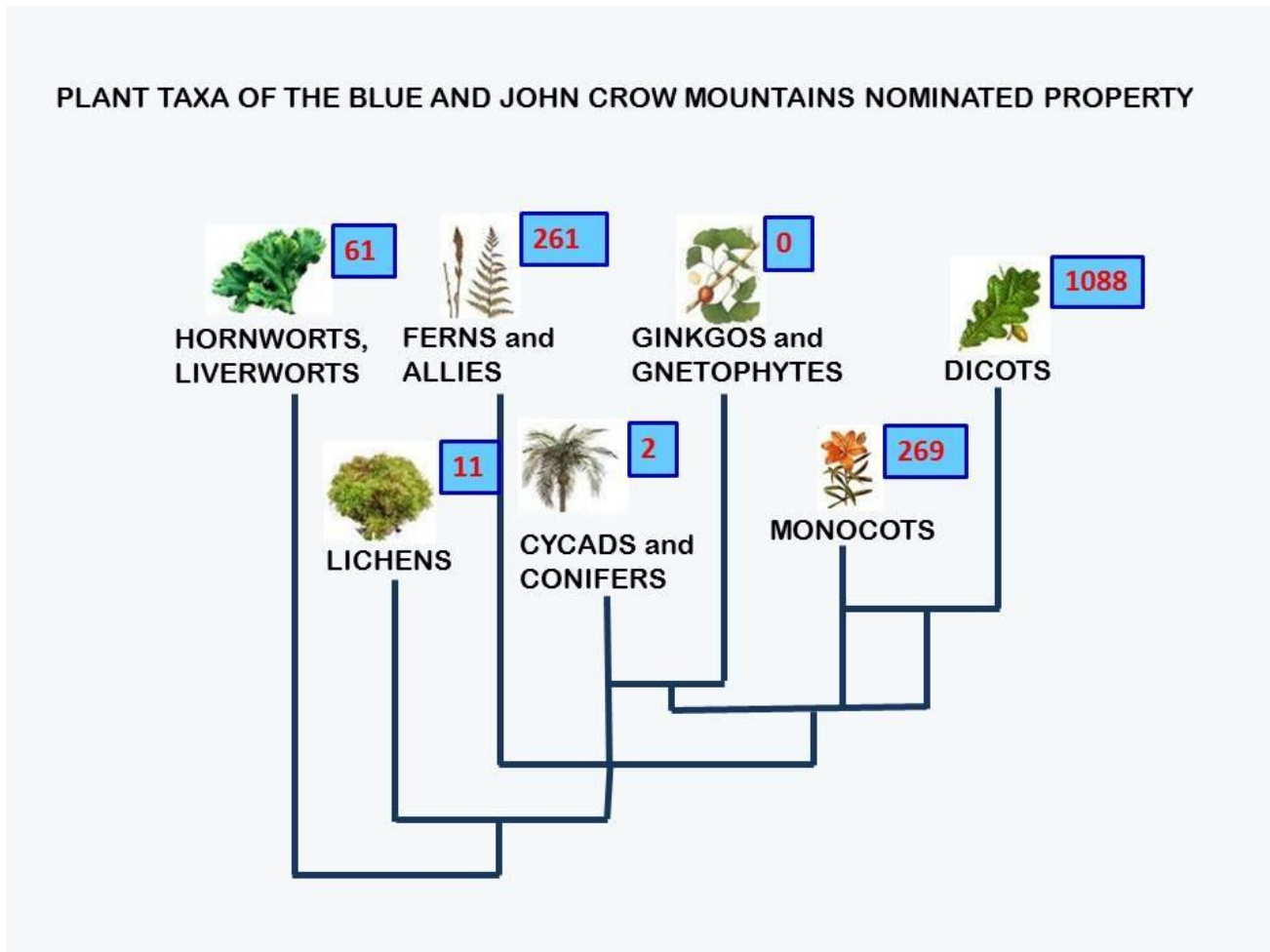


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Family	Genus	Species	JCM	BM	Combined JCM and BM
<b>Sagdidae</b>	<i>Zaphysema</i>	<i>tenerrimum</i>		N	N
<b>Pleurodontidae</b>	<i>Pleurodonte</i>	<i>chemnitziana</i>	N	N	E
<b>Pleurodontidae</b>	<i>Pleurodonte</i>	<i>ingens</i>	<b>E</b>		E
<b>Pleurodontidae</b>	<i>Pleurodonte</i>	<i>invalida</i>	N		N
<b>Pleurodontidae</b>	<i>Pleurodonte</i>	<i>lucerna</i>	N		N
<b>Pleurodontidae</b>	<i>Pleurodonte</i>	<i>mora</i>		<b>E</b>	E
<b>Pleurodontidae</b>	<i>Pleurodonte</i>	<i>sinuata</i>		N	N
<b>Pleurodontidae</b>	<i>Pleurodonte</i>	<i>candescens</i>		N	N
<b>Pleurodontidae</b>	<i>Pleurodonte</i>	<i>strangulata</i>	N	N	E
<b>Pleurodontidae</b>	<i>Pleurodonte</i>	<i>subacuta</i>		N	N
<b>Pleurodontidae</b>	<i>Pleurodonte</i>	<i>valida</i>	N	N	E
<b>Systrophiidae</b>	<i>Happiella</i>	<i>decolorata</i>	W		W
<b>Xanthonychidae</b>	<i>Dialeuca</i>	<i>conspersula</i>	N		N
<b>Xanthonychidae</b>	<i>Dialeuca</i>	<i>subconica</i>	N	N	N
<b>Euconulidae</b>	<i>Guppya</i>	<i>gundlachi</i>	W		W
<b>Agriolimacidae</b>	<i>Deroceras</i>	<i>laeve</i>	W		W
<b>Neritidae</b>	<i>Neritina</i>	<i>punctulata</i>			
<b>Summary</b>	<b>John Crow</b>	<b>Blue Mts.</b>	<b>Combined</b>		
<b>Endemic (E)</b>	23	3	44		
<b>Native (N)</b>	52	40	42		
<b>Widespread (W)</b>	16	8	18		
<b>Total</b>	91	51	104		
<b>Key</b>					
<b>John Crow Mountain (JCM)</b>					
<b>Blue Mountain (BM)</b>					
<b>Endemic (E)</b>					
<b>Native (N)</b>					
<b>Widespread (W)</b>					

**SUMMARY TABLE – FLORA**

Species	Total Endemic	Total overall	Comments
Liverworts and mosses	61	61	
Lichens	11	11	
Gymnosperms	1	2	
Angiosperms	294	1357	Detailed list in Appendix
Ferns and Allies	21	261	Detailed list in Appendix



**PLANTS – LIVERWORTS AND MOSSES**

<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>Range</b>
<b>Anastrophyllaceae</b>	<i>Anastrophyllum</i>	<i>harrisanum Stephani</i>	BM, JCM
<b>Lepidoziaceae</b>	<i>Bazzania</i>	<i>breuteliana</i> (Lindenb. & Gottsche) Trevis.	BM
<b>Lepidoziaceae</b>	<i>Bazzania</i>	<i>eggersiana</i>	JCM
<b>Lepidoziaceae</b>	<i>Bazzania</i>	<i>jamaicensis</i> (Lehm. & Lindenb.) Trevis	BM
<b>Lepidoziaceae</b>	<i>Bazzania</i>	<i>roraimensis</i>	BM
<b>Lepidoziaceae</b>	<i>Bazzania</i>	<i>stolonifera</i> (Sw.) Trevis.	BM, JCM
<b>Lepidoziaceae</b>	<i>Bazzania</i>	<i>sublonga</i>	JCM
<b>Lejeuneaceae</b>	<i>Brachiolejeunea</i>	<i>sp.</i>	JCM
<b>Lejeuneaceae</b>	<i>Bryopteris</i>	<i>filicina</i> (Sw.) Nees	BM, JCM
<b>Calypogeiaceae</b>	<i>Calypogeia</i> ( <i>Mnioloma</i> )	<i>parallelogramum</i> (Spruce) R. M. Schust.	JCM
<b>Calypogeiaceae</b>	<i>Calypogeia</i>	<i>peruviana</i> Nees	BM, JCM
<b>Cephaloziaceae</b>	<i>Cephalozia</i>	<i>caribbeania</i> Fulford	BM, JCM
<b>Lejeuneaceae</b>	<i>Ceratolejeunea</i>	<i>brevinervis</i>	BM, JCM
<b>Lejeuneaceae</b>	<i>Ceratolejeunea</i>	<i>cubensis</i> (Mont.) Schiffner	JCM
<b>Lejeuneaceae</b>	<i>Ceratolejeunea</i>	<i>maritima</i> (Spruce) Staphani	BM, JCM
<b>Lejeuneaceae</b>	<i>Ceratolejeunea</i>	<i>spinosa</i> (Gottsche, Lindenb. & Nees) Staphani	BM, JCM
<b>Lejeuneaceae</b>	<i>Cheilolejeunea</i>	<i>jamaicensis</i>	BM, JCM
<b>Geocalycaceae</b>	<i>Chiloscyphus</i> ( <i>Heteroscyphus</i> )	<i>combinatus</i> (Nees) Schiffner.	BM
<b>Pilotrichaceae</b>	<i>Crossomitrium</i>	<i>sintenisii</i> Mull. Hal.	JCM
<b>Lejeuneaceae</b>	<i>Cyclolejeunea</i>	<i>angulistipa</i> (Stephani) A. Evans	JCM, BM
<b>Lejeuneaceae</b>	<i>Cyclolejeunea</i>	<i>chitonia</i> (Taylor ex Gottsche, Lindenb. & Nees) A. Evans	JCM
<b>Lejeuneaceae</b>	<i>Cyclolejeunea</i>	<i>convexistipa</i> (Lehm. & Lindenb.) A. Evans	BM, JCM
<b>Lejeuneaceae</b>	<i>Cyclolejeunea</i>	<i>lineata</i>	JCM
<b>Lejeuneaceae</b>	<i>Dicranolejeunea</i>	<i>axillaris</i> (Nees & Mont.) Schiffner	JCM
<b>Lejeuneaceae</b>	<i>Diplasiolejeunea</i>	<i>unidentata</i> (Lehm. & Lindenb.) Stephani	JCM
<b>Marchantiaceae</b>	<i>Dumortiera</i>	<i>hissuta</i> ( <i>hirsuta</i> (Sw.) Nees)	JCM, BM
<b>Lejeuneaceae</b>	<i>Euosmolejeunea</i>	<i>clausa</i> (Nees & Mont.) A. Evans	JCM
<b>Herbertaceae</b>	<i>Herberta</i>	<i>juniperoidea</i>	BM, JCM
<b>Herbertaceae</b>	<i>Herberta</i>	<i>pensilis</i>	BM, JCM
<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>Range</b>

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<b>Neckeraceae</b>	<i>Homalia</i>	<i>glabella</i> (Hedw.) Schimp.	JCM
<b>Balantiopsaceae</b>	<i>Isotachis</i>	<i>muticeps</i> (Lindenb.) & Gottsche Gottsche	BM
<b>Jungermanniaceae</b>	<i>Jamesoniella</i>	sp.	JCM, BM
<b>Lejeuneaceae</b>	<i>Lejeunea</i>	<i>flava</i> (Sw.) Nees	JCM
<b>Lejeuneaceae</b>	<i>Lejeunea</i>	<i>glaucescens</i> Gottsche	JCM
<b>Lepidoziaceae</b>	<i>Lepidozia</i>	<i>cupressina</i> (Sw.) Lindenb.	BM,JCM
<b>Lepidoziaceae</b>	<i>Lepidozia</i>	<i>jamaicensis</i>	BM
<b>Lepidoziaceae</b>	<i>Lepidozia</i>	<i>patens</i> Lindenb.	JCM
<b>Lejeuneaceae</b>	<i>Leptolejeunea</i>	<i>falcata</i>	JCM
??	<i>Leucosarmentosum</i>	<i>portoricensum</i>	BM
<b>Lophocoleaceae</b>	<i>Lophocolea</i>	<i>martiana</i> Nees	JCM
<b>Lejeuneaceae</b>	<i>Marchesina</i>	<i>brachiata</i> (Sw.) Schiffner	BM, JCM
<b>Lejeuneaceae</b>	<i>Mastigolejeunea</i>	<i>auriculata</i> (Wilson & Hook.) Schiffner	BM
<b>Metzgeriaceae</b>	<i>Metzgeria</i>	<i>epiphylla</i> A. Evans	JCM
<b>Lepidoziaceae</b>	<i>Micropterygium</i>	<i>trachyphyllum</i> Reimers	BM,JCM
<b>Lejeuneaceae</b>	<i>Neurolejeunea</i>	<i>catenulata</i> (Nees) Schiffner	JCM
<b>Lejeuneaceae</b>	<i>Odontolejeunea</i>	<i>longispica</i> (decemdentata (Spruce) Stephani)	JCM
<b>Lejeuneaceae</b>	<i>Odontolejeunea</i>	<i>lunulata</i> (F. Weber) Schiffner	JCM
<b>Lejeuneaceae</b>	<i>Odontolejeunea</i>	<i>sieberiana</i> (Gottsche) Schiffner	JCM
<b>Cephaloziaceae</b>	<i>Odontoschisma</i>	<i>denudatum</i> (Nees) Dumort.	BM
<b>Lejeuneaceae</b>	<i>Omphalanthus</i>	<i>filiformis</i> (Sw.) Nees	BM
<b>Lejeuneaceae</b>	<i>Prionolejeunea</i>	<i>aemula</i> (Gottsche) A. Evans	JCM
<b>Lejeuneaceae</b>	<i>Pycnolejeunea</i>	<i>schwaneckei</i>	JCM
<b>Scapaniaceae</b>	<i>Scapania</i>	<i>portoricensis</i> Hampe & Gottsche	BM,JCM
<b>Lejeuneaceae</b>	<i>Symbiezidium</i>	<i>transversale</i> (Sw.) Trevis.	BM,JCM
<b>Lepidoziaceae</b>	<i>Telaranea</i>	<i>nematodes</i> (Austin) M. Howe	BM
<b>Trichocoleaceae</b>	<i>Trichocolea</i>	<i>elliottii</i> Stephani	BM
<b>Trichocoleaceae</b>	<i>Trichocolea</i>	<i>flaccida</i> (Spruce) J. B. Jack & Stephani	BM
<b>Selaginellaceae</b>	<i>Selaginella</i>	<i>confusa</i> Spring	BM
<b>Selaginellaceae</b>	<i>Selaginella</i>	<i>heterodonta</i> (Desv. ex Poir.) Hieron.	JCM
<b>Selaginellaceae</b>	<i>Selaginella</i>	<i>plana</i> (Desv. ex Poir.) Hieron.	JCM
<b>Selaginellaceae</b>	<i>Selaginella</i>	<i>wildenovii</i> (Desv. ex Poir.) Baker	JCM
<b>61</b>			<b>TOTAL</b>

PLANTS – LICHENS

Family	Genus	Species	Mountain Range
<b>Cladoniaceae</b>	<i>Cladonia</i>	<i>caribaea</i>	BM
<b>Cladoniaceae</b>	<i>Cladonia</i>	<i>ceratophylla</i>	BM
<b>Cladoniaceae</b>	<i>Cladonia</i>	<i>confusa</i>	BM
<b>Cladoniaceae</b>	<i>Cladonia</i>	<i>dactylota</i>	BM
<b>Cladoniaceae</b>	<i>Cladonia</i>	<i>didyma</i>	BM
<b>Cladoniaceae</b>	<i>Cladonia</i>	<i>ochrochlora</i>	BM
<b>Cladoniaceae</b>	<i>Cladonia</i>	<i>pyxidata</i>	BM
<b>Cladoniaceae</b>	<i>Cladonia</i>	<i>sandstedei</i>	BM
<b>Cladoniaceae</b>	<i>Cladonia</i>	<i>squamosa</i>	BM
<b>Cladoniaceae</b>	<i>Cladonia</i>	<i>vulcanice</i>	BM
<b>Cladoniaceae</b>	<i>Cladonia</i>	<i>wrightii</i>	BM
			<b>11 TOTAL</b>

PLANTS – GYNOSPERMS

GENUS	SPECIES	PLACE	STATUS
<b><i>Juniperus</i></b>	<i>luayana</i>	BM	Native
<b><i>Podocarpus</i></b>	<i>urbanii</i>	BM	Endemic
		<b>2</b>	<b>TOTAL</b>

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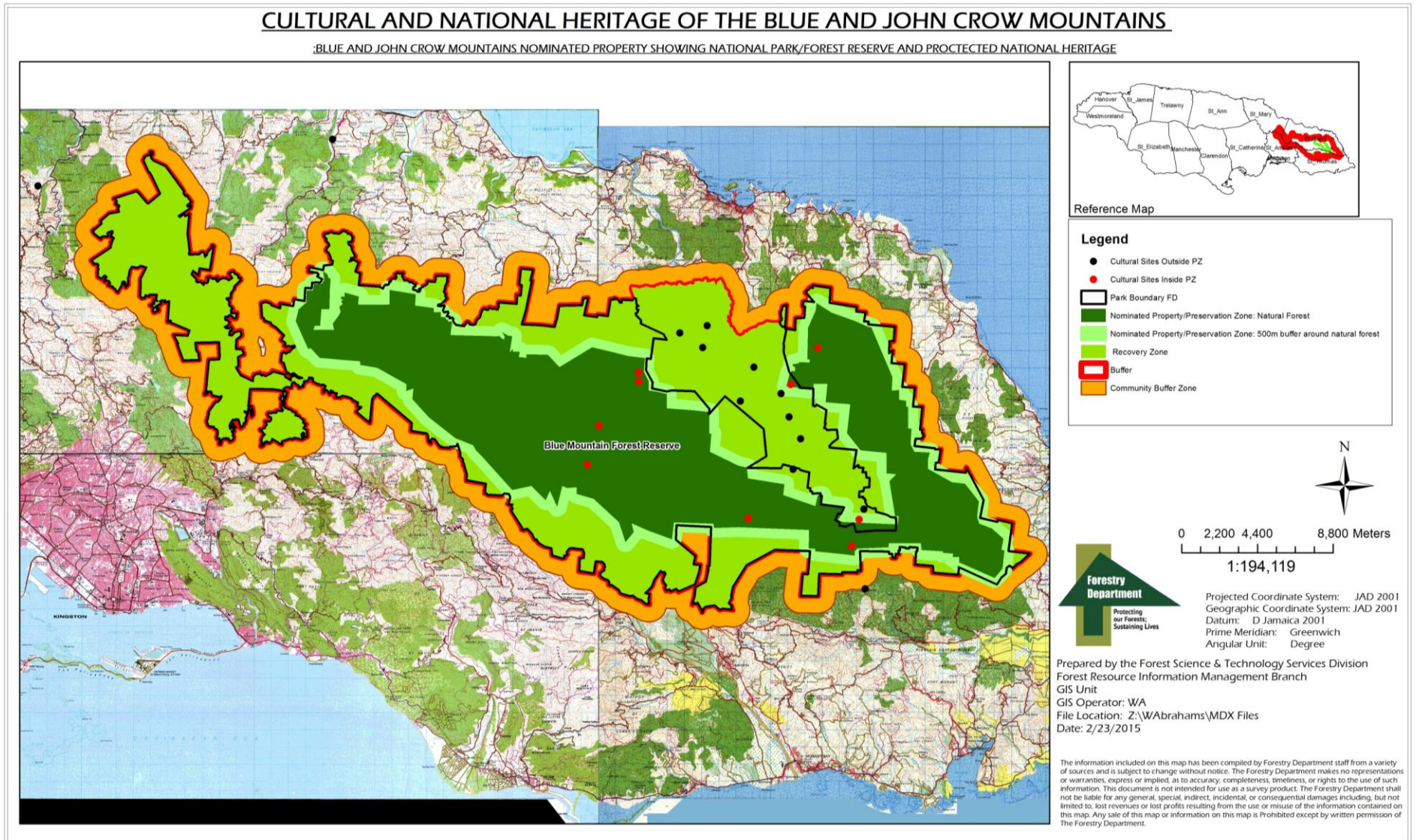
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Question 2: Map showing agreed alignment of 2016 Management Plan zonation that covers the nominated property, with the area included in the World Heritage Proposal



**Question 3:** Please would the State Party provide more in-depth information on the approach that it intends to take towards addressing the threats to the property that emanate from use in the buffer zone and the implications of those threats on the nominated property.

To answer this question, a number of points must be clarified and the map provided in response to question 2 should aid in this clarification:-

1. The nominated property is the National Park's Preservation Zone and is located at the core or centre of three protected areas: National Park, Forest Reserve and Protected National Heritage; this zone is the most strictly protected and least disturbed due to Maroon control in the 18<sup>th</sup> century, geographic challenges to access, length of time under legal protection (since 1889) and the work of the relevant management organisations.
2. The nominated property (National Park Preservation Zone) is protected by a buffer zone. The buffer zone of the nominated property is ALL under legal protection (where use is strictly controlled, and most uses are prohibited by National Park and Forest Reserve regulations) and consists of:-
  - (a) Recovery Zone of the National Park/Forest Reserve – in this area, the focus of NEPA/JCDT and the Forestry Department is on forest rehabilitation including control of invasive species.
  - (b) Protected National Heritage in the Rio Grande Valley (along with satellite areas at Charles Town, Scotts Hall and Hayfield) where the Windward Maroon communities reside.
  - (c) Sustainable Use Zone of the National Park/Forest Reserve – in the Port Royal Mountains to the west of the Blue and John Crow Mountains – several areas within this zone are leased for agro-forestry mainly Blue Mountain Coffee. This area is directly managed by the Forestry Department, whereas NEPA/JCDT focus on the Blue and John Crow Mountain ranges.
3. BOTH the nominated property and its buffer zone (located within the three protected areas mentioned above) are owned by the Government of Jamaica vested in the Commissioner of Lands. These areas are managed by the State Party through the co-management organisations – Natural Resources Conservation Authority/National Environment and Planning Agency (NRCA/NEPA) – which has delegated the Jamaica Conservation and Development Trust (JCDT), the Forestry Department (FD) and the Jamaica National Heritage Trust (JNHT).
4. There are no extant communities located within the National Park and Forest Reserve, only the archaeological remains of historic Windward Maroon sites e.g. Nanny Town and trails e.g. Cunha Cunha Pass Trail. That is, there is no-one living within the National Park/Forest Reserve i.e. within the buffer zone of the nominated property.
5. The legislation regulating use of the three protected areas is aimed at protecting biodiversity and ecosystem services and therefore the extraction of natural resources is generally prohibited. Where it overlaps with the National Park and Forest Reserve, the Protected National Heritage supports the legislation of the two former designations; within



the Maroon communities, it promotes sustainable use of resources (outside the boundaries of the National Park/Forest Reserve).

6. Maroon communities still practice hunting, but only of the wild hog – which is an introduced species and not protected under the Wild Life Act nor any of the protected area legislation. Further, hunting is a specialised skill and only a few men in each of the communities are hunters i.e. hunting is not generally or widely practiced amongst community members, but rather, most are farmers. Hunting of wild hogs takes place in areas such as the Rio Grande Valley where the Maroon communities are located.
7. The area that JCDT and the Park’s Management Plan refers to as the Community Buffer Zone is actually a 1km zone all around the Park’s boundary and is not a part of the protected areas except in the Rio Grande Valley. Instead, this “buffer zone” is the location of about 50 rural communities with a population of about 30,000 (Statistical Institute of Jamaica, 2011) targeted by Park management for outreach and educational activities.

The nominated property is therefore effectively buffered against human use by land ownership (Government of Jamaica), legislation, monitoring, enforcement, conservation, educational activities, traditional Maroon practices and the involvement of Maroon communities in sustainable livelihoods and protected area management.

The threats to the National Park, along with their root causes have been identified and the National Park’s management programmes are designed to address these (see Management Plan 2011 – 2016 – Chapter 4). These threats are not high level threats directed at the nominated property, as use of the resources e.g. felling trees, clearing land for agriculture, removing plants and materials, is generally prohibited within the National Park and Forest Reserve. The threats are located within the Community “Buffer” Zone outside these boundaries. Park management is geared at reducing and addressing the threats and preventing them from entering the National Park/Forest Reserve.

**Table 1: Management Programmes and Strategies geared at Addressing Threats**

Threats (outside the National Park)	National Park/Forest Reserve Legislation	Root Causes of Threats	Relevant National Park Programmes and Strategies
<p><b>Medium Significance Threats:</b> Encroachment of the boundary – usually for agriculture  Conversion of</p>	<p>Cutting of trees and clearing of land in the National Park or Forest Reserve is</p>	<p>Inadequate Understanding of the links between certain activities and harm to natural</p>	<p><b>Education and Public Involvement Programme</b> (i) Target: Community Adults Use of public education e.g. community meetings, posters, DVDs to raise awareness, knowledge and understanding (ii) Target: Students (future generations) Use of public education e.g. presentations and projects in local schools, poster competitions and teacher training workshops – to help teachers integrate conservation information and messages</p>

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Threats (outside the National Park)	National Park/Forest Reserve Legislation	Root Causes of Threats	Relevant National Park Programmes and Strategies
forest to agriculture  Invasive species (exacerbated by clearing of land for agriculture and later abandonment)  Fires (often set to clear land for agriculture)  <b>Low Significance Threats:</b> Illegal logging  Non-timber products harvesting  Hunting  Informal Settlements	prohibited.  Introducing plants is prohibited  Setting fire within 1km of the Forest Reserve is prohibited.	resources  Limited Environmentally Sustainable Income-Generating Activities	into the school curriculum (iii) Target: Visitors to Holywell Use of interpretation – whether for educational or recreational tours; Visitors’ Centre; Interpretive Signs in the picnic areas  <b>Education and Public Involvement Programme</b> Build capacity of local community members for sustainable livelihoods and conservation e.g. skills training sessions and projects particularly in the following areas:- <ul style="list-style-type: none"> <li>• Agriculture e.g. agro-forestry, organic farming and other sustainable agricultural practices e.g. 2015 – GIZ will fund climate smart agricultural training in 3 communities</li> <li>• Sustainable Tourism</li> </ul> Facilitate community sustainable livelihood project and ventures to help communities generate income in a more sustainable manner e.g. JCDT assisted the Bowden Pen Farmers Association with the establishment of their eco-resort – Ambassabeth and the re-instatement of the Cunha Cunha Pass Trail. They are able to link agriculture to tourism by providing the food for the eco-resort.
	Logging, non-timber products harvesting and hunting within the National Park and Forest Reserve is prohibited.	Inadequate Enforcement	<b>Enforcement and Compliance Programme</b> Joint patrols and joint efforts in addressing and resolving breaches of legislation Interpretive Enforcement – explaining issues to community members
	Logging, non-timber products harvesting and hunting within the National Park and Forest Reserve is prohibited.	Unclear Boundaries (on the ground)	<b>Enforcement &amp; Compliance and Education Programmes</b> Signage – more joint agency small signs are to be placed along boundaries and community members involved in marking the boundary
		Insufficient “Conservation on the Ground”	<b>Conservation Programme</b> Since 2005, the National Park has strengthened and increased its focus on conservation with the introduction of native species nurseries and invasive species control.
	Inadequate Resources and Management	<b>Governance &amp; Administration Programme</b> – promoting greater collaboration and coordination between existing partner organisations and seeking additional funding and partnerships  <b>Recreation &amp; Tourism Programme</b> – generating	

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Threats (outside the National Park)	National Park/Forest Reserve Legislation	Root Causes of Threats	Relevant National Park Programmes and Strategies
			income and support for the National Park <b>Monitoring &amp; Evaluation Programme</b> – evaluating management effectiveness
		Conflicting Policies and Insufficient Support of Conservation Initiatives	<b>Governance &amp; Administration Programme</b> – promoting collaboration and coordination; participating in development of new policies and strategies
		Climate Change	<b>Conservation Programme</b> – strengthening the resilience of forest ecosystems through protection and rehabilitation <b>Education &amp; Public Involvement Programme</b> – raising awareness, knowledge and understanding and the skills to address and adapt to likely impacts <b>Monitoring &amp; Evaluation Programme</b> – gathering data and observations over years across the Park

Patrols by uniformed enforcement officers to deter against illegal and harmful activities are a key approach to addressing threats to the integrity of the site’s natural heritage. These officers record their observations, including photographs and GPS coordinates and this information is used to enforce legislation through prosecution or other action taken by the legal officers of the relevant government agencies. An interpretive approach to enforcement is also taken as well as building relationships with local community members in order to promote compliance with legislation and help ensure reporting of breaches and provision of relevant information to aid in addressing threats.

Some areas outside the National Park/Forest Reserve boundary particularly on the southern slopes of the Blue Mountains are deforested with land cover being primarily Wynne Grass and other invasive species. These lands have been in this condition for at least fifty years either because of (i) loss of Caribbean Pine forests to hurricanes in the 1980s and (ii) the land was inappropriate for agriculture and further the poor agricultural practices eventually led to the abandonment of these lands due to soil erosion and loss of nutrient content. The steep nature of the slopes and the poor soils has resulted in a fire climax of grasses which prevent the re-growth of forest. The only way to address this is through reforestation but the steep slopes and the fact that much of this land is privately owned make this a difficult challenge to address. However, these areas are not considered a threat to the nominated property which is buffered by its location at the centre of the National Park. In addition, in 2013 – 14, JCDDT partnered with a private land owner to reforest 10ha immediately adjacent the National Park near to the Peak

Trail. In 2015 – 16, JCDT will work with the same private land owner to reforest an additional 15 ha. Further, the Forestry Department has recently (2012 – 2014) reforested 350ha on the southern slopes of the Blue Mountains in the degraded Yallahs Watershed and will be reforesting additional acreage under the Inter-American Development Bank funded Yallahs-Hope Project expected to begin in 2015.

It should also be noted that, private land owners require a permit to clear land over 10ha for agricultural purposes and over 3ha if the land is over 25° slope (Natural Resources Conservation (Permits and Licences) Regulations, 1996).

### **Coffee**

Coffee continues to decline in production although it cycles with the market. It is generally the same lands which are in use – abandoned when the prices go down and re-established/rehabilitated when the prices go up. Further, Blue Mountain Coffee is grown mainly outside the National Park except for western Port Royal Mountains – where it existed on leased lands prior to the designation of the National Park. This area is not expected to increase. Further, with the dissemination of research proving the economic importance of birds to reducing coffee pests but the need for natural forest trees to attract these birds, there is an increase in interest of coffee farmers in planting more of these trees.

### **Mining**

Over the decades since the designation of the Park and before, no mining or quarry license has been granted for the Blue and John Crow Mountains, however, the Ministry of Science, Technology, Energy and Mining has issued five prospecting licenses in the area. None of these prospecting areas are located within the nominated property, but they are contiguous with the buffer zone. The Ministry of Science, Technology, Energy and Mining is cognizant of the issue and is committed to working with the Blue and John Crow Mountain Co-management team to alleviate this infringement.

#### *Current Legal Framework and Legislations*

The Blue and John Crow Mountain is protected under the Forest Act (1996) and Forest Regulations (2001), the Natural Resources Conservation Authority Act (1991) and the National Parks Regulations (1993) as well as the Jamaica National Heritage Trust Act (1985). Through these pieces of legislation, mining is prohibited and any mining in this protected area would require permits. Currently the investigations through the prospecting licences require that ecologically sensitive and archeologically important sites should be avoided. Further, the National Minerals Policy states that mining would not be allowed within IUCN Category I and II Protected Areas. The current policy (Government of Jamaica, 1997) on the National System of Protected Areas, section 8.6.6 states:

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Mining and other developments which permanently alter the environment may be permitted but will require special permits or licences. Where it is in the national interest to consider this use, an EIA and identification of appropriate mitigation measures will be required. These developments will require approval by the NRCA.

The National Parks Regulations, Section 15 and Forest Regulations 37(c) prohibits mining except with the written permission of the Authority (NRCA) or the Conservator of Forests.

The National Minerals Policy 2010 – 2030 (Ministry of Energy & Mining, 2011) states that mineral exploitation in areas protected under different pieces of legislation and equivalent to the World Conservation Union's (IUCN) categories I and II, as outlined in the Policy for the National System of Protected Areas, will not be undertaken, unless mandated by Cabinet.

Specific actions to be taken over the next three (3) years are described in the attached Blue and John Crow Mountains Protected Areas Workplan. It should be noted that the site's Management Plan is to be reviewed and updated between 2015 and 2016, with the assistance of the GIZ through their regional Caribbean Aqua-Terrestrial Solutions Project and so this will likely help to refine and improve the work-plan for 2017.

Attached are statements from the Ministry of Science, Technology, Energy Mining and the National Environment and Planning Agency (Appendices 8 - 9).

**Question 4:** Please would the State Party indicate the commitment it is able to make to providing improved financial resource allocation in support of the work of the JCDT in relation to the future management of the property, if it was agreed to be inscribed on the World Heritage List, and confirmation that the level of finance is regarded as sufficient to meet the management needs of the nominated property and its buffer zone.

Attached are the statements of financial commitment to the management of the BJCM from the Ministry of Youth and Culture, National Environment and Planning Agency, Ministry of Tourism and Entertainment and the Forest Conservation Fund (Appendices 3-7).

Currently, the JCDT receives support for management of the nominated property and its buffer zone (Blue and John Crow Mountains National Park) from the Natural Resources Conservation Authority (NRCA) through the National Environment and Planning Agency (NEPA). This amounts to about 40% of recurrent, operational expenditure e.g. for the existing Ranger Corps and their work not only in Enforcement & Compliance but also Conservation, Monitoring & Evaluation and the other Park management programmes. The remaining recurrent expenditure is sourced from the Jamaica National Parks Trust Fund, Forest Conservation Fund, fundraising by the JCDT and revenue from the National Park's Recreational Areas. In addition, the Ministry of Water, Land, Environment and Climate Change through the Forestry Department provides financial and technical support under its Eastern Zone Forest Reserve management activities – in particular, enforcement.

These sources are expected to continue into the future. The State Party has prepared a 3 year budget for improved financial resource allocation in support of the work of the JCDT in relation to the future management. The plan is that these funds will be sourced from:-

- (i) regular budgetary funding from the Ministry of Finance and Planning through the Ministry of Youth and Culture and its agencies (Jamaica National Heritage Trust (JNHT), Institute of Jamaica – Natural History Museum (NHMJ) and African Caribbean Institute (ACIJ). These funds would be for amongst other line items: additional Park Rangers, research and documentation of cultural heritage and flora and fauna inventories;
- (ii) project funding from the Ministry of Tourism and Entertainment through its Tourism Enhancement Fund (TEF) - particularly for
  - critical infrastructural improvements – Peak Trail/Portland Gap and Holywell – which would allow for increased income-generating opportunities at the Park's Recreation Areas and increased trail access control.
  - support for at least 3 – 6 years of critical operational expenditure particularly
    - (a) the Tourism Marketing & Coordination Officer – to allow JCDT to successfully implement the Blue Mountains Sustainable Tourism Programme which would help to generate more income not only for the Park but for the local communities with an emphasis on the Maroon communities first and
    - (b) the Cultural Heritage Officer – who is required for the WHS and to liaise with the Tourism Officer.

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In addition,

- (iii) The Ministry of Water, Land, Environment and Climate Change through its agency, NEPA is processing an application on behalf of the JCDT to change the legislation to increase the existing user fees at the National Park's recreation areas. Revenue would be doubled or even tripled (without increasing visitation) by changing the existing legislation to allow the higher fees which visitors indicate they are willing to pay.
- (iv) Support from the Jamaica Social Investment Fund (JSIF) is expected to support major refurbishing of Portland Gap accommodations (allowing the Park to charge more for the facilities);

Further,

- (v) JCDT has sourced funding which will make improvements at Holywell (the National Park's main recreation area) during 2015, which will help to justify increased entry/user fees and allow for an increase in cabin rental fees:-
  - Forest Conservation Fund – JA\$12,933,000 (US\$113,447) including JA\$2,635,000 improvements at Holywell and Peak Trail, JA\$1,000,000 for Marketing, JA\$785,000 for training e.g. First Aid/CPR for Rangers & Recreation Area staff and Teacher Training for local community teachers.
  - US Department of Interior (National Parks Service) – workshop which will provide guidance for preparation and upgrading of an Environmental Management System including Climate Change Mitigation/Adaption Plan and Disaster Preparedness, Risk and Emergency Management Plan for the National Park
  - US Department of Interior (National Parks Service) –improved Interpretation vis a vis Climate Change in the Visitors Centre and Picnic Area at Holywell
  - UNDP/GEF NEPA National Protected Areas System Strengthening Project – Merchandise/Souvenirs, Marketing of a new tour, improvements on trails and activities for children at Holywell.

These additional resources, particularly those from the Government of Jamaica through the Ministry of Finance, Ministry of Youth & Culture and the Ministry of Tourism (Tourism Enhancement Fund) will provide sufficient additional funds for effective management of the nominated property and buffer zone. Further, with the focus on strengthening income generating capacity and building local community capacity for their participation in management, sustainability will be ensured.

## **Appendices**





**APPENDIX 1: SPECIES LISTS – FAUNA**

**BIRDS**

	<b>Common Name</b>	<b>Scientific Name</b>	<b>IUCN Status (Red List)</b>
<b>Endemic</b>			
<b>1</b>	Crested Quail Dove	<i>Geotrygon versicolor</i>	Least concern (Population decreasing)
<b>2</b>	Ring-tailed Pigeon	<i>Patagioenas caribaea</i>	Not assessed
<b>3</b>	Chestnut-bellied Cuckoo	<i>Hyetornis pluvialis</i>	Least concern (Population is stable)
<b>4</b>	Jamaican Lizard Cuckoo		
<b>5</b>	Yellow –billed Parrot	<i>Amazona collaria</i>	Vulnerable (Population decreasing)
<b>6</b>	Black-billed Parrot	<i>Amazona agilis</i>	
<b>7</b>	Olive-throated Parakeet	<i>Aratinga nana nana</i>	Least concern (Population decreasing)
<b>8</b>	Red-billed Streamertail	<i>Trochilus polytmus</i>	Least concern (Population trend unknown)
<b>9</b>	Black-billed Streamertail	<i>Trochilus scitulus</i>	Least concern (Population trend unknown)
<b>10</b>	Jamaican Mango Hummingbird	<i>Anthracothorax mango</i>	Least concern (Population trend unknown)
<b>11</b>	Jamaican Woodpecker	<i>Melanerpes radiolatus</i>	Least concern (Population decreasing)
<b>12</b>	Jamaican Becard	<i>Pachyramphus niger</i>	Least concern (Population is stable)
<b>13</b>	Jamaican Owl	<i>Pseudoscops grammicus</i>	Least concern (Population decreasing)
<b>14</b>	Jamaican Crow	<i>Corvus jamaicensis</i>	Least concern (Population increasing)
<b>15</b>	Jamaican Tody	<i>Todus todus</i>	Least concern (Population decreasing)
<b>16</b>	Jamaican Vireo	<i>Vireo modestus</i>	Least concern (Population trend unknown)
<b>17</b>	Blue Mountain Vireo	<i>Vireo osburni</i>	Near threatened
<b>18</b>	Arrow-headed Warbler	<i>Dendroica pharetra</i>	Least concern
<b>19</b>	White-eyed Thrush	<i>Turdus jamaicensis</i>	Least concern
<b>20</b>	White –chinned Thrush	<i>Turdus aurantius</i>	Least concern
<b>21</b>	Jamaican Spindalis/ Stripe-headed Tanager	<i>Spindalis nigricephala</i>	Least concern
<b>22</b>	Jamaican Euphonia	<i>Euphonia jamaica</i>	Least concern
<b>23</b>	Yellow-shouldered Grassquit	<i>Loxipasser anoxanthus</i>	Least concern
<b>24</b>	Orangequit	<i>Euneornis campestris</i>	Least concern
<b>25</b>	Rufous-tailed Flycatcher	<i>Myiarchus validus</i>	Least concern (Population decreasing)
<b>26</b>	Sad Flycatcher	<i>Myiarchus barbirostris</i>	Least concern (Population decreasing)
<b>27</b>	Jamaican Pewee	<i>Contopus pallidus</i>	Least concern
<b>28</b>	Jamaican Elaenia	<i>Myiopagis cotta</i>	Not assessed

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	<b>Common Name</b>	<b>Scientific Name</b>	<b>IUCN Status (Red List)</b>
<b>29</b>	Jamaican Blackbird	<i>Nesopsar nigerrimus</i>	Endangered
<b>30</b>	Jamaican Petrel	<i>Pterodroma caribaea</i>	Possibly Extinct
<b>31</b>	Jamaican Pauraque	<i>Siphonorhis americana</i>	Likely Extinct
<b>Migrants (based on the USA Neo-tropical Migratory Birds Conservation Act List, Levy and Mundle, 2008; JCDT, 2009; Kellerman et. al., 2008; Johnson, 2000). Almost 100 migratory species from the North have been recorded in Jamaica and most are dependent on natural forests, therefore the following list is likely incomplete.</b>			
<b>1</b>	Osprey	<i>Pandion haliaetus</i>	
<b>2</b>	Merlin	<i>Falco columbarius</i>	
<b>3</b>	Yellow bellied Sapsucker	<i>Sphyrapicus varius</i>	
<b>4</b>	Eastern Wood Pewee	<i>Contopus virens</i>	
<b>5</b>	Yellow throated Vireo	<i>Vireo flavifrons</i>	
<b>6</b>	Philadelphia Vireo	<i>Vireo philadelphicus</i>	
<b>7</b>	Red-eyed Vireo	<i>Vireo olivaceus</i>	
<b>8</b>	Black-whiskered Vireo	<i>Vireo altiloquus</i>	
<b>9</b>	Tree Swallow	<i>Tachycineta bicolor</i>	
<b>10</b>	Veery	<i>Catharus fuscescens</i>	
<b>11</b>	Gray-cheeked Thrush	<i>Catharus minimus</i>	
<b>12</b>	Bicknell's Thrush	<i>Catharus bicknelli</i>	Neotropical Migratory Bird Conservation Act (NMBCA) Bird of Concern ; IUCN Red List 2008 (Vulnerable)
<b>13</b>	Swainson's Thrush	<i>Catharus ustulatus</i>	
<b>14</b>	Gray Catbird	<i>Dumetella carolinensis</i>	
<b>15</b>	Cedar Waxwing	<i>Bombycilla cedrorum</i>	
<b>16</b>	Blue winged Warbler	<i>Vermivora pinus</i>	NMBCA Bird of Concern
<b>17</b>	Tennessee Warbler	<i>Vermivora peregrina</i>	
<b>18</b>	Nashville Warbler	<i>Vermivora ruficapilla</i>	
<b>19</b>	Northern Parula	<i>Parula americana</i>	
<b>20</b>	Chestnut sided Warbler	<i>Dendroica pensylvanica</i>	
<b>21</b>	Cape May Warbler	<i>Dendroica tigrina</i>	
<b>22</b>	Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	
<b>23</b>	Yellow rumped Warbler	<i>Dendroica coronata</i>	
<b>24</b>	Black throated Gray Warbler	<i>Dendroica nigrescens</i>	
<b>25</b>	Blackburnian Warbler	<i>Dendroica fusca</i>	
<b>26</b>	Yellow-throated Warbler	<i>Dendroica dominica</i>	
<b>27</b>	Prairie Warbler	<i>Dendroica discolor</i>	NMBCA Bird of Concern
<b>28</b>	Palm Warbler	<i>Dendroica palmarum</i>	
<b>29</b>	Bay-breasted Warbler	<i>Dendroica castanea</i>	NMBCA Bird of Concern
<b>30</b>	Blackpoll Warbler	<i>Dendroica striata</i>	

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	<b>Common Name</b>	<b>Scientific Name</b>	<b>IUCN Status (Red List)</b>
<b>31</b>	Cerulean Warbler	<i>Dendroica cerulea</i>	NMBCA Bird of Concern; IUCN Red List 2008 (Vulnerable)
<b>32</b>	Black-and-white Warbler	<i>Mniotilta varia</i>	
<b>33</b>	American Redstart	<i>Setophaga ruticilla</i>	
<b>34</b>	Prothonotary Warbler	<i>Protonotaria citrea</i>	NMBCA Bird of Concern
<b>35</b>	Worm-eating Warbler	<i>Helmitheros vermivorum</i>	NMBCA Bird of Concern
<b>36</b>	Swainson's Warbler	<i>Limnothlypis swainsonii</i>	NMBCA Bird of Concern
<b>37</b>	Ovenbird	<i>Seiurus aurocapilla</i>	
<b>38</b>	Louisiana Waterthrush	<i>Seiurus motacilla</i>	
<b>39</b>	Common Yellowthroat	<i>Geothlypis trichas</i>	
<b>40</b>	Hooded Warbler	<i>Wilsonia citrina</i>	
<b>41</b>	Summer Tanager	<i>Piranga rubra</i>	
<b>42</b>	Lincoln's Sparrow	<i>Melospiza lincolni</i>	
<b>43</b>	Rose breasted Grosbeak	<i>Pheucticus ludovicianus</i>	
<b>Residents/Natives (list incomplete – collated from Park Bird Monitoring &amp; Hodges (ed) 2008</b>			
<b>1</b>	Rufous-throated Solitaire	<i>Myadestes genibarbis</i>	Least concern(Population decreasing)
<b>2</b>	Turkey Vulture	<i>Cathartes aura</i>	Least concern (Population is stable)
<b>3</b>	Red -tailed Hawk	<i>Buteo jamaicensis</i>	Least concern (Population increasing)
<b>4</b>	American Kestrel	<i>Falco sparverius</i>	Least concern (Population is stable)
<b>5</b>	Merlin	<i>Falco columbarius</i>	Least concern (Population is stable)
<b>6</b>	White-crowned Pigeon	<i>Patagioenas leucocephala</i>	Near threatened (Population decreasing)
<b>7</b>	White -winged Dove	<i>Zenaida asiatica</i>	Least concern (Population increasing)
<b>8</b>	Common Ground Dove	<i>Columbina passerina</i>	Least concern( Population decreasing)
<b>9</b>	Zenaida Dove	<i>Zenaida aurita</i>	Least concern (Population increasing)
<b>10</b>	Smooth-billed Ani	<i>Crotophaga ani</i>	Least concern(Population decreasing)
<b>11</b>	Antillean Palm Swift	<i>Tachornis phoenicobia</i>	Least concern (Population is stable)
<b>12</b>	Common Barn Owl	<i>Tyto alba</i>	Least concern (Population is stable)
<b>13</b>	Vervain Hummingbird	<i>Mellisuga minima</i>	Least concern (Population is stable)
<b>14</b>	Loggerhead Kingbird	<i>Tyrannous caudifasciatus</i>	Has not been assessed
<b>15</b>	Cave Swallow	<i>Petrochelidon fulva</i>	Least concern (Population increasing)
<b>16</b>	Northern Mockingbird	<i>Mimus polyglottos</i>	Least concern (Population is stable)
<b>17</b>	Cattle Egret	<i>Bubulcus ibis</i>	Least concern (Population increasing)

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	<b>Common Name</b>	<b>Scientific Name</b>	<b>IUCN Status (Red List)</b>
<b>18</b>	Bananaquit	<i>Coereba flaveola</i>	Least concern (Population is stable)
<b>19</b>	Black-faced Grassquit	<i>Tiaris bicolor</i>	Least concern (Population increasing)
<b>20</b>	Greater Antillean Bullfinch	<i>Loxigilla violacea</i>	Least concern (Population is stable)
<b>21</b>	Jamaican Oriole	<i>Icterus leucopteryx</i>	Least concern (Population is stable)
<b>22</b>	Greater Antillean Grackle	<i>Quiscalus niger</i>	Least concern (Population is stable)
<b>23</b>	Golden Swallow	<i>Tachycineta euchrysea</i>	Vulnerable (Population is decreasing)
<b>24</b>	Stolid Flycatcher	<i>Myiarchus stolidus</i>	Least concern (Population is decreasing)
<b>25</b>	Greater Antillean Elaenia	<i>Elaenia falax</i>	Has not been assessed
<b>26</b>	Green-rumped Parrotlet	<i>Forpus passerinus</i>	Least concern (Population is decreasing)

INSECTS

ORDER	SPECIES
Coleoptera	<i>Chalepus sanguinicolis</i>
Coleoptera	<i>Chrysomelidae</i>
Coleoptera	<i>Clinidium darlingtoni</i>
Coleoptera	<i>Clinidium jamaicensis</i>
Coleoptera	<i>Clinidium spp.</i>
Coleoptera	<i>Colpodes latelytra</i>
Coleoptera	<i>Colpodes rastafarius</i>
Coleoptera	<i>Cycloneda sanguinea</i>
Coleoptera	<i>Deloyala guttata</i>
Coleoptera	<i>Drepanocerus reconditus</i>
Coleoptera	<i>Lema sharpi</i>
Coleoptera	<i>Lema sp.</i>
Coleoptera	<i>Monarthrum britloni</i>
Coleoptera	<i>Neodryoroetes montanus</i>
Coleoptera	<i>Pachnaeus citri</i>
Coleoptera	<i>Phoenicoprocta jamaicensis</i>
Coleoptera	<i>Photinus elisabethae</i>
Coleoptera	<i>Tachys sp.</i>
Coleoptera	<i>Tricolus ignotus</i>
Coleoptera	<i>Xyleborus beckeri</i>
Coleoptera	<i>Xyleborus simulatus</i>
Dermatoptera	<i>Chaetospania ?</i>
Dermatoptera	<i>Euborellia ?</i>
Dictyoptera	<i>Gonotista grisea</i>
Diptera	<i>Achradocera sp.</i>
Diptera	<i>Agromyzidae</i>
Diptera	<i>Allograpta obliqua</i>
Diptera	<i>Allograpta radiata</i>
Diptera	<i>Allograpta sp.</i>
Diptera	<i>Anastrepha obliqua</i>
Diptera	<i>Blepharoneura poecilosoma</i>
Diptera	<i>Cephalosphoera sp.</i>
Diptera	<i>Cheilotrichia nymphica</i>
Diptera	<i>Chrysopilus sp.</i>
Diptera	<i>Condylostylus sp.</i>
Diptera	<i>Copestylum sp.</i>
Diptera	<i>Culex secutor</i>
Diptera	<i>Cyphomyia sp.</i>
Diptera	<i>Diaphorus spp.</i>
Diptera	<i>Dorilas sp.</i>
Diptera	<i>Drapetis sp.</i>
Diptera	<i>Drosophila sp.</i>
Diptera	<i>Drosophila leucophenoa</i>
Diptera	<i>Dyseuraresta sp.</i>

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Diptera	<i>Efferia</i> sp.
Diptera	<i>Ephydriidae</i>
Diptera	<i>Erioptera portoricensis</i>
Diptera	<i>Eristalis tenax</i>
Diptera	<i>Euxesta alternaris</i>
Diptera	<i>Gonomyia peracuta</i>
Diptera	<i>Helioides creper</i>
Diptera	<i>Hemerodromia</i> sp.
Diptera	<i>Hermetia illucens</i>
Diptera	<i>Hexachaeta eximia</i>
Diptera	<i>Hexatoma farriana</i>
Diptera	<i>Hybos</i> sp.
Diptera	<i>Lamprempis</i> sp.
Diptera	<i>Lauxania</i> sp.
Diptera	<i>Leptogaster bengryi</i>
Diptera	<i>Leptogaster martini</i>
Diptera	<i>Leucopodella gracillis</i>
Diptera	<i>Limonia aruscantha</i>
Diptera	<i>Limonia basistylata</i>
Diptera	<i>Limonia cinereinota</i>
Diptera	<i>Limonia civica</i>
Diptera	<i>Limonia coheri</i>
Diptera	<i>Limonia distans</i>
Diptera	<i>Limonia diva</i>
Diptera	<i>Limonia divisa</i>
Diptera	<i>Limonia fibialis</i>
Diptera	<i>Limonia gowdeyi</i>
Diptera	<i>Limonia intermedia</i>
Diptera	<i>Limonia jamaicensis</i>
Diptera	<i>Limonia luquilloensis</i>
Diptera	<i>Limonia myersiana</i>
Diptera	<i>Limonia schwarzi</i>
Diptera	<i>Limonia subcostalis</i>
Diptera	<i>Meromacrus pinguis</i>
Diptera	<i>Merosargus</i> sp.
Diptera	<i>Microdon violens</i>
Diptera	<i>Neogriphoneura</i> sp.
Diptera	<i>Nephrotoma circumscripta</i>
Diptera	<i>Neplas pachymera</i>
Diptera	<i>Neplas pretiosa</i>
Diptera	<i>Nothomyia</i> sp.
Diptera	<i>Ocyptamus funebris</i>
Diptera	<i>Ocyptamus lineatus</i>
Diptera	<i>Ocyptamus oerione</i>
Diptera	<i>Ocyptamus sagittens</i>
Diptera	<i>Ommatius oreophilus</i>

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Diptera	<i>Ommatius saccas</i>
Diptera	<i>Orimarga farriana</i>
Diptera	<i>Orimarga flavicosta</i>
Diptera	<i>Orimarga perpallens</i>
Diptera	<i>Ornidia obesa</i>
Diptera	<i>Palpada albifrons</i>
Diptera	<i>Palpada vinetorum</i>
Diptera	<i>Paralimna sera</i>
Diptera	<i>Paroxyna sp.</i>
Diptera	<i>Philia spiniper</i>
Diptera	<i>Physogenua vittara</i>
Diptera	<i>Platypalpus sp.</i>
Diptera	<i>Psilocephala sp.</i>
Diptera	<i>Psilonyx arawak</i>
Diptera	<i>Pteroptila cincta</i>
Diptera	<i>Rhamphomyia sp.</i>
Diptera	<i>Rhysops praeustus</i>
Diptera	<i>Sapromyza sp.</i>
Diptera	<i>Schildia jamaicensis</i>
Diptera	<i>Sciapus sp.</i>
Diptera	<i>Shannomyia crassicornis</i>
Diptera	<i>Shannomyia myersiana</i>
Diptera	<i>Shannomyia nudipennis</i>
Diptera	<i>Sterphus jamaicensis</i>
Diptera	<i>Syneches jamaicensis</i>
Diptera	<i>Syneches macrochaotosus</i>
Diptera	<i>Syneches pallidus</i>
Diptera	<i>Syneches sp.</i>
Diptera	<i>Syrphus vockerothi</i>
Diptera	<i>Tabanus bimini</i>
Diptera	<i>Tabanus lewisi</i>
Diptera	<i>Tabanus obumbratus</i>
Diptera	<i>Tabanus townsendi</i>
Diptera	<i>Tachytrechus sp.</i>
Diptera	<i>Taeniaptera lasciva</i>
Diptera	<i>Taeniaptera sp.</i>
Diptera	<i>Teucholabis nebulipennis</i>
Diptera	<i>Teucholabis taino</i>
Diptera	<i>Thrypticus sp.</i>
Diptera	<i>Toxomerus arcifer</i>
Diptera	<i>Toxomerus dispar</i>
Diptera	<i>Toxomerus floralis</i>
Diptera	<i>Toxomerus maculatus</i>
Diptera	<i>Toxomerus pictus</i>
Diptera	<i>Toxomerus politus</i>
Diptera	<i>Toxomerus pulchellus</i>

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Diptera	<i>Toxomerus violaceus</i>
Diptera	<i>Toxomerus watsoni</i>
Diptera	<i>Toxorhina jamaicensis</i>
Diptera	<i>Trentepohlia niveitarsis</i>
Diptera	<i>Trigonometopus sp.</i>
Diptera	<i>Xanthaciura insecta</i>
Diptera	<i>Xanthaciura sp.</i>
Diptera	<i>Xanthandrus setifemoratus</i>
Hemiptera	<i>Plecia persinules</i>
Hemiptera	<i>Plecia rufithorax</i>
Hemiptera	<i>Podisus sagitta</i>
Hemiptera	<i>Probaryconus ?</i>
Hemiptera	<i>Pseudomethoca cargilli</i>
Hemiptera	<i>Zelus longipes</i>
Homoptera	<i>Lecanium nrimpar</i>
Hymenoptera	<i>Agapostemon cockerell</i>
Hymenoptera	<i>Agapostemon jamaicensis</i>
Hymenoptera	<i>Anochetus mayeri</i>
Hymenoptera	<i>Anomalagroin hastatum</i>
Hymenoptera	<i>Braconidae</i>
Hymenoptera	<i>Calliephialtes ferrugineus</i>
Hymenoptera	<i>Campoletis sp.</i>
Hymenoptera	<i>Campontus subdepilis</i>
Hymenoptera	<i>Campsomeris atrata</i>
Hymenoptera	<i>Carinodes sp.</i>
Hymenoptera	<i>Casinoria infesta</i>
Hymenoptera	<i>Centris dirrhoda</i>
Hymenoptera	<i>Centruroides farri (Armas, 1999)</i>
Hymenoptera	<i>Centruroides margaritatus (Gervais, 1841)</i>
Hymenoptera	<i>Ceratina sp.</i>
Hymenoptera	<i>Chalcidoma lanata</i>
Hymenoptera	<i>Coccygomimus marginellus</i>
Hymenoptera	<i>Coccygomimus nigroaeneus</i>
Hymenoptera	<i>Colletidae</i>
Hymenoptera	<i>Diapriidae</i>
Hymenoptera	<i>Dusona</i>
Hymenoptera	<i>Ectemnius craesus</i>
Hymenoptera	<i>Enicospilus</i>
Hymenoptera	<i>Euglossa jamaicensis</i>
Hymenoptera	<i>Euphilis sp.</i>
Hymenoptera	<i>Evania appendigaster=(laevigata?)</i>
Hymenoptera	<i>Evaniidae</i>
Hymenoptera	<i>Lasioglossum</i>
Hymenoptera	<i>Liris sp.</i>
Hymenoptera	<i>Lymeon</i>
Hymenoptera	<i>Melissodes crassipes</i>



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Hymenoptera	<i>Melissodes dirrhoda</i>
Hymenoptera	<i>Nesollhoceras ornatipennis</i>
Hymenoptera	<i>Netelia</i> sp.
Hymenoptera	<i>Ophion flavidula</i>
Hymenoptera	<i>Opistacantha</i> ?
Hymenoptera	<i>Polistes crinitus</i>
Hymenoptera	<i>Spilomicrus</i> sp.
Hymenoptera	<i>Tapinoma litorale</i>
Hymenoptera	<i>Theronia holmgren</i>
Hymenoptera	<i>Thyreodon</i>
Hymenoptera	<i>Trathala</i> sp
Lepidoptera	<i>Acolasis(Coenipeta) bibitrix</i>
Lepidoptera	<i>Adelpha abyla</i>
Lepidoptera	<i>Agathodes ostentalis</i>
Lepidoptera	<i>Agratie</i> sp.
Lepidoptera	<i>Ametris nitocris</i>
Lepidoptera	<i>Anartia jatrophae jamaicensis</i>
Lepidoptera	<i>Anastrus sempiternus dillion</i>
Lepidoptera	<i>Anicla infecta</i>
Lepidoptera	<i>Anteos maerula maerula</i>
Lepidoptera	<i>Aphrissa statira cubana</i>
Lepidoptera	<i>Arctiidae</i>
Lepidoptera	<i>Argyrogramma</i> sp.
Lepidoptera	<i>Astrartes jaira</i>
Lepidoptera	<i>Autographa biloba</i>
Lepidoptera	<i>Azeta uncas</i>
Lepidoptera	<i>Azeta versicolor</i>
Lepidoptera	<i>Battus polydamas jamaicensis</i>
Lepidoptera	<i>Calidota strigosa</i>
Lepidoptera	<i>Calisto zangis</i>
Lepidoptera	<i>Cincia</i> sp.
Lepidoptera	<i>Colobura dirce avinoffi</i>
Lepidoptera	<i>Condica albiger</i>
Lepidoptera	<i>Condica cupentia</i>
Lepidoptera	<i>Condica sutor</i>
Lepidoptera	<i>Crinodes besckei</i>
Lepidoptera	<i>Ctenuchinae</i>
Lepidoptera	<i>Danaus plexippus</i>
Lepidoptera	<i>Dione vanillae insularis</i>
Lepidoptera	<i>Dispragis</i> sp.
Lepidoptera	<i>Dryas iulia delila</i>
Lepidoptera	<i>Epargyreus antaus</i>
Lepidoptera	<i>Epidromia suffusa</i>
Lepidoptera	<i>Epistor(Enyo) lugubris</i>
Lepidoptera	<i>Erinnyis ello</i>
Lepidoptera	<i>Eulepidotis merricki</i>

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Lepidoptera	<i>Euphyes singularis insolata</i>
Lepidoptera	<i>Euptoieta claudia claudia</i>
Lepidoptera	<i>Eurema adamsi</i>
Lepidoptera	<i>Eurema दौरa palmira</i>
Lepidoptera	<i>Eurema dina parvumbra</i>
Lepidoptera	<i>Eurema elathea</i>
Lepidoptera	<i>Eurema lisa euterpe</i>
Lepidoptera	<i>Eurema messalina messalina</i>
Lepidoptera	<i>Eurema nise nise</i>
Lepidoptera	<i>Eurema proterpia proterpia</i>
Lepidoptera	<i>Eurema westwoodi westwoodi</i>
Lepidoptera	<i>Euschirropterus</i>
Lepidoptera	<i>Glutophrissa drusilla jacksoni</i>
Lepidoptera	<i>Gonodes liquida</i>
Lepidoptera	<i>Greta diaphane</i>
Lepidoptera	<i>Heliconius charitonius simulator</i>
Lepidoptera	<i>Heliothis virescens</i>
Lepidoptera	<i>Heliothis zea?</i>
Lepidoptera	<i>Hemiargus hanno ceraunus</i>
Lepidoptera	<i>Heraclides(Papilio) pelaus</i>
Lepidoptera	<i>Heraclides(Papilio) thersites</i>
Lepidoptera	<i>Heterochroma insignis</i>
Lepidoptera	<i>Historis odius odius</i>
Lepidoptera	<i>Horama panthalon grotei</i>
Lepidoptera	<i>Hyalurga vinosa</i>
Lepidoptera	<i>Hypanartia paullus</i>
Lepidoptera	<i>Hypena subidalis</i>
Lepidoptera	<i>Hypeninae</i>
Lepidoptera	<i>Hypercompe nigriplaga</i>
Lepidoptera	<i>Leptotes cassius theonus</i>
Lepidoptera	<i>Lerodea eufala eufala</i>
Lepidoptera	<i>Lesmone formularis</i>
Lepidoptera	<i>Leucania unipuncta</i>
Lepidoptera	<i>Lucinia cadma cadma</i>
Lepidoptera	<i>Melipotis fasciolaris</i>
Lepidoptera	<i>Miselia(Allophyes) sp</i>
Lepidoptera	<i>Nathalis iole</i>
Lepidoptera	<i>Nepheloleuca politia</i>
Lepidoptera	<i>Nyctelius nyctelius nyctelius</i>
Lepidoptera	<i>Nystalea guttulata schaus</i>
Lepidoptera	<i>Opharus(Halysidota) elota(moeschl)</i>
Lepidoptera	<i>Ophisma tropicalis</i>
Lepidoptera	<i>Oraesia excitans</i>
Lepidoptera	<i>Paectes ?</i>
Lepidoptera	<i>Panoquina sylvicola woodruffi</i>
Lepidoptera	<i>Panula inconstans</i>

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Lepidoptera	<i>Patalene sp.</i>
Lepidoptera	<i>Peosua sp.</i>
Lepidoptera	<i>Pericopinae</i>
Lepidoptera	<i>Pero bicolor</i>
Lepidoptera	<i>Pero mathilda</i>
Lepidoptera	<i>Pero varians</i>
Lepidoptera	<i>Phoebis eubele sennae</i>
Lepidoptera	<i>Phoebis sennae sennae</i>
Lepidoptera	<i>Phrygionis sp.</i>
Lepidoptera	<i>Phyciodes frisia frisia</i>
Lepidoptera	<i>Phyciodes proclea</i>
Lepidoptera	<i>Plusia calceolaris</i>
Lepidoptera	<i>Pluto sp.</i>
Dermatoptera	<i>Dermatoptera</i>
Lepidoptera	<i>Pluto sp.</i>
Lepidoptera	<i>Polygonus leo hagar</i>
Lepidoptera	<i>Precis evarete zonalis (genoveva)</i>
Lepidoptera	<i>Prochoerodes tetragonata</i>
Lepidoptera	<i>Proteides mercurius jamaicensis</i>
Lepidoptera	<i>Pterourus(Papilio) homerus</i>
Lepidoptera	<i>Rachiplusia sp.</i>
Lepidoptera	<i>Sabulodes subopalaria</i>
Lepidoptera	<i>Semiothisa sp.</i>
Lepidoptera	<i>Siproeta stelenes stelenes</i>
Lepidoptera	<i>Spargania dulciferata</i>
Lepidoptera	<i>Sphingidae</i>
Lepidoptera	<i>Sphocelodes vulneraria</i>
Lepidoptera	<i>Strymon batochii gundlachianus</i>
Lepidoptera	<i>Syntomidopsis variegata</i>
Lepidoptera	<i>Thysanopya divisaria</i>
Lepidoptera	<i>Trigonodes lucasii</i>
Lepidoptera	<i>Urbanus proteus proteoides</i>
Lepidoptera	<i>Utetheisa bella</i>
Lepidoptera	<i>Vanessa virginiensis</i>
Lepidoptera	<i>Wallengrenia otho vesuria</i>
Lepidoptera	<i>Xylophanes chiron</i>
Lepidoptera	<i>Zale lunata</i>
Odonata	<i>Aeschna cornigera</i>
Odonata	<i>Anax junius</i>
Odonata	<i>Enallagma civile</i>
Odonata	<i>Enallagma coecum</i>
Odonata	<i>Erythemis plebeja</i>
Odonata	<i>Erythrodiplex umbrata</i>
Odonata	<i>Hypolestes clara</i>
Odonata	<i>Ischnura ramburii</i>
Odonata	<i>Ischyra vigans</i>

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Odonata	<i>Lestes tennatus</i>
Odonata	<i>Scapanea frontalis</i>
Odonata	<i>Schistocerca nitens</i>
Odonata	<i>Telebasis macrogaster</i>
Orthoptera	<i>Conocephalus sp.</i>
Orthoptera	Gryllidae
Orthoptera	<i>Orphulella punctata</i>
Orthoptera	<i>Osmilia flavolineata</i>
Orthoptera	<i>Pantala flavescens</i>
Orthoptera	<i>Stilpnochlora laurifolium</i>
Orthoptera	Tettigoniidae
Phasmatodea	<i>Anisomorpha cyllarus</i>
Phasmatodea	<i>Anisomorpha laevicollis</i>
Phasmatodea	<i>Clonistria latebricola</i>
Phasmatodea	<i>Clonistria simplitarsis</i>
Phasmatodea	<i>Diapherodes jamaicensis</i>
Hormaphidinae	<i>Cerataphis brasiliensis</i>
Aphidinae	<i>Aphis coreopsidis</i>
Aphidinae	<i>Aphis fabae solanella</i>
Aphidinae	<i>Aphis gossypii</i>
Aphidinae	<i>Aphis nerii</i>
Aphidinae	<i>Aphis spiraecola</i>
Aphidinae	<i>Taxoptera aurantii</i>
Aphidinae	<i>Taxoptera citricida</i>
Aphidinae	<i>Acyrtosiphon bidenticola</i>
Aphidinae	<i>Aulocorthum solani</i>
Aphidinae	<i>Dysaphis (Pomaphis) aucopariae</i>
Aphidinae	<i>Hyperomyzus carduelinus</i>
Aphidinae	<i>Hyperomyzus (Neonasonovia) pullatus</i>
Aphidinae	<i>Idiopterus nephrolepidis</i>
Aphidinae	<i>Macrosiphum euphoribiae</i>
Aphidinae	<i>Pentalonia nigronervosa</i>
Aphidinae	<i>Sitobion pauliani</i>
Aphidinae	<i>Uroleucon ambrosiae</i>
Aphidinae	<i>Uroleucon pseudoambrosiae</i>
Aphidinae	<i>Uroleucon (Uromelan) compositae</i>
Lachninae	<i>Cinara atlantica</i>
<b>358 TOTAL</b>	

**APPENDIX 2: SPECIES LISTS – FLORA**

**PLANTS – ANGIOSPERMS**

Family	Genus	Species	Locality	Status	Notes
Araceae	<i>Anthurium</i>	<i>grandifolium</i> (Jacq.) Kunth	BM, JCM	Native	WI
Araceae	<i>Anthurium</i>	<i>scandens</i> (Aubl.) Engl.	BM, JCM	Native	
Araceae	<i>Philodendron</i>	<i>lacerum</i> (Jacq.) Schott.	BM	Native	
Araceae	<i>Philodendron</i>	<i>lingulatum</i> (L.) K. Kock.	JCM	Native	
Araceae	<i>Philodendron</i>	<i>hederaceum</i> (Jacq.) Schott	BM	Native	
Araceae	<i>Philodendron</i>	<i>schottii</i> C. Kock	BM/JC	Native	
Araceae	<i>Syngonium</i>	<i>auritum</i>	JCM	Native	
Araceae	<i>Syngonium</i>	<i>sp.</i>	JC		
Arecaceae	<i>Acrocomia</i>	<i>aculeata</i> (Jacq.) Lodd. ex Mart	BM	Native	
Arecaceae	<i>Bactris</i>	<i>jamaicana</i> L. H. Bailey	JCM	Endemic	
Arecaceae	<i>Calypstrogyne</i>	<i>occidentalis</i> (Sw.) M. Gomez	JCM	Native	
Arecaceae	<i>Thrinax</i>	<i>excelsa</i> Lodd. ex Mart.	JCM	Endemic	
Cannaceae	<i>Canna</i>	<i>coccinea</i> Mill.	BM		VU
Cannaceae	<i>Canna</i>	<i>tuerckheimii</i> Kraenzl.	BM		
Clusiaceae	<i>Symphonia</i>	<i>globulifera</i> L.f.	BM	Native	
Commelinaceae	<i>Callisia</i>	<i>repens</i> (Jacq.) L.	BM	Native	
Commelinaceae	<i>Commelina</i>	<i>diffusa</i> Burm. f.	BM	Native	
Commelinaceae	<i>Commelina</i>	<i>erecta</i> L. var. <i>erecta</i>	BM	Native	
Commelinaceae	<i>Tinantia</i>	<i>erecta</i> (L.) Schltld.	BM	Native	
Commelinaceae	<i>Tripogandra</i>	<i>multiflora</i> (Sw.) Raf.	BM	Native	GA
Cyperaceae	<i>Bulbostylis</i>	<i>subaphylla</i> C. B. Clarke	BM	Native	
Cyperaceae	<i>Carex</i>	<i>polystachya</i> Sw. ex Wahl.	BM, JCM	Native	
Cyperaceae	<i>Carex</i>	<i>scabrella</i> Wahlenb.	BM	Native	
Cyperaceae	<i>Cyperus</i>	<i>aggregatus</i> (Willd.) Endl. var. <i>aggregatus</i>	BM	Native	
Cyperaceae	<i>Cyperus</i>	<i>compressus</i> L.	BM	Native	
Cyperaceae	<i>Cyperus</i>	<i>constanzae</i> Urb.	BM	Native	
Cyperaceae	<i>Cyperus</i>	<i>distans</i> L. f.	BM	Native	
Cyperaceae	<i>Cyperus</i>	<i>filiformis</i> Sw.	BM	Native	
Cyperaceae	<i>Cyperus</i>	<i>humilis</i> Kunth	BM	Native	
Cyperaceae	<i>Cyperus</i>	<i>laxus</i> Lam.	BM	Native	
Cyperaceae	<i>Cyperus</i>	<i>luzulae</i> (L.) Rottb. Ex Retz.	BM	Native	
Cyperaceae	<i>Cyperus</i>	<i>mutisii</i> (Kunth) Anderson	BM	Native	
Cyperaceae	<i>Cyperus</i>	<i>sphacelatus</i> Rottb.	BM	Native	
Cyperaceae	<i>Cyperus</i>	<i>tenuis</i> Sw.	BM	Native	VU
Cyperaceae	<i>Eleocharis</i>	<i>elegans</i> (Kunth) Roem. & Schult.	BM	Native	

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<b>Cyperaceae</b>	<i>Eleocharis</i>	<i>montana (Kunth) Roem. &amp; Schult.</i>	BM	Native	GA
<b>Cyperaceae</b>	<i>Eleocharis</i>	<i>retroflexa (Poir.) Urb. subsp. retroflexa</i>	JC	Native	VU
<b>Cyperaceae</b>	<i>Fimbristylis</i>	<i>dichotoma (L.) Vahl subsp. dichotoma</i>	BM, JCM	Native	
<b>Cyperaceae</b>	<i>Kyllinga</i>	<i>brevifolia Rottb.</i>	BM, JCM	Native	nTR
<b>Cyperaceae</b>	<i>Kyllinga</i>	<i>odorata Vahl</i>	BM	Native	
<b>Cyperaceae</b>	<i>Kyllinga</i>	<i>pumila Michx.</i>	BM, JCM	Native	ED
<b>Cyperaceae</b>	<i>Rhynchospora</i>	<i>eggersiana Boeckeler</i>	BM	Endemic	
<b>Cyperaceae</b>	<i>Rhynchospora</i>	<i>globularis (Chapm.) Small var. globularis</i>	BM	Native	
<b>Cyperaceae</b>	<i>Rhynchospora</i>	<i>jamaicensis Britton</i>	BM	Native	
<b>Cyperaceae</b>	<i>Rhynchospora</i>	<i>indeniana Griseb.</i>	BM	Native	
<b>Cyperaceae</b>	<i>Rhynchospora</i>	<i>nervosa (Vahl) Boeckeler</i>	BM	Native	
<b>Cyperaceae</b>	<i>Rhynchospora</i>	<i>polyphylla (Vahl) Vahl</i>	BM, JCM	Native	
<b>Cyperaceae</b>	<i>Rhynchospora</i>	<i>pusilla Chapm. ex M. A. Curtis</i>	BM	Native	
<b>Cyperaceae</b>	<i>Rhynchospora</i>	<i>racemosa C. Wright</i>	BM	Native	
<b>Cyperaceae</b>	<i>Rhynchospora</i>	<i>radicans (Schltdl. &amp; Cham.) H. Pfeiff. subsp. microcephala (Bertero ex Spreng.) W. W. Thomas</i>	BM, JCM	Native	
<b>Cyperaceae</b>	<i>Rhynchospora</i>	<i>rugosa (Vahl) Gale</i>	BM	Native	
<b>Cyperaceae</b>	<i>Rhynchospora</i>	<i>uniflora Boeckeler</i>	BM, JCM	Native	
<b>Cyperaceae</b>	<i>Scleria</i>	<i>ciliata Michx. Ciliata</i>	BM	Native	
<b>Cyperaceae</b>	<i>Scleria</i>	<i>gaerrtneri Raddi</i>	JCM	Native	
<b>Cyperaceae</b>	<i>Scleria</i>	<i>hirtella Sw. subsp. hirtella</i>	BM	Native	
<b>Cyperaceae</b>	<i>Scleria</i>	<i>mucronata Poir.</i>	BM	Native	
<b>Cyperaceae</b>	<i>Uncinia</i>	<i>hamata (Sw.) Urb.</i>	BM, JCM	Native	
<b>Dioscoreaceae</b>	<i>Dioscorea</i>	<i>bulbifera L.</i>	JCM		
<b>Dioscoreaceae</b>	<i>Dioscorea</i>	<i>polygonoides Humb. &amp; Bonpl. ex Willd.</i>	BM	Native	
<b>Iridaceae</b>	<i>Aristea</i>	<i>compressa Buchinger ex Baker</i>	BM		
<b>Iridaceae</b>	<i>Crocasmia</i>	<i>crocosmiiiflora (Lemoine) N. E. Br.</i>	BM		
<b>Iridaceae</b>	<i>Neomarica</i>	<i>northiana (Schneev.) T. Sprague</i>	BM		
<b>Juncaceae</b>	<i>Juncus</i>	<i>bufonius L.</i>	BM	Native	
<b>Juncaceae</b>	<i>Juncus</i>	<i>tenuis Willd. var. dichotomus (Elliott) A. W. Wood</i>	BM	Native	
<b>Orchidaceae</b>	<i>Arpophyllum</i>	<i>giganteum Hartw. ex Lindl.</i>	BM	Native	
<b>Orchidaceae</b>	<i>Bletia</i>	<i>florida (salisb.) R. Br.</i>	BM	Native	
<b>Orchidaceae</b>	<i>Bletia</i>	<i>patula Graham</i>	JC		
<b>Orchidaceae</b>	<i>Bletia</i>	<i>purpurea (Lam.) DC.</i>	JC, BM	Native	

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<b>Orchidaceae</b>	<i>Brachionidium</i>	<i>sherringii</i> Rolfe	JC	Native?
<b>Orchidaceae</b>	<i>Brassavola</i>	<i>nodosa</i> (L.) Lindl.	JC, BM	Native
<b>Orchidaceae</b>	<i>Brassia</i>	<i>caudata</i> (L.) Lindl.	JC	Native GA
<b>Orchidaceae</b>	<i>Brassia</i>	<i>maculata</i> R. Br.	JC	Native
<b>Orchidaceae</b>	<i>Bulbophyllum</i>	<i>jamaicense</i> Cogn.	BM	Endemic
<b>Orchidaceae</b>	<i>Calanthe</i>	<i>calanthoides</i> (A. Rich. & Galeotti) Hamer & Garay	JC	Native
<b>Orchidaceae</b>	<i>Camaridium</i>	<i>micranthum</i> M. A. Blanco	BM, JCM	Native
<b>Orchidaceae</b>	<i>Cochleanthes</i>	<i>flabelliforme</i> (Sw.) R. E. Schult. & Garay	BM	Native
<b>Orchidaceae</b>	<i>Coelia</i>	<i>triptera</i> (Sm.) G. Don ex Steud.	BM	Native
<b>Orchidaceae</b>	<i>Comparettia</i>	<i>falcata</i> Poep. & Endl.	JC	Native
<b>Orchidaceae</b>	<i>Cranichis</i>	<i>diphylla</i> Sw.	BM, JCM	Native GA
<b>Orchidaceae</b>	<i>Cranichis</i>	<i>muscosa</i> Sw.	JC, BM	Native GA
<b>Orchidaceae</b>	<i>Cranichis</i>	<i>wagneri</i> Rchb. f.	JCM, BM	Native GA
<b>Orchidaceae</b>	<i>Cyclopogon</i>	<i>elatus</i> (Sw.) Schltr.	BM, JCM	Native
<b>Orchidaceae</b>	<i>Dendrophylax</i>	<i>funalis</i> Benth. & Hook.f.	BM	Endemic
<b>Orchidaceae</b>	<i>Dichaea</i>	<i>glauca</i> (Sw.) Lindl.	JC	Native
<b>Orchidaceae</b>	<i>Dichaea</i>	<i>graminoides</i> (Sw.) Lindl.	JC, BM	Native
<b>Orchidaceae</b>	<i>Dichaea</i>	<i>latifolia</i> Lindl.	JC	Native
<b>Orchidaceae</b>	<i>Dichaea</i>	<i>morrisii</i> Fawc. & Rendle	JC, BM	Native
<b>Orchidaceae</b>	<i>Dichaea</i>	<i>pendula</i> (Aubl.) Cogn.	BM, JCM	Native
<b>Orchidaceae</b>	<i>Dichaea</i>	<i>trichocarpa</i> (Sw.) Lindl.	BM, JCM	Native
<b>Orchidaceae</b>	<i>Dilomilis</i>	<i>elata</i> (Benth.) Summerh.	JC	Native WI
<b>Orchidaceae</b>	<i>Dilomilis</i>	<i>montana</i> ((Sw.) Summerh.	BM, JCM	Native
<b>Orchidaceae</b>	<i>Dinema</i>	<i>polybulbon</i> Swartz	JC, BM	Native WI
<b>Orchidaceae</b>	<i>Elleanthus</i>	<i>cephalotus</i> Garay & H. R. Sweet	JC, BM	Native
<b>Orchidaceae</b>	<i>Elleanthus</i>	<i>longibracteatus</i> (Lindl. ex Griseb.) Fawc.	BM	Native
<b>Orchidaceae</b>	<i>Eltroplectris</i>	<i>calcarata</i> (Sw.) Garay & H. R. Sweet	BM	Native
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>bahorucense</i> Hagsater & L. Cerv.	BM	
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>bifarium</i> Sw.	BM	Native
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>difforme</i> Jacq.	BM	Native
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>diffusum</i> Sw.	BM	Native
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>nocturnum</i> Jacq.	JC	Native
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>nutans</i> (Sw.) Ruiz & Pavon	JC, BM	Endemic
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>ramosum</i> Jacq.	JC, BM	Native
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>repens</i> Cogn.	BM	Native
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>rigidum</i> Jacq.	BM	Native

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<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>rivulare</i> Lindl.	BM	Native	
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>serrulatum</i> Sw.	BM	Native	
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>strobiliferum</i> Rccb. f.	JC	Native	
<b>Orchidaceae</b>	<i>Epidendrum</i>	<i>verrucosum</i> Sw.	BM/JC	Native	
<b>Orchidaceae</b>	<i>Eulophia</i>	<i>alta</i> (L.) Fawc. & Rendle	BM	Native	
<b>Orchidaceae</b>	<i>Govenia</i>	<i>utriculata</i> (Sw.) Lindl.	BM	Native	
<b>Orchidaceae</b>	<i>Habenaria</i>	<i>alata</i> Hook.	BM	Native	
<b>Orchidaceae</b>	<i>Habenaria</i>	<i>distans</i> Griseb.	BM, JCM	Native	
<b>Orchidaceae</b>	<i>Habenaria</i>	<i>monorrhiza</i> (Sw.) Rchb.f.	BM/JC	Native	
<b>Orchidaceae</b>	<i>Heterotaxis</i>	<i>sessilis</i> (Sw.) Barros	BM/JC	Native	
<b>Orchidaceae</b>	<i>Homalopetalum</i>	<i>vomeriforma</i> Fawc. & Rendle	BM	Native	
<b>Orchidaceae</b>	<i>Isochilus</i>	<i>linearis</i> (Jacq.) R. Br.	BM	Native	GA
<b>Orchidaceae</b>	<i>Isochilus</i>	<i>major</i> Cham. & Schlecht.	BM		
<b>Orchidaceae</b>	<i>Jacqiniella</i>	<i>globosa</i> (Jacq.) Schltr.	JC	Native	
<b>Orchidaceae</b>	<i>Jacquiiniellia</i>	<i>teretifolia</i> (Sw.) Britton & P. Wilson	BM	Native	
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>cochlearifolia</i> (Sw.) Sw.	JC	Endemic	
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>divaricata</i> Fawc. & Rendle	BM/JC	Endemic	
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>loddigesiana</i> Lindl.	BM	Endemic	
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>obtusa</i> Fawc. & Rendle	JC	Endemic	GA
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>obtusipetala</i> (Fawc. & Rendle) Fawc. & Rendle	BM	Endemic	
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>ovalis</i> (Sw.) Fawc. & Rendle	BM/JC	Endemic	
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>proctorii</i> Garay & Hespenth.	BM, JCM	Endemic	
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>pulchella</i> (Sw.) Sw.	BM, JCM	Endemic	WI
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>quadrata</i> Fawc. & Rendle	JC	Endemic	
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>rotundata</i> Griseb.	JCM, BM	Endemic	
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>sanguinea</i> Hook.	BM, JCM	Endemic	
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>tridentata</i> (Sw.) Sw.	BM, JCM	Endemic	
<b>Orchidaceae</b>	<i>Lepanthes</i>	<i>vinacea</i> Hespenth.	JC	Endemic	
<b>Orchidaceae</b>	<i>Liparis</i>	<i>cardiophylla</i> Ames	JCM, BM	Native	
<b>Orchidaceae</b>	<i>Liparis</i>	<i>saundersiana</i> Rchb.f.	BM	Native	
<b>Orchidaceae</b>	<i>Liparis</i>	<i>vexillifera</i> (Lex.) Cogn.	BM	Native	
<b>Orchidaceae</b>	<i>Liparis</i>	<i>viridipurpurea</i> Griseb.	BM/JC	Native	
<b>Orchidaceae</b>	<i>Lockhartii</i>	<i>imbricata</i> (Lam.) Hoehne	JC		
<b>Orchidaceae</b>	<i>Malaxis</i>	<i>spicata</i> Sw.	BM	Native	
<b>Orchidaceae</b>	<i>Malaxis</i>	<i>umbrelliflora</i> Sw.	BM/JC	Native	GA
<b>Orchidaceae</b>	<i>Malaxis</i>	<i>unifolia</i> Michx.	BM/JC	Native	



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<b>Orchidaceae</b>	<i>Maxillariella</i>	<i>alba</i> (Hook.) M. A. Blanco & Carnevali	JC	Native
<b>Orchidaceae</b>	<i>Maxillariella</i>	<i>prolifera</i> (Sw.) M. A. Blanco & Carnevali	BM	Endemic
<b>Orchidaceae</b>	<i>Microchilus</i>	<i>hirtellus</i> (Sw.) D. Dietr.	JCM, BM	Native
<b>Orchidaceae</b>	<i>Microchilus</i>	<i>plantagineus</i> (L.) D. Dietr.	BM/JC	Native
<b>Orchidaceae</b>	<i>Mormolyca</i>	<i>pudica</i> (Carnevali & J. L. Tapia) M. A. Blanco	JC	Native
<b>Orchidaceae</b>	<i>Neocognianxia</i>	<i>monophylla</i> (Griseb.) Schltr.	JCM, BM	Endemic
<b>Orchidaceae</b>	<i>Ornithidium</i>	<i>adendrobium</i> (Rchb.f.) M. A. Blanco & Ojeda	JC	Native
<b>Orchidaceae</b>	<i>Pelexia</i>	<i>adnata</i> (Sw.) Spreng.	BM	Native
<b>Orchidaceae</b>	<i>Phaius</i>	<i>tancarvilliae</i> (Banks ex L'Her.) Blume	BM	GA
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>alpestris</i> (Sw.)Lindl.	BM	Endemic
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>corniculata</i> (Sw.) Lindl.	BM/JC	Native
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>delicatula</i> Lindl.	BM, JCM	Endemic
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>domingensis</i> Cogn.	JCM, BM	Native
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>helenae</i> Fawc. & Rendle.	BM/JC	Native
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>lanceola</i> (Sw.) Spreng.	JCM	Native
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>laxa</i> (Sw.) Lindl.	JCM, BM	Endemic
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>oblongifolia</i> Lindl.	JC	Native
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>pruinosa</i> Lindl.	JCM	Native
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>quadrifida</i> (La Llave & Lex.) Lindl.	BM/JC	Native
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>ruscifolia</i> (Jacq. ) R. Br.	BM	Native
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>testifolia</i> (Sw.) Lindl.	JCM	Native
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>tribuloides</i> (Sw.) Lindl.	BM	Native
<b>Orchidaceae</b>	<i>Pleurothallis</i>	<i>uncinata</i> Fawc.	BM	Native
<b>Orchidaceae</b>	<i>Ponthieva</i>	<i>diptera</i> Linden & Rchb.f.	BM	Native
<b>Orchidaceae</b>	<i>Ponthieva</i>	<i>pauciflora</i> (Sw.) Fawc. & Rendle	BM/JC	Native
<b>Orchidaceae</b>	<i>Ponthieva</i>	<i>racemosa</i> (Walter) C. Mohr.	BM, JCM	Native
<b>Orchidaceae</b>	<i>Ponthieva</i>	<i>ventricosa</i> (Griseb.) Fawc. & Rendle	BM	Native
<b>Orchidaceae</b>	<i>Prescottia</i>	<i>oligantha</i> (Sw.) Lindl.	BM/JC	Native
<b>Orchidaceae</b>	<i>Prescottia</i>	<i>stachyodes</i> (Sw.) Lindl.	BM/JC	Native
<b>Orchidaceae</b>	<i>Prosthechea</i>	<i>cochleata</i> (L.) W. E. Wiggins var. <i>cochleata</i>	JC, BM	Native
<b>Orchidaceae</b>	<i>Prosthechea</i>	<i>fragrans</i> (Sw.) W. E. Wiggins	JC, BM	Native
<b>Orchidaceae</b>	<i>Prosthechea</i>	<i>pygmaea</i> (Hook.) W. E. Wiggins	BM	Native
<b>Orchidaceae</b>	<i>Prosthechea</i>	<i>spondiada</i> (Rchb.f.) W. E. Wiggins	BM	Native
<b>Orchidaceae</b>	<i>Pseudocentrum</i>	<i>minus</i> Benth.	JCM	Native

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<b>Orchidaceae</b>	<i>Psilochilus</i>	<i>macrophyllus (Lindl.) Ames</i>	BM	Native	
<b>Orchidaceae</b>	<i>Rhyncho스테le</i>	<i>rossii (Lindl.) Soto Arenas &amp; Salazar</i>	BM		GA
<b>Orchidaceae</b>	<i>Sacoila</i>	<i>lanceolata (Aubl.) Garay</i>	JCM, BM	Native	WI
<b>Orchidaceae</b>	<i>Spiranthes</i>	<i>torta (Thunb.) Garay &amp; H. R. Sweet</i>	BM	Native	
<b>Orchidaceae</b>	<i>Stelis</i>	<i>micrantha (Sw.) Sw.</i>	JCM, BM	Endemic	
<b>Orchidaceae</b>	<i>Stelis</i>	<i>opioglossoides (Jacq.) Sw.</i>	BM/JC		
<b>Orchidaceae</b>	<i>Stenorrhynchos</i>	<i>speciosum (Jacq.) Rich. ex Spreng.</i>	BM	Native	
<b>Orchidaceae</b>	<i>Sudamerlycaste</i>	<i>barringtoniae (Sm.) Archila</i>	BM	Endemic	
<b>Orchidaceae</b>	<i>Tetramicra</i>	<i>parviflora Lindl. ex Griseb.</i>	BM, JCM	Native	
<b>Orchidaceae</b>	<i>Trichocentrum</i>	<i>undulatum (Sw.) Ackerman &amp; M. W. Chase</i>	BM	Native	
<b>Orchidaceae</b>	<i>Trichosalpinx</i>	<i>trilobata (Fawc. &amp; Rendle) Luer</i>	BM, JCM	Endemic	
<b>Orchidaceae</b>	<i>Vanilla</i>	<i>bicolor Lindl.</i>	JC	Native	GA
<b>Orchidaceae</b>	<i>Xylobium</i>	<i>fovetum (Lindl.) G. Nicholson</i>	BM	Native	TR
<b>Orchidaceae</b>	<i>Xylobium</i>	<i>palmifolium (Sw.) Fawc.</i>	BM	Native	
<b>Poaceae</b>	<i>Agrostis</i>	<i>canina L.</i>	BM		
<b>Poaceae</b>	<i>Agrostis</i>	<i>gigantea Roth</i>	BM		
<b>Poaceae</b>	<i>Andropogon</i>	<i>bicornis L.</i>	BM	Native	
<b>Poaceae</b>	<i>Andropogon</i>	<i>fastigiatus Sw.</i>	BM	Native	
<b>Poaceae</b>	<i>Andropogon</i>	<i>glomeratus (Walter) Britton</i>	BM	Native	
<b>Poaceae</b>	<i>Andropogon</i>	<i>virginicus L.</i>	BM	Native	GA
<b>Poaceae</b>	<i>Arundinella</i>	<i>hispida (Humb. &amp; Bonpl. ex Willd.) Kuntze</i>	BM	Native	
<b>Poaceae</b>	<i>Bothriochloa</i>	<i>saccharoides (Sw.) Rydb.</i>	BM	Native	
<b>Poaceae</b>	<i>Briza</i>	<i>minor L.</i>	BM, JCM		
<b>Poaceae</b>	<i>Bromus</i>	<i>diandrus Roth.</i>	BM, JCM		nTR
<b>Poaceae</b>	<i>Cenchrus</i>	<i>orientalis (Rich.) Morrone subsp. triflorum (Nees ex Steud.) Acev.-Rodr. &amp; M. T. Strong</i>	BM		
<b>Poaceae</b>	<i>Cenchrus</i>	<i>purpureus (Schumach) Morrone</i>	BM		
<b>Poaceae</b>	<i>Chloris</i>	<i>cruciata (L.) Sw.</i>	BM	Native	WI
<b>Poaceae</b>	<i>Chloris</i>	<i>radiata (L.) Sw.</i>	BM	Native	
<b>Poaceae</b>	<i>Chusquea</i>	<i>abietifolia Griseb.</i>	BM	Native	
<b>Poaceae</b>	<i>Danthonia</i>	<i>domingensis Hack. &amp; Pilg. subsp. domingensis</i>	BM	Native	
<b>Poaceae</b>	<i>Dichantherium</i>	<i>acuminatum Sw.</i>	BM	Native	
<b>Poaceae</b>	<i>Dichantherium</i>	<i>strigosum (Muhl. ex Elliot) Freckmann var. glabrescens (Griseb.) Freckmann</i>	BM	Native	ED
<b>Poaceae</b>	<i>Digitaria</i>	<i>violascens Link</i>	BM	Native	
<b>Poaceae</b>	<i>Eragrostis</i>	<i>pilosa (L.) P. Beauv.</i>	BM		VU

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Poaceae	<i>Homolepis</i>	<i>glutinosa</i> (Sw.) Zuloaga & Soderstr.	BM	Native	
Poaceae	<i>Ichnanthus</i>	<i>pallens</i> (Sw.) Munro ex Benth. var. <i>pallens</i>	BM, JCM	Native	
Poaceae	<i>Imperata</i>	<i>contracta</i> (Kunth) Hitchc.	BM	Native	
Poaceae	<i>Isachne</i>	<i>arundinacea</i> (Sw.) Griseb.	BM	Native	
Poaceae	<i>Isachne</i>	<i>pygmaea</i> Griseb.	BM/JC	Endemic	
Poaceae	<i>Isachne</i>	<i>rigens</i> (Sw.) Trin.	BM	Native	
Poaceae	<i>Lasiacis</i>	<i>divaricata</i> (L.) Hitchc.	BM	Native	
Poaceae	<i>Lasiacis</i>	<i>sloanei</i> (Griseb.) Hitchc.	BM	Native	
Poaceae	<i>Leptochloa</i>	<i>virgata</i> (L.) P. Beauv.	BM	Native	
Poaceae	<i>Lithachne</i>	<i>pauciflora</i> (Sw.) P. Beauv.	BM	Native	
Poaceae	<i>Lolium</i>	<i>multiflorum</i> Lam.	BM		
Poaceae	<i>Megathyrus</i>	<i>maximum</i> Jacq.	BM		
Poaceae	<i>Melinis</i>	<i>minutiflora</i> P. Beauv.	BM, JCM		
Poaceae	<i>Oplismenus</i>	<i>hirtellus</i> (L.) P. Beauv. subsp. <i>hirtellus</i>	BM	Native	GA
Poaceae	<i>Oplismenus</i>	<i>hirtellus</i> (L.) P. Beauv. subsp. <i>setarius</i> (Lam.) Mez ex Ekman	BM	Native	
Poaceae	<i>Panicum</i>	<i>pilosum</i> Sw.	JCM	Native	WI
Poaceae	<i>Panicum</i>	<i>polygonatum</i> Schrad.	JCM	Native	
Poaceae	<i>Paspalum</i>	<i>caespitosum</i> Flugge	N/A	Native	
Poaceae	<i>Paspalum</i>	<i>conjugatum</i> P. J. Bergius	BM	Native	
Poaceae	<i>Paspalum</i>	<i>decumbens</i> Sw.	BM/JC	Native	
Poaceae	<i>Paspalum</i>	<i>dischitum</i> L.	BM	Native	GA
Poaceae	<i>Paspalum</i>	<i>fimbriatum</i> Kunth	BM	Native	
Poaceae	<i>Paspalum</i>	<i>notatum</i> Flugge	BM	Native	
Poaceae	<i>Paspalum</i>	<i>paniculatum</i> L.	BM	Native	
Poaceae	<i>Paspalum</i>	<i>plicatulum</i> Michx.	BM	Native	
Poaceae	<i>Paspalum</i>	<i>virgatum</i> L.	BM/JC	Native	
Poaceae	<i>Phleum</i>	<i>pratense</i> L.	BM		
Poaceae	<i>Poa</i>	<i>annua</i> L.	BM/JC		
Poaceae	<i>Poa</i>	<i>compressa</i> L.	BM		WI
Poaceae	<i>Polypogon</i>	<i>viridis</i> (Gouan) Breistr.	BM		
Poaceae	<i>Schizachyrium</i>	<i>brevifolium</i> (Sw.) Nees	BM	Native	
Poaceae	<i>Schizachyrium</i>	<i>gracile</i> (Spreng.) Nash var. <i>gracile</i>	BM	Native	
Poaceae	<i>Setaria</i>	<i>palmifolia</i> (J. Koenig) Stapf.	BM/JC		
Poaceae	<i>Setaria</i>	<i>pumila</i> (Poir.) Roem. & Schult.	BM	Native	
Poaceae	<i>Setaria</i>	<i>scandens</i> Schrad.	BM	Native	
Poaceae	<i>Setaria</i>	<i>parviflora</i> (Poir.) Kerguelen	BM	Native	
Poaceae	<i>Sorghastrum</i>	<i>setosum</i> (Griseb.) Hitchc.	BM	Native	

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Poaceae	<i>Sorghum</i>	<i>halepense (L.) Pers.</i>	BM		
Poaceae	<i>Sporobolus</i>	<i>indicus (L.) R. Br. var indicus</i>	BM	Native	GA
Poaceae	<i>Sporobolus</i>	<i>jacquemontii Kunth.</i>	BM	Native	
Poaceae	<i>Sporobolus</i>	<i>purpurascens (Sw.) Ham.</i>	BM	Native	
Poaceae	<i>Sporobolus</i>	<i>tenuissimus (Mart. ex Schrank) Kunth</i>	BM	Native	
Poaceae	<i>Steinchisma</i>	<i>laxum (Sw.) Zuloaga</i>	BM	Native	ED
Poaceae	<i>Stenotaphrum</i>	<i>secundatum (Walter) Kuntze</i>	BM	Native	VU
Poaceae	<i>Vetiveria</i>	<i>zizanioides (L.) Nash ex Small</i>	BM		VU
Poaceae	<i>Vulpia</i>	<i>bromoides (L.) Gray</i>	BM, JCM		VU
Poaceae	<i>Vulpia</i>	<i>myuros (L.) C. C. Gmel. var. myuros</i>	BM		VU
Poaceae	<i>Zea</i>	<i>mays L.</i>	BM		VU
Poaceae	<i>Zeugites</i>	<i>americanus Willd. Var. americanus</i>	BM	Native	VU
Zingiberaceae	<i>Renealmia</i>	<i>sylvestris Horan</i>	BM, JCM	Endemic	
Burmanniaceae	<i>Apteria</i>	<i>aphylla (Nutt.) Barnhart ex Small</i>	JCM	Native	
Burmanniaceae	<i>Cymbocarpa</i>	<i>sp.</i>	BM		
Burmanniaceae	<i>Gymnosiphon</i>	<i>niveus (Griseb.) Urb.</i>	JCM	Native	
Burmanniaceae	<i>Gymnosiphon</i>	<i>sphaerocarpus Urb.</i>	JCM	Native	
Acanthaceae	<i>Andrographis</i>	<i>paniculata (Burm. f.) Wall. ex Nees</i>	JC, BM		
Acanthaceae	<i>Asystasia</i>	<i>gangetica (L.) T. Anderson</i>	JC		
Acanthaceae	<i>Barleria</i>	<i>crinata L.</i>	JC		
Acanthaceae	<i>Barleria</i>	<i>lupulina Lindl.</i>	JC		
Acanthaceae	<i>Barleria</i>	<i>prionitis L.</i>	JC		
Acanthaceae	<i>Blechum (Ruellia)</i>	<i>blechioides Sw.</i>	JCM, BM	Native	
Acanthaceae	<i>Blechum (Ruellia)</i>	<i>blechum L.</i>	BM, JCM	Native	
Acanthaceae	<i>Dicliptera</i>	<i>sexangularis (L.) Juss.</i>	JC	Native	
Acanthaceae	<i>Eranthemum</i>	<i>pulchellum Andrews</i>	JC		
Acanthaceae	<i>Graptophyllum</i>	<i>pictum (L.) Griff.</i>	JCM		
Acanthaceae	<i>Hemigraphis</i>	<i>sp.</i>	JC		
Acanthaceae	<i>Justicia</i>	<i>adhatoda L.</i>	JCM, BM		
Acanthaceae	<i>Justicia</i>	<i>nemorosa Sw.</i>	BM	Endemic	
Acanthaceae	<i>Oplonia</i>	<i>microphylla (Lam.) Stearn</i>	JC	Native	
Acanthaceae	<i>Pachystachys</i>	<i>spicata (Ruiz &amp; Pav.) Wassh.</i>	JCM, BM	Native	
Acanthaceae	<i>Ruellia</i>	<i>elegans Poir.</i>	JCM, BM		
Acanthaceae	<i>Ruellia</i>	<i>macrophylla Vahl</i>	JC	Native	
Acanthaceae	<i>Ruellia</i>	<i>tuberosa L.</i>	JC	Native	
Acanthaceae	<i>Strobilanthes</i>	<i>glomerata (Nees) T. Anderson</i>	JCM, BM		
Acanthaceae	<i>Strobilanthes</i>	<i>dyeriana Mast.</i>	JC		
Acanthaceae	<i>Teliostachya</i>	<i>alopecuroidea (Vahl) Nees</i>	JCM	Native	GA
Acanthaceae	<i>Thunbergia</i>	<i>alata Bojer ex Sims</i>	JC	Naturalized	
Acanthaceae	<i>Thunbergia</i>	<i>erecta (Benth.) T. Anderson</i>	JC		

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<b>Acanthaceae</b>	<i>Thunbergia</i>	<i>fragrans</i> Roxb.	JCM, BM	Naturalized
<b>Acanthaceae</b>	<i>Thunbergia</i>	<i>grandiflora</i> Roxb.	JC	
<b>Acanthaceae</b>	<i>Thunbergia</i>	<i>mysorensis</i> (Wight) T. Anderson	JC	
<b>Adoxaceae</b>	<i>Sambucus</i>	<i>nigra</i> subsp. <i>canadensis</i> (L.) Bolli	JC	
<b>Adoxaceae</b>	<i>Viburnum</i>	<i>alpinum</i> Macfad.	JCM, BM	Endemic
<b>Adoxaceae</b>	<i>Viburnum</i>	<i>villosum</i> Sw.	JCM, BM	Endemic
<b>Alstroemeriaceae</b>	<i>Bomarea</i>	<i>sp.</i>	BM	
<b>Amaranthaceae</b>	<i>Achyranthes</i>	<i>aspera</i> L. var. <i>aspera</i>	BM	naturalized
<b>Amaranthaceae</b>	<i>Alternanthera</i>	<i>caracasana</i> Kunth	BM	Native
<b>Amaranthaceae</b>	<i>Alternanthera</i>	<i>paronychioides</i> A. St.-Hill	BM	Native
<b>Amaranthaceae</b>	<i>Alternanthera</i>	<i>ramosissima</i> (Mart.) Chodat.	BM	
<b>Amaranthaceae</b>	<i>Amaranthus</i>	<i>crassipes</i> Schltld.	BM	Native
<b>Amaranthaceae</b>	<i>Chamissoa</i>	<i>altissima</i> (Jacq.) Kunth	BM	Native
<b>Amaranthaceae</b>	<i>Chenopodium</i>	<i>ambrosioides</i> L.	BM	
<b>Amaranthaceae</b>	<i>Iresine</i>	<i>diffusa</i> Humb. & Bonpl. ex Willd.	BM	native
<b>Amaryllidaceae</b>	<i>Amaryllis</i>	<i>belladonna</i> L.	BM	
<b>Amaryllidaceae</b>	<i>Crinum</i>	<i>macowanii</i> Baker	BM	
<b>Amaryllidaceae</b>	<i>Hymenocallis</i>	<i>fragrans</i> (Salisb.) Salisb.	BM	Native
<b>Amaryllidaceae</b>	<i>Hymenocallis</i>	<i>sp.</i>	JC	
<b>Amaryllidaceae</b>	<i>Hymenocallis</i>	<i>tubiflora</i> Sablisch.	BM	
<b>Amaryllidaceae</b>	<i>Nothoscordum</i>	<i>gracile</i> (Dryand.) Stearn	BM	
<b>Amaryllidaceae</b>	<i>Zephyranthes</i>	<i>carinata</i> Herb.	BM	Native
<b>Anacardiaceae</b>	<i>Comocladia</i>	<i>pinnatifolia</i> L.	JCM	Native
<b>Annonaceae</b>	<i>Annona</i>	<i>montana</i> Macfad.	BM	Native
<b>Annonaceae</b>	<i>Annona</i>	<i>praetermissa</i> Fawc. & Rendle	BM	Endemic
<b>Annonaceae</b>	<i>Cananga</i>	<i>odorata</i> (Lam.) Hook. f. & Thoms.	JCM	
<b>Annonaceae</b>	<i>Oxandra</i>	<i>laurifolia</i> (Sw.) A. Rich.	JCM	Native
<b>Apiaceae</b>	<i>Arracacia</i>	<i>xanthorrhiza</i> Bancr.	BM	VU
<b>Apiaceae</b>	<i>Centella</i>	<i>asiatica</i> (L.) Urb.	BM	
<b>Apiaceae</b>	<i>Cyclopernum</i>	<i>leptophyllum</i> (Pers.) Sprague ex Britton & P. Wilson	JC, BM	
<b>Apiaceae</b>	<i>Eryngium</i>	<i>foetidum</i> L.	JC	Native
<b>Apiaceae</b>	<i>Foeniculum</i>	<i>vulgare</i> Mill.	JCM, BM	
<b>Apiaceae</b>	<i>Pastinaca</i>	<i>sativa</i> L.	JCM, BM	ED
<b>Apiaceae</b>	<i>Petroselinum</i>	<i>crispum</i> (Mill.) Nyman ex A. W. Hill	BM	
<b>Apocynaceae</b>	<i>Allamanda</i>	<i>cathartica</i> L.	BM	
<b>Apocynaceae</b>	<i>Asclepias</i>	<i>curassavica</i> L.	JC, BM	Native
<b>Apocynaceae</b>	<i>Asclepias</i>	<i>nivea</i>	JC, BM	Native
<b>Apocynaceae</b>	<i>Asclepias</i>	<i>physocarpa</i> (E. Mey.) Schltr.	BM	
<b>Apocynaceae</b>	<i>Beaumontia</i>	<i>grandiflora</i> Wall.	JC	
<b>Apocynaceae</b>	<i>Calotropis</i>	<i>procera</i> (Aiton) W. T. Aiton	JC	

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<b>Apocynaceae</b>	<i>Carissa</i>	<i>microcarpa (Eckl.) A. DC.</i>	JC	
<b>Apocynaceae</b>	<i>Cryptostegia</i>	<i>grandiflora R. Br.</i>	JC	Naturalized
<b>Apocynaceae</b>	<i>Echites</i>	<i>umbellatus Jacq.</i>	JC, BM	Native
<b>Apocynaceae</b>	<i>Fischeria</i>	<i>crispiflora (Sw.) K. Schum.</i>	JC	Native
<b>Apocynaceae</b>	<i>Forsteronia</i>	<i>wilsonii (Griseb.) Woodson</i>	JC	Endemic
<b>Apocynaceae</b>	<i>Funastrum</i>	<i>clausum (Jacq.) Schltr.</i>	JC	Native
<b>Apocynaceae</b>	<i>Gomphocarpus</i>	<i>sp.</i>	JC	
<b>Apocynaceae</b>	<i>Gonolobus</i>	<i>jamaicensis</i>	BM	
<b>Apocynaceae</b>	<i>Gonolobus</i>	<i>stapelioides Desv. ex Ham</i>	BM	Endemic
<b>Apocynaceae</b>	<i>Gonolobus</i>	<i>stellatus Griseb.</i>	JCM	Endemic
<b>Apocynaceae</b>	<i>Mandevilla</i>	<i>torosa (Jacq.) Woodson</i>	BM, JCM	Native
<b>Apocynaceae</b>	<i>Marsdenia</i>	<i>clausa R. Br.</i>	JC	Native
<b>Apocynaceae</b>	<i>Marsdenia</i>	<i>floribunda (Brongn.) Schltr.</i>	BM	GA
<b>Apocynaceae</b>	<i>Mateleia</i>	<i>costata (Urb.) Morillo</i>	JC	Endemic
<b>Apocynaceae</b>	<i>Metastelma</i>	<i>atrorubens Schltr.</i>	BM/JC	Native VU
<b>Apocynaceae</b>	<i>Metastelma</i>	<i>fawcettii Schltr.</i>	JCM	Endemic
<b>Apocynaceae</b>	<i>Metastelma</i>	<i>harrisii Schltr.</i>	JC, BM	Endemic
<b>Apocynaceae</b>	<i>Metastelma</i>	<i>jamaicense Schltr.</i>	JC	Endemic
<b>Apocynaceae</b>	<i>Metastelma</i>	<i>leptocladon (Decne.) Schltr.</i>	JC	Native
<b>Apocynaceae</b>	<i>Metastelma</i>	<i>sp.</i>	JC	
<b>Apocynaceae</b>	<i>Nerium</i>	<i>oleander L.</i>	JC	TR
<b>Apocynaceae</b>	<i>Pentalinon</i>	<i>luteum (L.) B. F. Hansen &amp; Wunderlin</i>	JC	Native
<b>Apocynaceae</b>	<i>Plumeria</i>	<i>obtusata L.</i>	JC	Native
<b>Apocynaceae</b>	<i>Plumeria</i>	<i>pudica Jacq.</i>	JC	
<b>Apocynaceae</b>	<i>Plumeria</i>	<i>sp.</i>	BM	
<b>Apocynaceae</b>	<i>Rauvolfia</i>	<i>nitida Jacq.</i>	BM	Native WI
<b>Apocynaceae</b>	<i>Rauvolfia</i>	<i>tetraphylla L.</i>	JC	Native
<b>Apocynaceae</b>	<i>Rhabdadenia</i>	<i>biflora (Jacq.) Mull. Arg.</i>	JC	Native
<b>Apocynaceae</b>	<i>Strobilanthus</i>	<i>flaccidifolius</i>	BM	
<b>Apocynaceae</b>	<i>Tabernaemontana</i>	<i>wulfschlaegelii Griseb.</i>	JCM	Endemic
<b>Aquifoliaceae</b>	<i>Ilex</i>	<i>harrisii Loes.</i>	BM	Endemic
<b>Aquifoliaceae</b>	<i>Ilex</i>	<i>macfadyenii (Walp.) Rehder subsp. macfadyenii var. macfadyenii</i>	BM	Native
<b>Aquifoliaceae</b>	<i>Ilex</i>	<i>macfadyenii (Walp.) Rehder subsp. macfadyenii var. puberula (Proctor) Edwin ex P. A. Gonzalez</i>	BM	Endemic
<b>Aquifoliaceae</b>	<i>Ilex</i>	<i>obcordata Sw. var. obcordata</i>	BM	Native
<b>Aquifoliaceae</b>	<i>Ilex</i>	<i>obcordata Sw. var. vaccinioides (Loes) P. A. Gonzalez</i>	BM	Native

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<b>Aquifoliaceae</b>	<i>Ilex</i>	<i>sideroxyloides</i> (Sw.) Griseb. subps. <i>occidentalis</i> (Macfad.) P. A. Gonzalez	BM	Native
<b>Aquifoliaceae</b>	<i>Ilex</i>	<i>sp.</i>	BM	
<b>Araliaceae</b>	<i>Dendropanax</i>	<i>arboreus</i> (L.) Decne. & Planch.	JC, BM	Native
<b>Araliaceae</b>	<i>Dendropanax</i>	<i>blakeanus</i> Britton	BM	Endemic
<b>Araliaceae</b>	<i>Dendropanax</i>	<i>nutans</i> (Sw.) Decne & Planch.	JC, BM	Endemic
<b>Araliaceae</b>	<i>Dendropanax</i>	<i>pendulus</i> (Sw) Decne. & Planch.	JC, BM	Endemic
<b>Araliaceae</b>	<i>Dendropanax</i>	<i>swartzii</i> (Fawc. & Rendle) A. C. Sm.	JCM	Endemic WI
<b>Araliaceae</b>	<i>Hydrocotyle</i>	<i>pusilla</i> A. Rich.	JCM	Native
<b>Araliaceae</b>	<i>Hydrocotyle</i>	<i>umbellata</i> L.	BM	Native
<b>Araliaceae</b>	<i>Oreopanax</i>	<i>capitatus</i> (Jacq.) Decne & Planch.	JCM, BM	Native WI
<b>Araliaceae</b>	<i>Schefflera</i>	<i>sciodaphyllum</i> (Sw.) Harms	JC	Endemic
<b>Araliaceae</b>	<i>Schefflera</i>	<i>stearnii</i> R. A. Howard & Proctor	BM	Endemic
<b>Aristolochiaceae</b>	<i>Aristolochia</i>	<i>grandiflora</i> Sw.	BM	
<b>Aristolochiaceae</b>	<i>Aristolochia</i>	<i>trilobata</i> L.	BM	Native
<b>Asparagaceae</b>	<i>Agave</i>	<i>longipes</i> Trel.	BM	Endemic
<b>Asparagaceae</b>	<i>Furcraea</i>	<i>hexapetala</i> (Jacq.) Urb.	BM	Native
<b>Asparagaceae</b>	<i>Furcraea</i>	<i>pubescens</i>	BM	
<b>Asteraceae</b>	<i>Acanthodesmos</i>	<i>distichus</i> Adams & duRois	JC	Endemic
<b>Asteraceae</b>	<i>Acanthospermum</i>	<i>humile</i> (Sw.) DC.	JC	Native VU
<b>Asteraceae</b>	<i>Acmella</i>	<i>uliginosa</i> (Sw.) Cass.	BM	Native
<b>Asteraceae</b>	<i>Adenostemma</i>	<i>verbescina</i> (L.) Sch. Bip.	BM	Native
<b>Asteraceae</b>	<i>Ageratina</i>	<i>adenophora</i> (Spreng.) R. M. King & H. Rob.	JCM, BM	
<b>Asteraceae</b>	<i>Ageratina</i>	<i>corylifolia</i> (Griseb.) R. M. King & H. Rob.	JC	Native
<b>Asteraceae</b>	<i>Ageratina</i>	<i>hartii</i> (Urb.) R. M. King & H. Rob.	BM	Endemic
<b>Asteraceae</b>	<i>Ageratina</i>	<i>riparia</i> (Regel) R. M. King & H. Rob.	JCM, BM	Native
<b>Asteraceae</b>	<i>Ageratina</i>	<i>tristis</i> (DC.) R. M. King & H. Rob.	JCM, BM	Endemic
<b>Asteraceae</b>	<i>Ageratum</i>	<i>conyzoides</i> L. subsp. <i>conzoides</i>	JC	GA
<b>Asteraceae</b>	<i>Ageratum</i>	<i>houstonianum</i> Mill.	JC	GA
<b>Asteraceae</b>	<i>Ambrosia</i>	<i>peruviana</i> Willd.	JC	Native
<b>Asteraceae</b>	<i>Artemisia</i>	<i>ludoviciana</i> Nutt. (CultivatedPlant)	JC	
<b>Asteraceae</b>	<i>Baccharis</i>	<i>scoparia</i> (L.) Sw.	JC, BM	Endemic
<b>Asteraceae</b>	<i>Bidens</i>	<i>cynapiifolia</i> Kunth	JC	Native
<b>Asteraceae</b>	<i>Bidens</i>	<i>pilosa</i> L. var. <i>pilosa</i>	JC, BM	Native
<b>Asteraceae</b>	<i>Bidens</i>	<i>repens</i> (L.) G. Don var. <i>dissecta</i> O. E. Schulz	BM	Endemic
<b>Asteraceae</b>	<i>Bidens</i>	<i>reptans</i> (L.) G. Don var. <i>repens</i>	JC, BM	Native

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<b>Asteraceae</b>	<i>Bidens</i>	<i>shrevei</i> Britton	JC, BM	Endemic	
<b>Asteraceae</b>	<i>Brickellia</i>	<i>diffusa</i> (Vahl.) A. Gray	JC	Native	GA
<b>Asteraceae</b>	<i>Calea</i>	<i>jamacensis</i> (L.) L.	JC, BM	Endemic	
<b>Asteraceae</b>	<i>Chaptalia</i>	<i>dentata</i> (L.) Cass.	BM	Native	
<b>Asteraceae</b>	<i>Chaptalia</i>	<i>nutans</i> (L.) Pol.	JC, BM	Native	
<b>Asteraceae</b>	<i>Chaptalia</i>	<i>pumila</i> (Sw.) Urb.	JC, BM	Native	GA
<b>Asteraceae</b>	<i>Chromolaena</i>	<i>heteroclina</i> (Griseb.) R. M. King & H. Rob.	JCM, BM	Endemic	GA
<b>Asteraceae</b>	<i>Chromolaena</i>	<i>odoratum</i> (L.) R. M. King & H. Rob.	JCM, BM	Native	
<b>Asteraceae</b>	<i>Chrysanthellum</i>	<i>americanum</i> (L.) Vatke	JC	Native	GA
<b>Asteraceae</b>	<i>Clibadium</i>	<i>terebinthaceum</i> (Sw.) D.C.	JC, BM	Native	VU
<b>Asteraceae</b>	<i>Conyza</i>	<i>bonariensis</i> (L.) Cronquist var. <i>bonariensis</i>	BM, JCM	Native	VU
<b>Asteraceae</b>	<i>Conyza</i>	<i>canadensis</i> (L.) Cronquist var. <i>canadensis</i>	BM	Native	
<b>Asteraceae</b>	<i>Coreopsis</i>	<i>lanceolata</i> L.	JC		VU
<b>Asteraceae</b>	<i>Critonia</i>	<i>dalea</i> (L.) DC.	JC	Native	GA
<b>Asteraceae</b>	<i>Critonia</i>	<i>parviflorum</i> DC.	JCM, BM	Endemic	
<b>Asteraceae</b>	<i>Cyanthillium</i>	<i>cinereum</i> (L.) H. Rob.	JC		
<b>Asteraceae</b>	<i>Elephantopus</i>	<i>mollis</i> Kunth	JC, BM	Native	
<b>Asteraceae</b>	<i>Emilia</i>	<i>fosbergii</i> Nicolson	JC, BM		
<b>Asteraceae</b>	<i>Emilia</i>	<i>sonchifolia</i> (L.) DC. var. <i>sonchifolia</i>	JC		
<b>Asteraceae</b>	<i>Erechtites</i>	<i>hieracifolius</i> (L.) Raf. ex DC. var. <i>hieraciifolius</i>	BM	Native	
<b>Asteraceae</b>	<i>Erigeron</i>	<i>jamaicensis</i> L.	JC, BM	Native	
<b>Asteraceae</b>	<i>Erigeron</i>	<i>karvinskianus</i> DC.	JC, BM		
<b>Asteraceae</b>	<i>Eupatorium</i>	<i>sp.</i>	BM		
<b>Asteraceae</b>	<i>Fleischmannia</i>	<i>microstemon</i> (Cass.) R. M. King & H. Rob	JC	Native	WI
<b>Asteraceae</b>	<i>Galinsoga</i>	<i>parviflora</i> Cav.	BM	Native	
<b>Asteraceae</b>	<i>Galinsoga</i>	<i>quadriradiata</i> Ruiz & Pav.	JCM, BM		
<b>Asteraceae</b>	<i>Gamochaeta</i>	<i>americana</i> (Mill.) Wedd.	JCM, BM	Native	
<b>Asteraceae</b>	<i>Gamochaeta</i>	<i>purpurea</i> (L.) Cabrera	BM	Native	
<b>Asteraceae</b>	<i>Gnaphalium</i>	<i>albescens</i> Sw.	JCM, BM	Endemic	
<b>Asteraceae</b>	<i>Gnaphalium</i>	<i>domingense</i> Lam.	JCM, BM	Native	
<b>Asteraceae</b>	<i>Gnaphalium</i>	<i>luteoalbum</i> L.	JC		
<b>Asteraceae</b>	<i>Gnaphalium</i>	<i>polycaulon</i> Pers.	BM		
<b>Asteraceae</b>	<i>Hebeclinium</i>	<i>macrophyllum</i> (L.) DC.	BM	Native	
<b>Asteraceae</b>	<i>Hypochaeris</i>	<i>glabra</i> L.	JCM		
<b>Asteraceae</b>	<i>Hypochaeris</i>	<i>radicata</i> L.	JCM, BM		GA



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<b>Asteraceae</b>	<i>Isocarpha</i>	<i>oppositifolia</i> (L.) Cass. subsp. <i>oppositifolia</i>	JC	Native	WI
<b>Asteraceae</b>	<i>Koanophyllon</i>	<i>gracilipes</i> (C. Wright) R. M. King & H. Rob.	JC	Endemic	
<b>Asteraceae</b>	<i>Koanophyllon</i>	<i>hardwarense</i> (Proctor ex C. D. Adams) R. M. King & H. Rob.	BM	Endemic	
<b>Asteraceae</b>	<i>Koanophyllon</i>	<i>montanum</i> (Sw.) R. M. King & H. Rob.	JCM, BM	Endemic	
<b>Asteraceae</b>	<i>Koanophyllon</i>	<i>simile</i> (Proctor) R. M. King & H. Rob.	JC	Endemic	
<b>Asteraceae</b>	<i>Koanophyllon</i>	<i>villosum</i> (Sw.) R. M. King & H. Rob. subsp. <i>villosum</i>	JCM, BM	Native	
<b>Asteraceae</b>	<i>Lactuca</i>	<i>jamaicensis</i> Griseb.	JCM, BM	Endemic	VU
<b>Asteraceae</b>	<i>Lagascea</i>	<i>mollis</i> Cav.	JC	Native	
<b>Asteraceae</b>	<i>Lapsana</i>	<i>communis</i> L.	JCM, BM		nTR
<b>Asteraceae</b>	<i>Lepidoploa</i>	<i>acuminata</i> (Less.) H. Rob.	JC	Endemic	
<b>Asteraceae</b>	<i>Lepidoploa</i>	<i>arborescens</i> (L.) H. Rob.	JCM, BM	Native	
<b>Asteraceae</b>	<i>Lepidoploa</i>	<i>pluvialis</i> (Gleason) H. Rob.	BM	Endemic	
<b>Asteraceae</b>	<i>Liabum</i>	<i>umbellatum</i> (L.) Sch. Bip.	JCM, BM	Endemic	
<b>Asteraceae</b>	<i>Mikania</i>	<i>brachycarpa</i> Urb.	BM	Endemic	GA
<b>Asteraceae</b>	<i>Mikania</i>	<i>cordifolia</i> (L. f.) Willd.	JCM, BM	Native	GA
<b>Asteraceae</b>	<i>Mikania</i>	<i>jamaicensis</i> B. L. Rob.	BM	Endemic	GA
<b>Asteraceae</b>	<i>Mikania</i>	<i>micrantha</i> Kunth	JC	Native	GA
<b>Asteraceae</b>	<i>Mikania</i>	<i>montverdensis</i> Proctor	JCM, BM	Endemic	
<b>Asteraceae</b>	<i>Neurolaena</i>	<i>lobata</i> (L.) R. Br. ex Cass.	JC	Native	
<b>Asteraceae</b>	<i>Odontocline</i>	<i>dolichantha</i> (Krug. & Urb.) B. Nord.	JC	Endemic	
<b>Asteraceae</b>	<i>Odontocline</i>	<i>fadyenii</i> (Griseb.) B. Nord.	BM	Endemic	
<b>Asteraceae</b>	<i>Odontocline</i>	<i>glabra</i> (Sw.) B. Nord.	JCM	Endemic	
<b>Asteraceae</b>	<i>Odontocline</i>	<i>laciniata</i> (Sw.) B. Nord.	BM	Endemic	GA
<b>Asteraceae</b>	<i>Orthopappus</i>	<i>angustifolius</i> (Sw.) Gleason	JC, BM	Native	
<b>Asteraceae</b>	<i>Otopappus</i>	<i>hirsutus</i> (Sw.) R. L. Hartman & Steussy	JC	Endemic	
<b>Asteraceae</b>	<i>Parthenium</i>	<i>hysterophorus</i> L.	JC	Native	WI
<b>Asteraceae</b>	<i>Pectis</i>	<i>glaucescens</i> (Cass.) D. J. Keil	JC	Native	
<b>Asteraceae</b>	<i>Pectis</i>	<i>linearis</i> La Llave	JC	Native	
<b>Asteraceae</b>	<i>Pectis</i>	<i>tenuicaulis</i> Urb.	JC		WI
<b>Asteraceae</b>	<i>Pluchea</i>	<i>carolinensis</i> (Jacq.) G. Don	JC	Native	
<b>Asteraceae</b>	<i>Pluchea</i>	<i>odorata</i> (L.) Cass.	JC	Native	
<b>Asteraceae</b>	<i>Pseudelephantopus</i>	<i>spicatus</i> (B. Juss. ex Aubl.) C. F. Baker	JCM, BM	Native	
<b>Asteraceae</b>	<i>Pseudogynoxys</i>	<i>chenopodioides</i> (Kunth) Cabrera	JC		

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<b>Asteraceae</b>	<i>Salmea</i>	<i>scandens (L.) DC.</i>	JCM, BM	Native	
<b>Asteraceae</b>	<i>Senecio</i>	<i>vulgaris L.</i>	BM		
<b>Asteraceae</b>	<i>Simsia</i>	<i>jamaicensis S. F. Blake</i>	JC	Endemic	
<b>Asteraceae</b>	<i>Sonchus</i>	<i>asper (L.) Hill</i>	JCM, BM		GA
<b>Asteraceae</b>	<i>Sonchus</i>	<i>oleraceus L.</i>	JCM, BM		
<b>Asteraceae</b>	<i>Sphagneticolia</i>	<i>trilobata (L.) Pruski</i>	JCM, BM		
<b>Asteraceae</b>	<i>Symphotrichum</i>	<i>subulatum (Michx.) G. L. Nesom</i>	JC, BM	Native	
<b>Asteraceae</b>	<i>Syndrella</i>	<i>nodiflora (L.) Gaertn.</i>	JC	Native	VU
<b>Asteraceae</b>	<i>Taraxacum</i>	<i>officinale F. H. Wigg.</i>	JCM, BM		GA
<b>Asteraceae</b>	<i>Tithonia</i>	<i>diversifolia (Hemsl.) A. Gray</i>	JC		GA
<b>Asteraceae</b>	<i>Tridax</i>	<i>procumbens L.</i>	JC	Native	
<b>Asteraceae</b>	<i>Trixis</i>	<i>inula Crantz</i>	JC	Native	
<b>Asteraceae</b>	<i>Urbananthus</i>	<i>critoniforme (Urb.) R. M. King &amp; H. Rob.</i>	JCM, BM	Endemic	
<b>Asteraceae</b>	<i>Verbesina</i>	<i>alata L.</i>	JCM	Native	
<b>Asteraceae</b>	<i>Verbesina</i>	<i>aspera S. F. Blake</i>	JC	Endemic	WI
<b>Asteraceae</b>	<i>Verbesina</i>	<i>nervosa S. F. Blake</i>	JC	Endemic	
<b>Asteraceae</b>	<i>Verbesina</i>	<i>portlandiana Proctor</i>	BM	Endemic	nTR
<b>Asteraceae</b>	<i>Verbesina</i>	<i>rupestris (Urb.) S. F. Blake</i>	JCM, BM	Endemic	
<b>Asteraceae</b>	<i>Vernonia</i>	<i>pinnatifida Sw.</i>	JC		
<b>Asteraceae</b>	<i>Xanthium</i>	<i>strumarium L.</i>	JC		WI
<b>Asteraceae</b>	<i>Youngia</i>	<i>japonica (L.) DC.</i>	JC, BM		
<b>Asteraceae</b>	<i>Zemisia</i>	<i>discolor (Sw.) B. Nord</i>	JC	Endemic	GA
<b>Balanophoraceae</b>	<i>Scybalium</i>	<i>jamaicense (Sw.) Schott &amp; Endl.</i>	BM/JC	Native	
<b>Balsaminaceae</b>	<i>Impatiens</i>	<i>walleriana Hook.</i>	BM/JC		
<b>Begoniaceae</b>	<i>Begonia</i>	<i>acutifolia Jacq.</i>	BM/JC	Native	
<b>Begoniaceae</b>	<i>Begonia</i>	<i>glabra Aubl.</i>	BM/JC	Native	
<b>Begoniaceae</b>	<i>Begonia</i>	<i>hirtella Link</i>	BM		
<b>Begoniaceae</b>	<i>Begonia</i>	<i>minor Jacq.</i>	BM/JC	Endemic	GA
<b>Begoniaceae</b>	<i>Begonia</i>	<i>sp.</i>	BM		
<b>Bignoniaceae</b>	<i>Amphilopium</i>	<i>crucigerum (L.) L. G. Lohman</i>	JC	Native	GA
<b>Bignoniaceae</b>	<i>Bignonia</i>	<i>magnifica W. Bull</i>	JC		
<b>Bignoniaceae</b>	<i>Catalpa</i>	<i>longissima (Jacq) Dum. Cours.</i>	JC	Native	
<b>Bignoniaceae</b>	<i>Crescentia</i>	<i>cujete L.</i>	JC	Native	
<b>Bignoniaceae</b>	<i>Parmentiera</i>	<i>aculeata (Kunth) Seem.</i>	JC		VU
<b>Bignoniaceae</b>	<i>Spathodea</i>	<i>campanulata P. Beauv.</i>	JC		
<b>Bignoniaceae</b>	<i>Tabebuia</i>	<i>heterophylla (DC.) Britton</i>	JC	Native	
<b>Bignoniaceae</b>	<i>Tabebuia</i>	<i>platyantha (Griseb.) Britton</i>	JC	Endemic	
<b>Bignoniaceae</b>	<i>Tecoma</i>	<i>capensis (Thunb.) Lindl.</i>	JC		WI
<b>Bignoniaceae</b>	<i>Tecoma</i>	<i>sp.</i>	BM		VU
<b>Bignoniaceae</b>	<i>Tecoma</i>	<i>stans (L.) Kunth</i>	JC	Native	WI

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<b>Boraginaceae</b>	<i>Bourreria</i>	<i>baccata</i> Raf.	JC	Native	
<b>Boraginaceae</b>	<i>Bourreria</i>	<i>sp.</i>	JC		
<b>Boraginaceae</b>	<i>Bourreria</i>	<i>succulenta</i> Jacq.	JC	Native	
<b>Boraginaceae</b>	<i>Cordia</i>	<i>collococca</i> L.	JC	Native	
<b>Boraginaceae</b>	<i>Cordia</i>	<i>dentata</i> Poir	JC	Native	
<b>Boraginaceae</b>	<i>Cordia</i>	<i>elliptica</i> Sw.	JCM	Native	
<b>Boraginaceae</b>	<i>Cordia</i>	<i>gerascanthus</i> L.	JC, BM	Native	
<b>Boraginaceae</b>	<i>Cordia</i>	<i>laevigata</i> Lam.	JCM	Native	
<b>Boraginaceae</b>	<i>Cordia</i>	<i>macrophylla</i> L.	JCM	Endemic	
<b>Boraginaceae</b>	<i>Cordia</i>	<i>sebestena</i> L. var. <i>sebestena</i>	JC	Native	
<b>Boraginaceae</b>	<i>Cordia</i>	<i>sp.</i>	JC		
<b>Boraginaceae</b>	<i>Ehretia</i>	<i>tinifolia</i> L.	JC	Native	
<b>Boraginaceae</b>	<i>Euploca</i>	<i>ternata</i> (Vahl) L. I. M. Melo & Semir	JC		GA
<b>Boraginaceae</b>	<i>Heliotropium</i>	<i>angiospermum</i> Murray	JC	Native	
<b>Boraginaceae</b>	<i>Heliotropium</i>	<i>curassavicum</i> L.	JC	Native	
<b>Boraginaceae</b>	<i>Myosotis</i>	<i>sp.</i>	JC		
<b>Boraginaceae</b>	<i>Myriopus</i>	<i>poliochros</i> (Spreng.) Small	JC	Native	
<b>Boraginaceae</b>	<i>Myriopus</i>	<i>volubilis</i> (L.) Small	JC	Native	
<b>Boraginaceae</b>	<i>Nama</i>	<i>jamaicense</i> L.	JC	Native	
<b>Boraginaceae</b>	<i>Tournefortia</i>	<i>astrotricha</i> DC. var. <i>astrotricha</i>	JC	Native	ED
<b>Boraginaceae</b>	<i>Tournefortia</i>	<i>bicolor</i> Sw.	JCM, BM	Native	
<b>Boraginaceae</b>	<i>Tournefortia</i>	<i>glabra</i> L.	JCM, BM	Native	VU
<b>Boraginaceae</b>	<i>Tournefortia</i>	<i>hirsutissima</i> L.	JCM, BM	Native	
<b>Boraginaceae</b>	<i>Varronia</i>	<i>brownei</i> (Friesen) Borhidi	JC, BM	Native	
<b>Boraginaceae</b>	<i>Varronia</i>	<i>bullata</i> L. subsp. <i>bullata</i>	JC	Native	
<b>Boraginaceae</b>	<i>Varronia</i>	<i>bullata</i> L. subsp. <i>humilis</i> (Jacq.) Feuillet	JC	Native	
<b>Boraginaceae</b>	<i>Varronia</i>	<i>linnaei</i> (Stearn) J. S. Miller	JC, BM	Native	
<b>Brassicaceae</b>	<i>Brassica</i>	<i>juncea</i> (L.) Czern. var. <i>juncea</i>	BM		
<b>Brassicaceae</b>	<i>Cardamine</i>	<i>hirsuta</i> L.	BM		WI
<b>Brassicaceae</b>	<i>Lepidium</i>	<i>didymum</i> L.	BM		
<b>Brassicaceae</b>	<i>Lepidium</i>	<i>virginicum</i> L.	BM/JC	Native	
<b>Brassicaceae</b>	<i>Nasturtium</i>	<i>officinale</i> R. Br.	BM		
<b>Brassicaceae</b>	<i>Rorippa</i>	<i>dubia</i> (Pers.) H. Hara	BM		
<b>Brassicaceae</b>	<i>Sisymbrium</i>	<i>officinale</i> (L.) Scop.	BM		
<b>Bromeliaceae</b>	<i>Catopsis</i>	<i>berteroniana</i> (Schult. & Schult. f.) Mez	BM	Native	
<b>Bromeliaceae</b>	<i>Catopsis</i>	<i>nitida</i> (Hook.) Griseb.	BM	Native	nTR
<b>Bromeliaceae</b>	<i>Catopsis</i>	<i>nutans</i> (Sw.) Griseb.	BM	Native	

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<b>Bromeliaceae</b>	<i>Guzmania</i>	<i>fawcettii</i> Mez	BM	Endemic
<b>Bromeliaceae</b>	<i>Guzmania</i>	<i>lingulata</i> (L.) Mez var. <i>lingulata</i>	JCM	Native
<b>Bromeliaceae</b>	<i>Hohenbergia</i>	<i>eristachya</i> Mez	BM	Endemic
<b>Bromeliaceae</b>	<i>Hohenbergia</i>	<i>fawcettii</i> Mez	BM	Endemic
<b>Bromeliaceae</b>	<i>Mezobromelia</i>	<i>capituligera</i> (Griseb.) J. R. Grant	BM	Native GA
<b>Bromeliaceae</b>	<i>Pitcairnea</i>	<i>bromelifolia</i> L'Her. var. <i>bromelifolia</i>	BM	Endemic
<b>Bromeliaceae</b>	<i>Tillandsia</i>	<i>bulbosa</i> Hook.	BM	Native
<b>Bromeliaceae</b>	<i>Tillandsia</i>	<i>complanata</i> Benth.	BM	Native
<b>Bromeliaceae</b>	<i>Tillandsia</i>	<i>compressa</i> Bertero ex Schult. & Schult. f.	BM	Native
<b>Bromeliaceae</b>	<i>Tillandsia</i>	<i>deppeana</i> Steud.	BM	
<b>Bromeliaceae</b>	<i>Tillandsia</i>	<i>fendleri</i> Griseb. var. <i>fendleri</i>	BM	Native
<b>Bromeliaceae</b>	<i>Tillandsia</i>	<i>juncea</i> (Ruiz & Pav.) Poir.	BM	Native
<b>Bromeliaceae</b>	<i>Tillandsia</i>	<i>utriculata</i> L.	BM	Native
<b>Bromeliaceae</b>	<i>Vriesia</i>	<i>incurva</i> (Griseb.) Read	BM	Native
<b>Bromeliaceae</b>	<i>Vriesia</i>	<i>platynema</i> Gaudich var. <i>platynema</i>	BM	Native
<b>Bromeliaceae</b>	<i>Vriesia</i>	<i>sanguinolenta</i> Cogn. & Marchal	JCM	Native
<b>Bromeliaceae</b>	<i>Vriesia</i>	<i>sintensisii</i> (Baker) L. B. Sm. & Pittendr.	BM	Native
<b>Brunelliaceae</b>	<i>Brunellia</i>	<i>comocladiflodia</i> Humb. & Bonpl. Subsp. <i>jamaicensis</i> Cuatrec	BM	Endemic
<b>Buxaceae</b>	<i>Buxus</i>	<i>macrophylla</i> (Britton) Fawc. & Rendle	JCM	Native
<b>Buxaceae</b>	<i>Buxus</i>	<i>sp.</i>	JC	
<b>Cactaceae</b>	<i>Hylocereus</i>	<i>triangularis</i> (L.) Britton & Rose	BM	Native
<b>Cactaceae</b>	<i>Rhipsalis</i>	<i>baccifera</i> (J. S. Muell.) Stearn	JCM	Native
<b>Calceolariaceae</b>	<i>Calceolaria</i>	<i>chelidonioides</i> Kunth	JC	GA
<b>Calceolariaceae</b>	<i>Calceolaria</i>	<i>pinnata</i> L.	BM	
<b>Calophyllaceae</b>	<i>Calophyllum</i>	<i>antillanum</i> Britton	JCM, BM	Native
<b>Campanulaceae</b>	<i>Hippobroma</i>	<i>longiflora</i> (L.) G. Don	JC	Native
<b>Campanulaceae</b>	<i>Lobelia</i>	<i>alticaulis</i> Proctor	JCM	Endemic
<b>Campanulaceae</b>	<i>Lobelia</i>	<i>assurgens</i> L. var. <i>assurgens</i>	JC	Native
<b>Campanulaceae</b>	<i>Lobelia</i>	<i>caudata</i> (Griseb.) Urb.	JC	Endemic
<b>Campanulaceae</b>	<i>Lobelia</i>	<i>cliffortiana</i> L. var. <i>cliffortiana</i>	JCM, BM	Native
<b>Campanulaceae</b>	<i>Lobelia</i>	<i>fawcettii</i> Urb.	JC	Endemic
<b>Campanulaceae</b>	<i>Lobelia</i>	<i>grandifolia</i> Britton	JCM	Endemic
<b>Campanulaceae</b>	<i>Lobelia</i>	<i>innominata</i> Rendle	JC	Endemic GA
<b>Campanulaceae</b>	<i>Lobelia</i>	<i>martagon</i> (Griseb.) Hitchc.	BM	Endemic
<b>Campanulaceae</b>	<i>Triodanis</i>	<i>perfoliata</i> (L.) Nieuwl.	JCM, BM	Native
<b>Canellaceae</b>	<i>Cinnamodendron</i>	<i>corticolum</i> Miers	BM	Endemic
<b>Cannabaceae</b>	<i>Celtis</i>	<i>jamaicensis</i> Planch.	BM	Endemic VU

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<b>Cannabaceae</b>	<i>Trema</i>	<i>lamarckiana</i> (Roem. & Schult.) Blume	BM	Native	
<b>Cannabaceae</b>	<i>Trema</i>	<i>micranthum</i> (L.) Blume	JCM, BM	Native	VU
<b>Capparidaceae</b>	<i>Cynophalla</i>	<i>flexuosa</i> (L.) L. J. Presl	BM	Native	
<b>Caprifoliaceae</b>	<i>Lonicera</i>	<i>japonica</i> Thunb.	JCM, BM		GA
<b>Caprifoliaceae</b>	<i>Lonicera</i>	<i>sempervirens</i> L.	JC		
<b>Caryophyllaceae</b>	<i>Arenaria</i>	<i>lanuginosa</i> (Michx.) Rohrb.	BM	Native	GA
<b>Caryophyllaceae</b>	<i>Drymaria</i>	<i>cordata</i> (L.) Willd. ex Roem. & Schult.	BM	Native	
<b>Caryophyllaceae</b>	<i>Silene</i>	<i>armeria</i> L.	JCM, BM		
<b>Caryophyllaceae</b>	<i>Silene</i>	<i>gallica</i> L.	JCM		
<b>Celastraceae</b>	<i>Cassine</i>	<i>dioecum</i>	BM		
<b>Celastraceae</b>	<i>Maytenus</i>	<i>jamaicensis</i> Krug & Urb.	BM	Native	
<b>Chloranthaceae</b>	<i>Hedyosmum</i>	<i>arborescens</i> Sw.	BM/JC	Native	
<b>Chloranthaceae</b>	<i>Hedyosmum</i>	<i>nutans</i> Sw.	BM/JC	Native	
<b>Chrysobalanaceae</b>	<i>Hirtella</i>	<i>triandra</i> Sw.	BM, JCM	Native	
<b>Clethraceae</b>	<i>Clethra</i>	<i>alexandri</i> Griseb.	BM	Endemic	
<b>Clethraceae</b>	<i>Clethra</i>	<i>occidentalis</i> (L.) Kuntze	JCM, BM	Native	
<b>Clusiaceae</b>	<i>Clusia</i>	<i>flava</i> Jacq.	JCM	Native	
<b>Clusiaceae</b>	<i>Clusia</i>	<i>havetioides</i> (Griseb) Planch. & <i>Triana</i> var. <i>havetioides</i>	BM	Endemic	
<b>Clusiaceae</b>	<i>Clusia</i>	<i>havetioides</i> (Griseb.) Planch. & <i>Triana</i> var. <i>stenocarpa</i> (Urb.) Proctor	BM/JC	Endemic	
<b>Clusiaceae</b>	<i>Clusia</i>	<i>portlandiana</i> R. A. Howard&Proctor	JC	Endemic	
<b>Clusiaceae</b>	<i>Garcinia</i>	<i>descussata</i> C. D. Adams	JCM, BM	Endemic	
<b>Convolvulaceae</b>	<i>Convolvulus</i>	<i>nodiflorus</i> Desr.	JCM, BM	Native	GA
<b>Convolvulaceae</b>	<i>Cuscuta</i>	<i>americana</i> L.	JC	Native	
<b>Convolvulaceae</b>	<i>Cuscuta</i>	<i>umbellata</i> Kunth	JC	Native	
<b>Convolvulaceae</b>	<i>Dichondra</i>	<i>repens</i> J.R. Forst. & G. Forst. var. <i>repens</i>	JC		
<b>Convolvulaceae</b>	<i>Dichondra</i>	<i>repens</i> J.R. Forst. & G. Forst. var. <i>sericea</i> (Sw.) Choisy	BM		
<b>Convolvulaceae</b>	<i>Hewittia</i>	<i>scandens</i> (J. König ex Milne) Mabb.	JC		
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>alba</i> L.	JC	Native	
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>batatas</i> (L.) Lam	JCM, BM	Native	
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>cyanantha</i> Griseb.	BM	Endemic	
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>fawcettii</i> Urb.	JC		GA
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>hederfoila</i> L.	BM, JCM	Native	
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>jamaicensis</i> G. Don	JC	Endemic	GA

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<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>meyeri</i> (Spreng.) G. Don	JC	Native	
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>nil</i> (L.) Roth	JC	Native	
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>obscura</i> (L.) Ker Gawl.	JC		
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>ochracea</i> (Lindl.) G. Don	JC		
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>quamoclit</i> L.	JC	Native	
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>rubella</i> House	BM	Endemic	
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>rubriflora</i> O'Donell	JCM		
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>sp.</i>	JC		
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>ternata</i> Jacq.	BM	Endemic	
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>tiliacea</i> (Willd.) Choisy	JC	Native	
<b>Convolvulaceae</b>	<i>Ipomoea</i>	<i>triloba</i> L.	JC	Native	
<b>Convolvulaceae</b>	<i>Jacquemontia</i>	<i>havanensis</i> (Jacq.) Urb.	JCM, BM	Native	
<b>Convolvulaceae</b>	<i>Jacquemontia</i>	<i>verticillata</i> (L.) Urb. var. <i>verticillata</i>	JC	Native	
<b>Convolvulaceae</b>	<i>Merremia</i>	<i>dissecta</i> (Jacq.) Hallier f.	JCM, BM	Native	Endemic Hisp.
<b>Convolvulaceae</b>	<i>Merremia</i>	<i>quinquefolia</i> (L.) Hallier f.	JC	Native	
<b>Convolvulaceae</b>	<i>Merremia</i>	<i>tuberosa</i> (L.) Rendle	JC		WI
<b>Convolvulaceae</b>	<i>Merremia</i>	<i>umbellata</i> (L.) Hallier f.	JC	Native	
<b>Convolvulaceae</b>	<i>Turbina</i>	<i>corymbosa</i> (L.) Raf.	JC	Native	
<b>Costaceae</b>	<i>Cheilocostus</i>	<i>speciosus</i> (J. König) C. D. Specht.	BM		
<b>Cucurbitaceae</b>	<i>Cayaponia</i>	<i>racemosa</i> (Mill.) Cogn.	JC	Native	
<b>Cucurbitaceae</b>	<i>Cionosicyos</i>	<i>pomiformis</i> Griseb.	JC, BM	Native	
<b>Cucurbitaceae</b>	<i>Cucumis</i>	<i>anguria</i> L.	JC		
<b>Cucurbitaceae</b>	<i>Luffa</i>	<i>aegyptiaca</i> Mill.	JC		GA
<b>Cucurbitaceae</b>	<i>Melothria</i>	<i>pendula</i> L.	JCM	Native	GA
<b>Cucurbitaceae</b>	<i>Momordica</i>	<i>charantia</i> L.	JC		
<b>Cucurbitaceae</b>	<i>Sicana</i>	<i>sphaerica</i> Hook.f.	JCM, BM	Native	
<b>Cunoniaceae</b>	<i>Weinmannia</i>	<i>pinnata</i> L.	BM/JC	Native	
<b>Cunoniaceae</b>	<i>Weinmannia</i>	<i>portlandiana</i> R. A. Howard & Proctor	JC	Endemic	
<b>Cyrillaceae</b>	<i>Cyrilla</i>	<i>racemiflora</i> L.	JCM	Native	
<b>Doryanthaceae</b>	<i>Diospyros</i>	<i>sp.</i>	JC		
<b>Ebenaceae</b>	<i>Diospyros</i>	<i>blancoi</i> A. DC.	JC		
<b>Elaeocarpaceae</b>	<i>Sloanea</i>	<i>jamaicensis</i> Hook.	JC	Endemic	GA
<b>Ericaceae</b>	<i>Lyonia</i>	<i>jamaicensis</i> (Sw.) D. Don	JCM, BM	Endemic	
<b>Ericaceae</b>	<i>Lyonia</i>	<i>octandra</i> (Sw.) Griseb.	BM	Endemic	
<b>Ericaceae</b>	<i>Rhododendron</i>	<i>arborescens</i> (Pursh) Torr.	BM/JC		
<b>Ericaceae</b>	<i>Vaccinium</i>	<i>meridionale</i> Sw.	JCM, BM		
<b>Ericaceae</b>	<i>Vaccinium</i>	<i>racemosum</i> (Vahl) Wilbur & Luteyn	BM	Native	

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<b>Erythroxylaceae</b>	<i>Erythroxylum</i>	<i>areolatum</i> L.	BM/JC	Native	
<b>Euphorbiaceae</b>	<i>Acalypha</i>	<i>elliptica</i> Sw.	BM	Endemic	
<b>Euphorbiaceae</b>	<i>Acalypha</i>	<i>scabrosa</i> Sw.	BM	Endemic	
<b>Euphorbiaceae</b>	<i>Acalypha</i>	<i>virgata</i> L.	BM	Endemic	
<b>Euphorbiaceae</b>	<i>Alchornea</i>	<i>latifolia</i> Sw.	BM/JC	Native	
<b>Euphorbiaceae</b>	<i>Aleurites</i>	<i>moluccanus</i> (L.) Willd.	BM		
<b>Euphorbiaceae</b>	<i>Bernardia</i>	<i>dichotoma</i> (Willd.) Mull. Arg. var. <i>dichotoma</i>	BM	Native	
<b>Euphorbiaceae</b>	<i>Chaetocarpus</i>	<i>globosus</i> (Sw.) Fawc. & Rendle subsp. <i>globosus</i>	BM, JCM	Native	
<b>Euphorbiaceae</b>	<i>Croton</i>	<i>eluteria</i> (L.) W. Wright	JCM	Native	
<b>Euphorbiaceae</b>	<i>Croton</i>	<i>laurinus</i> Sw.	JC, BM	Endemic	
<b>Euphorbiaceae</b>	<i>Croton</i>	<i>lucidus</i> L.	JC	Endemic	
<b>Euphorbiaceae</b>	<i>Dendrocousinsia</i>	<i>alpina</i> Fawc. & Rendle	JCM	Endemic	
<b>Euphorbiaceae</b>	<i>Euphorbia</i>	<i>blodgettii</i> Engelm. ex Hitchc.	BM	Native	
<b>Euphorbiaceae</b>	<i>Euphorbia</i>	<i>heterophylla</i> L.	BM	Native	VU
<b>Euphorbiaceae</b>	<i>Euphorbia</i>	<i>hirta</i> L.	BM	Native	GA
<b>Euphorbiaceae</b>	<i>Euphorbia</i>	<i>hyssopifolia</i> L.	BM	Native	
<b>Euphorbiaceae</b>	<i>Euphorbia</i>	<i>oerstediana</i> (Klotzsch & Garcke) Boiss.	JC	Native	
<b>Euphorbiaceae</b>	<i>Euphorbia</i>	<i>peplus</i> L.	BM/JC		
<b>Euphorbiaceae</b>	<i>Gymnanthes</i>	<i>elliptica</i> Sw.	BM, JCM	Endemic	nTR
<b>Euphorbiaceae</b>	<i>Gymnanthes</i>	<i>lucida</i> Sw.	BM	Native	
<b>Euphorbiaceae</b>	<i>Hyeronima</i>	<i>jamaicensis</i> Urb.	JCM	Endemic	
<b>Euphorbiaceae</b>	<i>Mercurialis</i>	<i>annua</i> L.	BM		
<b>Euphorbiaceae</b>	<i>Omphalea</i>	<i>triandra</i> L.	JCM	Native	
<b>Euphorbiaceae</b>	<i>Reutealis</i>	<i>trisperma</i> (Blanco) Airy Shaw	BM		
<b>Euphorbiaceae</b>	<i>Sapium</i>	<i>cuneatum</i> Griseb.	BM	Endemic	
<b>Euphorbiaceae</b>	<i>Sapium</i>	<i>laurifolium</i> (A. Rich.) Griseb.	JCM	Native	
<b>Euphorbiaceae</b>	<i>Sapium</i>	<i>stylare</i> Mull.Arg.	BM		
<b>Euphorbiaceae</b>	<i>Tetrorchidium</i>	<i>rubrivenium</i> Poepp.	JCM		
<b>Fabaceae</b>	<i>Acaciella</i>	<i>villosa</i> (Sw.) Britton & Rose	JC	Native	
<b>Fabaceae</b>	<i>Aeschynomene</i>	<i>americana</i> L.	BM/JC	Native	
<b>Fabaceae</b>	<i>Alysicarpus</i>	<i>vaginalis</i> (L.) DC.	BM		
<b>Fabaceae</b>	<i>Andira</i>	<i>inermis</i> (W. Wright) DC.	BM/JC	Native	
<b>Fabaceae</b>	<i>Bauhinia</i>	<i>divaricata</i> L. var. <i>divaricata</i>	JC	Native	GA
<b>Fabaceae</b>	<i>Caesalpinia</i>	<i>decapetata</i> (Roth.) Alst.	BM		
<b>Fabaceae</b>	<i>Canavalia</i>	<i>altipendula</i> (Piper) Standl.	BM	Endemic	
<b>Fabaceae</b>	<i>Chamaecrista</i>	<i>glandulosa</i> (L.) Greene var. <i>grandulosa</i>	BM, JCM	Native	

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<b>Fabaceae</b>	<i>Chamaecrista</i>	<i>nictitans</i> (L.) Moench subsp. <i>patellaria</i> (Collad.) H. S. Irwin & Barneby var. <i>glabrata</i> (Vogel) H. S. Irwin & Barneby	BM	Native	
<b>Fabaceae</b>	<i>Chamaecrista</i>	<i>nictitans</i> (L.) Moench subsp. <i>patellaria</i> (Collad.) H. S. Irwin & Barneby var. <i>ramosa</i> (Vogel) H. S. Irwin & Barneby	BM	Native	
<b>Fabaceae</b>	<i>Christia</i>	<i>vespertilionis</i> (L. f.) Bakh. f.	BM		
<b>Fabaceae</b>	<i>Codariocalyx</i>	<i>gyroides</i> (Link) Hassk.	BM		
<b>Fabaceae</b>	<i>Codariocalyx</i>	<i>motorius</i> (Houtt.) H. Ohashi	BM/JC		
<b>Fabaceae</b>	<i>Cojoba</i>	<i>arborea</i> (L.) Britton & Rose	BM	Native	
<b>Fabaceae</b>	<i>Crotalaria</i>	<i>berteroana</i> DC.	BM		
<b>Fabaceae</b>	<i>Crotalaria</i>	<i>incana</i> L.	BM	Native	
<b>Fabaceae</b>	<i>Crotalaria</i>	<i>sagittalis</i> L.	BM	Native	
<b>Fabaceae</b>	<i>Crotalaria</i>	<i>spectabilis</i> Roth	BM		
<b>Fabaceae</b>	<i>Crotalaria</i>	<i>tetragona</i> Roxb. ex Andrews	BM		
<b>Fabaceae</b>	<i>Desmodium</i>	<i>adscendens</i> (Sw.) DC.	BM	Native	
<b>Fabaceae</b>	<i>Desmodium</i>	<i>axillare</i> (Sw.) DC. var. <i>axillare</i>	JC	Native	WI
<b>Fabaceae</b>	<i>Desmodium</i>	<i>barbatum</i> (L.) Benth.	BM	Native	WI
<b>Fabaceae</b>	<i>Desmodium</i>	<i>incanum</i> DC.	BM	Native	
<b>Fabaceae</b>	<i>Desmodium</i>	<i>intortum</i> (Mill.) Urb.	BM/JC	Native	
<b>Fabaceae</b>	<i>Entada</i>	<i>gigas</i> (L.) F. & R.	BM/JC	Native	
<b>Fabaceae</b>	<i>Erythrina</i>	<i>humeana</i> Spreng.	BM		
<b>Fabaceae</b>	<i>Galactia</i>	<i>pendula</i> Pers	BM	Endemic	
<b>Fabaceae</b>	<i>Guilandina</i>	<i>bunduc</i> L.	JCM	Native	
<b>Fabaceae</b>	<i>Hymenaea</i>	<i>courbaril</i> L.	BM	Native	GA
<b>Fabaceae</b>	<i>Indigofera</i>	<i>dosua</i> D. Don	BM		
<b>Fabaceae</b>	<i>Indigofera</i>	<i>sp.</i>	BM		
<b>Fabaceae</b>	<i>Indigofera</i>	<i>spicata</i> Forssk.	BM		WI
<b>Fabaceae</b>	<i>Indigofera</i>	<i>suffruticosa</i> Mill.	BM	Native	GA
<b>Fabaceae</b>	<i>Indigofera</i>	<i>trita</i> L. subsp. <i>scabra</i>	BM		
<b>Fabaceae</b>	<i>Inga</i>	<i>vera</i> Willd.	BM, JCM	Native	WI
<b>Fabaceae</b>	<i>Lathyrus</i>	<i>tingitanus</i> L.	BM		
<b>Fabaceae</b>	<i>Leucaena</i>	<i>diversifolia</i> (Schltdl.) Benth.	BM		
<b>Fabaceae</b>	<i>Leucaena</i>	<i>leucocephala</i> (Lam.) de Wit subsp. <i>Leucocephala</i>	BM		
<b>Fabaceae</b>	<i>Lonchocarpus</i>	<i>heptaphyllus</i> (Poir.) DC.	BM	Native	
<b>Fabaceae</b>	<i>Lupinus</i>	<i>angustifolius</i> L.	BM		VU
<b>Fabaceae</b>	<i>Lupinus</i>	<i>hartwegii</i> Lindl.	JCM		
<b>Fabaceae</b>	<i>Lupinus</i>	<i>sp.</i>	BM		



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<b>Fabaceae</b>	<i>Macroptilium</i>	<i>lathyroides (L.) Urb.</i>	BM	WI
<b>Fabaceae</b>	<i>Mimosa</i>	<i>diplotricha C. Wright ex Sauvalle</i> <i>var. diplotricha</i>	BM	Native
<b>Fabaceae</b>	<i>Mimosa</i>	<i>pudica L. var. pudica</i>	BM	Native
<b>Fabaceae</b>	<i>Mucuna</i>	<i>sloanei Fawc. &amp; Rendle</i>	BM	Native
<b>Fabaceae</b>	<i>Paraserianthes</i>	<i>lophantha (Willd.) I. C. Neilsen</i>	BM	
<b>Fabaceae</b>	<i>Pseudarthria</i>	<i>viscida (L.) Wight &amp; Arn.</i>	BM	
<b>Fabaceae</b>	<i>Psophocarpus</i>	<i>palustris Desv.</i>	BM	
<b>Fabaceae</b>	<i>Rhynchosia</i>	<i>erythrinoides Schltld. &amp; Cham.</i>	BM	Native
<b>Fabaceae</b>	<i>Rhynchosia</i>	<i>phaseoloides (Sw.) DC.</i>	BM	Native
<b>Fabaceae</b>	<i>Rhynchosia</i>	<i>reticulata (Sw.) DC.</i>	BM	Native
<b>Fabaceae</b>	<i>Senna</i>	<i>angustisiliqua (Lam.) H. S. Irwin &amp; Barneby</i> <i>var. fulgens (Macfad.) H. S. Irwin &amp; Barneby</i>	BM	Endemic GA
<b>Fabaceae</b>	<i>Senna</i>	<i>bicapsularis (L.) Roxb. var.</i> <i>bicapsularis</i>	BM	Native
<b>Fabaceae</b>	<i>Senna</i>	<i>hirtusa (L.) H. S. Irwin &amp; Barneby</i> <i>var. hirsuta</i>	BM	
<b>Fabaceae</b>	<i>Senna</i>	<i>septemtrionalis (Viv.) H. S. Irwin &amp; Barneby</i>	BM	
<b>Fabaceae</b>	<i>Senna</i>	<i>sophora (L.) Roxb.</i>	BM	Native
<b>Fabaceae</b>	<i>Senna</i>	<i>viminea (L.) H. S. Irwin &amp; Barneby</i>	BM	Native
<b>Fabaceae</b>	<i>Shuteria</i>	<i>vestita Wight &amp; Arn.</i>	BM	GA
<b>Fabaceae</b>	<i>Stylosanthes</i>	<i>viscosa (L.) Sw.</i>	BM	Native
<b>Fabaceae</b>	<i>Tadehagi</i>	<i>triquetrum (L.) H. Ohashi</i>	BM	WI
<b>Fabaceae</b>	<i>Tephrosia</i>	<i>noctiflora Bojer ex Baker</i>	BM	
<b>Fabaceae</b>	<i>Tephrosia</i>	<i>sinapou (Buc;hoz) A. Chev.</i>	BM	
<b>Fabaceae</b>	<i>Tephrosia</i>	<i>vogelii Hook.f.</i>	BM	
<b>Fabaceae</b>	<i>Teramnus</i>	<i>uncinatus (L.) Sw.</i>	BM	Native
<b>Fabaceae</b>	<i>Trifolium</i>	<i>arvense L.</i>	BM	
<b>Fabaceae</b>	<i>Trifolium</i>	<i>incarnatum L.</i>	BM	
<b>Fabaceae</b>	<i>Trifolium</i>	<i>repens L.</i>	BM/JC	
<b>Fabaceae</b>	<i>Vigna</i>	<i>antillana (Urb.) Fawc. &amp; Rendle</i>	BM, JCM	Native
<b>Fabaceae</b>	<i>Zapoteca</i>	<i>portoricensis (Jacq.) H. M. Hern.</i> <i>subsp. Portoricensis</i>	JC, BM	Native
<b>Fabaceae</b>	<i>Zornia</i>	<i>reticulata Sm.</i>	BM	Native
<b>Fagaceae</b>	<i>Castanea</i>	<i>sativa Mill.</i>	BM	
<b>Garryaceae</b>	<i>Garrya</i>	<i>fadyenii Hook.</i>	BM	Native
<b>Gentianaceae</b>	<i>Centaurium</i>	<i>pulchellum (Sw.) Druce</i>	JC	nTR
<b>Gentianaceae</b>	<i>Lisianthus</i>	<i>capitatus Urb.</i>	JC	Endemic WI
<b>Gentianaceae</b>	<i>Lisianthus</i>	<i>cordifolius L.</i>	JC	Endemic VU

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<b>Gentianaceae</b>	<i>Lisianthus</i>	<i>exertus Sw.</i>	JCM, BM	Endemic	GA
<b>Gentianaceae</b>	<i>Lisianthus</i>	<i>latifolius Sw.</i>	JCM, BM	Endemic	GA
<b>Gentianaceae</b>	<i>Lisianthus</i>	<i>longifolius L.</i>	JCM, BM	Endemic	GA
<b>Gentianaceae</b>	<i>Macrocarpaea</i>	<i>thamnoides (Griseb.) Gilg</i>	BM, JCM	Endemic	
<b>Gentianaceae</b>	<i>Voyria</i>	<i>aphylla (Jacq.) Pers.</i>	BM	Native	
<b>Geraniaceae</b>	<i>Geranium</i>	<i>carolinianum L.</i>	BM	Naturalized	
<b>Geraniaceae</b>	<i>Pelargonium</i>	<i>sp.</i>	BM		
<b>Gesneriaceae</b>	<i>Achimenes</i>	<i>erecta (Lam.) H. P. Fuchs</i>	JCM, BM		
<b>Gesneriaceae</b>	<i>Besleria</i>	<i>lutea L.</i>	JCM	Native	
<b>Gesneriaceae</b>	<i>Columnea</i>	<i>fawcettii (Urb.) C. V. Morton</i>	JC, BM	Endemic	
<b>Gesneriaceae</b>	<i>Columnea</i>	<i>hirsuta Sw.</i>	JC, BM	Endemic	
<b>Gesneriaceae</b>	<i>Columnea</i>	<i>pubescens (Griseb.) Kuntze</i>	JCM	Endemic	
<b>Gesneriaceae</b>	<i>Gesneria</i>	<i>acaulis L. var. acaulis</i>	JCM	Endemic	
<b>Gesneriaceae</b>	<i>Gesneria</i>	<i>alpina (Urb.) Urb.</i>	JCM, BM	Endemic	
<b>Gesneriaceae</b>	<i>Gesneria</i>	<i>calycina Sw.</i>	JCM	Endemic	
<b>Gesneriaceae</b>	<i>Gesneria</i>	<i>clandestina (Griseb.) Urb.</i>	JCM	Endemic	
<b>Gesneriaceae</b>	<i>Gesneria</i>	<i>exserta Sw.</i>	JCM, BM	Endemic	
<b>Gesneriaceae</b>	<i>Gesneria</i>	<i>pumila Sw. subsp. mimuloides (Griseb.) L. E. Skog</i>	JC	Endemic	
<b>Gesneriaceae</b>	<i>Gesneria</i>	<i>pumila Sw. subsp. pumila</i>	JCM	Endemic	
<b>Gesneriaceae</b>	<i>Pheidonocarpa</i>	<i>corymbosa (Sw.) L. E. Skog subsp. corymbosa</i>	JC	Endemic	
<b>Gesneriaceae</b>	<i>Rhytidophyllum</i>	<i>tomentosum (L.) Mart.</i>	JC	Native	
<b>Gesneriaceae</b>	<i>Rhytidophyllum</i>	<i>grande (Sw.) Mart. var. grande</i>	JCM	Endemic	
<b>Heliconiaceae</b>	<i>Heliconia</i>	<i>caribaea Lam.</i>	BM	Native	
<b>Hernandiaceae</b>	<i>Hernandia</i>	<i>catalpifolia Britton &amp; Harris</i>	BM/JC	Endemic	
<b>Hydrangeaceae</b>	<i>Hydrangea</i>	<i>paniculata Sieb.</i>	BM		
<b>Hypericaceae</b>	<i>Hypericum</i>	<i>hypericoides (L.) Crantz</i>	BM	Native	
<b>Hypericaceae</b>	<i>Hypericum</i>	<i>sp.</i>	BM		
<b>Hypoxidaceae</b>	<i>Hypoxis</i>	<i>decumbens L.</i>	BM/JC	Native	
<b>Lacistemataceae</b>	<i>Lacistema</i>	<i>aggregatum (P. J. Bergius) Rusby</i>	BM/JC	Native	
<b>Lamiaceae</b>	<i>Aegiphila</i>	<i>elata Sw.</i>	JC	Native	
<b>Lamiaceae</b>	<i>Aegiphila</i>	<i>trifida Sw.</i>	BM	Endemic	
<b>Lamiaceae</b>	<i>Aegiphila</i>	<i>uniflora Urb.</i>	BM	Endemic	
<b>Lamiaceae</b>	<i>Anisomeles</i>	<i>indica (L.) Kuntze</i>	JC, BM		
<b>Lamiaceae</b>	<i>Callicarpa</i>	<i>ferruginea Sw.</i>	JC	Native	
<b>Lamiaceae</b>	<i>Clerodendrum</i>	<i>chinense (Osbeck) Mabb.</i>	JC		
<b>Lamiaceae</b>	<i>Clinopodium</i>	<i>brownei (Sw.) Kuntze</i>	BM	Native	
<b>Lamiaceae</b>	<i>Clinopodium</i>	<i>vimineum (L.) Kuntze</i>	JCM, BM	Native	WI
<b>Lamiaceae</b>	<i>Congea</i>	<i>tomentosa Roxb.</i>	JC		
<b>Lamiaceae</b>	<i>Cornutia</i>	<i>thyrosidea Banks ex Moldenke</i>	JC	Endemic	GA

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<b>Lamiaceae</b>	<i>Gmelina</i>	<i>arborea</i> Roxb. ex Sm.	JC	
<b>Lamiaceae</b>	<i>Hyptis</i>	<i>capitata</i> Jacq.	JCM, BM	Native
<b>Lamiaceae</b>	<i>Hyptis</i>	<i>pectinata</i> (L.) Poit.	JC	Native
<b>Lamiaceae</b>	<i>Hyptis</i>	<i>suaveolens</i> (L.) Poit.	JC	Native
<b>Lamiaceae</b>	<i>Hyptis</i>	<i>verticillata</i> Jacq.	JCM, BM	Native
<b>Lamiaceae</b>	<i>Leonotis</i>	<i>nepetifolia</i> (L.) R. Br.	JC	
<b>Lamiaceae</b>	<i>Ocimum</i>	<i>campechianum</i> Mill.	JC	Native
<b>Lamiaceae</b>	<i>Petitia</i>	<i>domingensis</i> Jacq.	JC	Native
<b>Lamiaceae</b>	<i>Plectranthus</i>	<i>scutellarioides</i> (L.) R. Br.	BM, JCM	
<b>Lamiaceae</b>	<i>Rotheca</i>	<i>myricoides</i> (Hochst.) Steane & Mabb.	JC	
<b>Lamiaceae</b>	<i>Salvia</i>	<i>coccinea</i> Buc'hoz ex Etl.	JCM, BM	Native
<b>Lamiaceae</b>	<i>Salvia</i>	<i>hispanica</i> L.	BM	
<b>Lamiaceae</b>	<i>Salvia</i>	<i>jamaicensis</i> Fawc.	JC	Endemic
<b>Lamiaceae</b>	<i>Salvia</i>	<i>misella</i> Kunth	BM	Native
<b>Lamiaceae</b>	<i>Salvia</i>	<i>occidentalis</i> Sw.	JC	Native
<b>Lamiaceae</b>	<i>Salvia</i>	<i>tenella</i> Sw.	JCM, BM	Native
<b>Lamiaceae</b>	<i>Tectona</i>	<i>grandis</i> L. f.	JC	
<b>Lamiaceae</b>	<i>Vitex</i>	<i>umbrosa</i> Sw.	JC	Endemic
<b>Lamiaceae</b>	<i>Volkameria</i>	<i>aculeata</i> L.	JC	Native
<b>Lauraceae</b>	<i>Beilschmiedia</i>	<i>pendula</i> (Sw.) Hemsl.	JCM	Native GA
<b>Lauraceae</b>	<i>Cinnamomum</i>	<i>montanum</i> (Sw.) J. Presl	JCM, BM	Native
<b>Lauraceae</b>	<i>Licaria</i>	<i>triandra</i> (Sw.) Kosterm.	BM	Native GA
<b>Lauraceae</b>	<i>Nectandra</i>	<i>coriacea</i> (Sw.) Griseb.	BM	Native
<b>Lauraceae</b>	<i>Nectandra</i>	<i>membranacea</i> (Sw.) Griseb.	BM	Native
<b>Lauraceae</b>	<i>Nectandra</i>	<i>patens</i> (Sw.) Griseb.	BM/JC	Native
<b>Lauraceae</b>	<i>Ocotea</i>	<i>floribunda</i> (Sw.) Mez	JCM	Native
<b>Lauraceae</b>	<i>Ocotea</i>	<i>leucoxydon</i> (Sw.) Laness.	BM/JC	Native
<b>Lauraceae</b>	<i>Persea</i>	<i>alpigena</i> Spreng var. <i>alpigena</i> )	BM	Endemic
<b>Lauraceae</b>	<i>Persea</i>	<i>alpigena</i> Spreng var. <i>harrisii</i> (Mez) L. E. Kopp	BM/JC	Endemic
<b>Lauraceae</b>	<i>Persea</i>	<i>sp.</i>	BM	
<b>Lecythidaceae</b>	<i>Grias</i>	<i>cauliflora</i> L.	JC	Native
<b>Lentibulariaceae</b>	<i>Utricularia</i>	<i>alpina</i> Jacq.	JCM	Native
<b>Linderniaceae</b>	<i>Lindernia</i>	<i>crustacea</i> (L.) F. Muell.	JC	
<b>Linderniaceae</b>	<i>Lindernia</i>	<i>diffusa</i> (L.) Wettst.	JCM	Native
<b>Linderniaceae</b>	<i>Lindernia</i>	<i>rotundiflora</i> (L.) Alston	BM	
<b>Loganiaceae</b>	<i>Spigelia</i>	<i>anthelmia</i> L.	JC	Native
<b>Loranthaceae</b>	<i>Dendropemon</i>	<i>parvifolius</i> (Sw.) Blume ex Steud.	BM/JC	Native
<b>Loranthaceae</b>	<i>Dendropemon</i>	<i>pauciflorus</i> (Sw.) Tiegh.	BM	Endemic

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<b>Loranthaceae</b>	<i>Oryctanthus</i>	<i>occidentalis (L.) Eichler</i>	BM	Endemic
<b>Loranthaceae</b>	<i>Passovia</i>	<i>lepidobotrys (Griseb.) Kuijt</i>	BM	Endemic
<b>Loranthaceae</b>	<i>Psittacanthus</i>	<i>martinicensis (Presl) Eichler</i>	BM	Native
<b>Lythraceae</b>	<i>Heimia</i>	<i>salicifolia Link</i>	BM	Native
<b>Malpighiaceae</b>	<i>Byrsonima</i>	<i>crassifolia (L.) Kunth</i>	BM	Native
<b>Malpighiaceae</b>	<i>Malpighia</i>	<i>glabra L.</i>	BM	Native
<b>Malpighiaceae</b>	<i>Malpighia</i>	<i>urens L.</i>	JCM	
<b>Malpighiaceae</b>	<i>Stigmaphyllon</i>	<i>emarginatum (Cav.) A. Juss.</i>	BM	Native
<b>Malvaceae</b>	<i>Adansonia</i>	<i>digitata L.</i>	JC	
<b>Malvaceae</b>	<i>Anoda</i>	<i>acerifolia Cav.</i>	BM	Native
<b>Malvaceae</b>	<i>Ayenia</i>	<i>ardua Critobal</i>	JC	Native
<b>Malvaceae</b>	<i>Ayenia</i>	<i>laevigata Sw. var. laevigata</i>	JC	Endemic
<b>Malvaceae</b>	<i>Ayenia</i>	<i>magna L.</i>	JC	Native
<b>Malvaceae</b>	<i>Ceiba</i>	<i>pentandra(L.) Gaertn.</i>	JC	Native
<b>Malvaceae</b>	<i>Cola</i>	<i>cordifolia (Cav.) R. Br.</i>	JC	
<b>Malvaceae</b>	<i>Cola</i>	<i>nitida (Vent) Schott &amp; Endl.</i>	BM/JC	
<b>Malvaceae</b>	<i>Corchorus</i>	<i>siliquosus L.</i>	JCM	Native
<b>Malvaceae</b>	<i>Dombeya</i>	<i>burgessiae Gerrard ex Harv.</i>	BM	
<b>Malvaceae</b>	<i>Gossypium</i>	<i>barbedense L. var. barbadense</i>	BM	
<b>Malvaceae</b>	<i>Guazuma</i>	<i>ulmifolia Lam.</i>	BM/JC	Native
<b>Malvaceae</b>	<i>Hibiscus</i>	<i>elatus Sw.</i>	BM	Native
<b>Malvaceae</b>	<i>Hibiscus</i>	<i>tiliaceus L. var. permambucensis (Arruda) I. M. Johnst.</i>	BM	Native
<b>Malvaceae</b>	<i>Malvaviscus</i>	<i>arboreus Cav.</i>	BM/JC	GA
<b>Malvaceae</b>	<i>Melochia</i>	<i>lupulina Sw.</i>	BM	Native
<b>Malvaceae</b>	<i>melochia</i>	<i>tomentosa L.</i>	BM	Native WI
<b>Malvaceae</b>	<i>Modiola</i>	<i>caroliniana (L.) G. Don</i>	BM	
<b>Malvaceae</b>	<i>Ochroma</i>	<i>pyramidale (Cav. ex Lam.) Urb.</i>	JC	Native
<b>Malvaceae</b>	<i>Pavonia</i>	<i>schiedeana Steud.</i>	BM	Native
<b>Malvaceae</b>	<i>Sida</i>	<i>acuta Burm. f.</i>	BM	Native
<b>Malvaceae</b>	<i>Sida</i>	<i>glutinosa Comm. ex Cav.</i>	JC	Native
<b>Malvaceae</b>	<i>Sida</i>	<i>rhombofolia L.</i>	BM/JC	Native
<b>Malvaceae</b>	<i>Sida</i>	<i>spinosa L.</i>	BM/JC	Native
<b>Malvaceae</b>	<i>Sida</i>	<i>urens L.</i>	BM/JC	Native GA
<b>Malvaceae</b>	<i>Thespesia</i>	<i>populnea (L.) Sol. ex Correa</i>	JC	Native
<b>Malvaceae</b>	<i>Triumfetta</i>	<i>lappula L.</i>	BM	Native
<b>Malvaceae</b>	<i>Triumfetta</i>	<i>pilosa Roth</i>	BM	
<b>Malvaceae</b>	<i>Triumfetta</i>	<i>semitriloba Jacq.</i>	BM/JC	Native
<b>Malvaceae</b>	<i>Urena</i>	<i>lobata L.</i>	BM/JC	Native
<b>Malvaceae</b>	<i>Urena</i>	<i>sinuata L.</i>	JC	native?
<b>Malvaceae</b>	<i>Wercklea</i>	<i>flavovirens Proctor</i>	BM	Endemic

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<b>Malvaceae</b>	<i>Wissadula</i>	<i>amplissima</i> (L.) R. E. Fr.	JC	Native	
<b>Malvaceae</b>	<i>Wissadula</i>	<i>fadyenii</i> Planch ex. R. E. Fr.	JC	Native	
<b>Marantaceae</b>	<i>Calathea</i>	<i>allouia</i> (Aubl.) Lindl.	BM		
<b>Marcgraviaceae</b>	<i>Marcgravia</i>	<i>brachysepala</i> Urb.	BM/JC	Endemic	
<b>Marcgraviaceae</b>	<i>Marcgravia</i>	<i>brownei</i> (Triana & Planch.) Krug & Urb.	BM/JC	Endemic	
<b>Melastomataceae</b>	<i>Adelobotrys</i>	<i>adscendens</i> (Sw.) Triana	JCM	Native	
<b>Melastomataceae</b>	<i>Arthrostemma</i>	<i>ciliatum</i> Pav. ex D. Don	JC	Native	
<b>Melastomataceae</b>	<i>Blakea</i>	<i>trinervia</i> L.	JC, BM	Endemic	
<b>Melastomataceae</b>	<i>Calycogonium</i>	<i>glabratum</i> (Sw.) DC.	BM	Native	
<b>Melastomataceae</b>	<i>Calycogonium</i>	<i>rhamnoideum</i> Naudin	JC	Native	
<b>Melastomataceae</b>	<i>Clidemia</i>	<i>crossosepala</i> Griseb. var. <i>crossopetala</i>	JC	Endemic	VU
<b>Melastomataceae</b>	<i>Clidemia</i>	<i>erythropogon</i> DC.	JC, BM	Native	
<b>Melastomataceae</b>	<i>Clidemia</i>	<i>grisebachii</i> Cogn.	BM	Endemic	
<b>Melastomataceae</b>	<i>Clidemia</i>	<i>hirta</i> (L.) D. Don	JC, BM	Native	
<b>Melastomataceae</b>	<i>Clidemia</i>	<i>plumosa</i> (Desr.) DC.	JCM	Native	
<b>Melastomataceae</b>	<i>Clidemia</i>	<i>septuplinervia</i> Cogn.	JCM	Native	
<b>Melastomataceae</b>	<i>Clidemia</i>	<i>strigillosa</i> (Sw.) DC.	BM	Native	nTR
<b>Melastomataceae</b>	<i>Clidemia</i>	<i>umbellatum</i> (Mill.) L. O. Williams	JCM, BM	Native	nTR
<b>Melastomataceae</b>	<i>Conostegia</i>	<i>balbisiana</i> Ser. ex DC.	JCM	Endemic	
<b>Melastomataceae</b>	<i>Conostegia</i>	<i>icosandra</i> (Sw. ex Wikstr.) Urb.	JC	Native	TR
<b>Melastomataceae</b>	<i>Conostegia</i>	<i>montana</i> (Sw.) D. Don ex DC.	BM	Native	nTR
<b>Melastomataceae</b>	<i>Conostegia</i>	<i>procera</i> (Sw.) D. Don	JC	Endemic	
<b>Melastomataceae</b>	<i>Conostegia</i>	<i>pyxidata</i> Proctor	JCM	Endemic	
<b>Melastomataceae</b>	<i>Conostegia</i>	<i>rufescens</i> Naudin	JCM	Native	GA
<b>Melastomataceae</b>	<i>Conostegia</i>	<i>superba</i> Naudin	BM	Native	
<b>Melastomataceae</b>	<i>Henriettea</i>	<i>sessilifolia</i> (L.) Alain	JCM	Native	
<b>Melastomataceae</b>	<i>Mecranium</i>	<i>amygdalinum</i> (Desr.) C. Wright	JC		Endemic Hisp.
<b>Melastomataceae</b>	<i>Mecranium</i>	<i>axillare</i> (Macfad.) Skean subsp. <i>axillare</i>	JC	Endemic	
<b>Melastomataceae</b>	<i>Mecranium</i>	<i>purpurascens</i> (DC.) Triana	JCM, BM	Endemic	
<b>Melastomataceae</b>	<i>Mecranium</i>	<i>virgatum</i> (Sw.) Triana	JC	Endemic	GA
<b>Melastomataceae</b>	<i>Melastoma</i>	<i>malabathricum</i> L.	JC		
<b>Melastomataceae</b>	<i>Meriania</i>	<i>leucantha</i> (Sw.) subsp. <i>leucantha</i>	JC	Endemic	
<b>Melastomataceae</b>	<i>Miconia</i>	<i>albicans</i> (Sw.) Triana	BM/JC	Native	GA
<b>Melastomataceae</b>	<i>Miconia</i>	<i>ciliata</i> (Rich.) DC.	BM	Native	
<b>Melastomataceae</b>	<i>Miconia</i>	<i>dodecandra</i> (Desr.) Cogn.	JCM, BM	Native	
<b>Melastomataceae</b>	<i>Miconia</i>	<i>impetiolearis</i> (Sw.) DC.	JC	Native	
<b>Melastomataceae</b>	<i>Miconia</i>	<i>laevigata</i> (L.) DC.	JCM, BM	Native	

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<b>Melastomataceae</b>	<i>Miconia</i>	<i>multispicata</i> Naudin	JC	Native	
<b>Melastomataceae</b>	<i>Miconia</i>	<i>neomicrantha</i> Judd & Skean	JCM	Native	
<b>Melastomataceae</b>	<i>Miconia</i>	<i>prasina</i> (Sw.) DC.	BM	Native	GA
<b>Melastomataceae</b>	<i>Miconia</i>	<i>pseudorigida</i> Proctor	BM	Endemic	
<b>Melastomataceae</b>	<i>Miconia</i>	<i>quadrangularis</i> (Sw.) Naudin	JCM, BM	Endemic	
<b>Melastomataceae</b>	<i>Miconia</i>	<i>rigida</i> (Sw.) Triana	BM/JC	Endemic	Endemic Hisp.
<b>Melastomataceae</b>	<i>Miconia</i>	<i>rubens</i> (Sw.) Naudin	JCM, BM	Endemic	
<b>Melastomataceae</b>	<i>Miconia</i>	<i>serrulata</i> (DC.) Naudin	JCM, BM	Native	
<b>Melastomataceae</b>	<i>Miconia</i>	<i>tetrandra</i> (Sw.) D. Don ex G. Don	JCM, BM	Native	
<b>Melastomataceae</b>	<i>Miconia</i>	<i>theaezans</i> (Bonpl.) Cogn.	JCM, BM		
<b>Melastomataceae</b>	<i>Miconia</i>	<i>trinervia</i> (Sw.) D. Don ex G. Don	JC	Native	
<b>Melastomataceae</b>	<i>Mouriria</i>	<i>myrtilloides</i> (Sw.) Poir. subsp. <i>myrtilloides</i>	JC	Native	
<b>Melastomataceae</b>	<i>Nepsera</i>	<i>aquatica</i> (Aubl.) Naudin	JCM	Native	
<b>Melastomataceae</b>	<i>Ossaea</i>	<i>asperifolia</i> (Naudin) Triana	JC	Native	
<b>Melastomataceae</b>	<i>Ossaea</i>	<i>glomerata</i> (Naudin) Triana	JC	Native	
<b>Melastomataceae</b>	<i>Ossaea</i>	<i>microphylla</i> (Sw.) C. Wright	JC, BM	Native	
<b>Melastomataceae</b>	<i>Ossea</i>	<i>hirsuta</i> (Sw.) Triana	BM	Endemic	nTR
<b>Melastomataceae</b>	<i>Sagraea</i>	<i>capillaris</i> (Sw.) DC.	JCM	Native	
<b>Melastomataceae</b>	<i>Tetrazygia</i>	<i>albicans</i> (D. Don ex Naudin) Triana	JC	Endemic	
<b>Melastomataceae</b>	<i>Tetrazygia</i>	<i>hispida</i> (Sw.) Macfad. var. <i>hispida</i>	JCM	Endemic	
<b>Melastomataceae</b>	<i>Tetrazygia</i>	<i>bicolor</i> (Mill.) Cign. var. <i>bicolor</i>	JC	Native	
<b>Melastomataceae</b>	<i>Tibouchina</i>	<i>semidecandra</i> (Mart. & Schrank ex DC.) Cogn.	JC		GA
<b>Melastomataceae</b>	<i>Tibouchina</i>	<i>urvilleana</i> DC.) Cogn.	BM		
<b>Meliaceae</b>	<i>Cedrela</i>	<i>odorata</i> L.	BM/JC	Native	
<b>Meliaceae</b>	<i>Guarea</i>	<i>glabra</i> L.	BM/JC	Native	
<b>Meliaceae</b>	<i>Trichilia</i>	<i>havanensis</i> Jacq.	BM	Native	GA
<b>Menispermaceae</b>	<i>Cissampelos</i>	<i>pareira</i> L.	BM	Native	
<b>Molluginaceae</b>	<i>Mollugo</i>	<i>verticillata</i> L.	BM	Native?	
<b>Moraceae</b>	<i>Dorstenia</i>	<i>fawcetti</i> Urb.	BM/JC	Native	
<b>Moraceae</b>	<i>Ficus</i>	<i>americana</i> Aubl. subsp. <i>americana</i>	BM/JC	Native	
<b>Moraceae</b>	<i>Ficus</i>	<i>aurea</i> Nutt.	BM	Native	
<b>Moraceae</b>	<i>Ficus</i>	<i>maxima</i> Mill.	BM, JCM	Native	
<b>Moraceae</b>	<i>Ficus</i>	<i>pertusa</i> L. f.	JCM	Native	
<b>Moraceae</b>	<i>Ficus</i>	<i>trigonata</i> L.	BM	Native	
<b>Moraceae</b>	<i>Poikilospermum</i>	<i>suaveolens</i> (Blume) Merr.	BM		WI
<b>Moraceae</b>	<i>Trophis</i>	<i>racemosa</i> (L.) Urb.	JC	Native	
<b>Myricaceae</b>	<i>Myrica</i>	<i>cerifera</i> L.	BM	Native	ED

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<b>Myricaceae</b>	<i>Myrica</i>	<i>microcarpa</i> Benth.	BM	Native	
<b>Myrtaceae</b>	<i>Calypttranthes</i>	<i>chytraculia</i> (L.) Sw.	BM	Native	
<b>Myrtaceae</b>	<i>Calypttranthes</i>	<i>rigida</i> Sw.	JCM, BM	Native	
<b>Myrtaceae</b>	<i>Calypttranthes</i>	<i>umbelliformis</i> Krug. & Urb.	JCM, BM	Endemic	
<b>Myrtaceae</b>	<i>Calypttranthes</i>	<i>wilsonii</i> Griseb.	JC	Endemic	WI
<b>Myrtaceae</b>	<i>Calypttranthes</i>	<i>zuzygium</i> (L.) Sw.	BM	Native	
<b>Myrtaceae</b>	<i>Calyptrogenia</i>	<i>ekmanii</i> (Urb.) Burret	JC	Native	
<b>Myrtaceae</b>	<i>Eucalyptus</i>	<i>alpina</i> Lindl.	BM, JCM		
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>aeruginea</i> DC.	BM	Native	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>axillaris</i> (Sw.) Willd.	BM	Native	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>biflora</i> (L.) DC.	BM	Native	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>biflora</i> (L.) DC.	BM, JCM	Native	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>brachythrix</i> Urb.	JC	Endemic	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>confusa</i> DC.	JCM, BM	Native	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>glabrata</i> (Sw.) DC.	BM, JCM	Native	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>harrisii</i> Krug & Urb.	BM	Endemic	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>ligustrina</i> (Sw.) Willd.	BM	Native?	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>marchiana</i> Griseb.	BM, JCM	Endemic	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>monticola</i> (Sw.) DC.	BM, JCM	Native	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>rendlei</i> Urb.	JCM	Endemic	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>sp.</i>	BM		
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>sulcivenia</i> Krug & Urb.	BM	Endemic	
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>uniflora</i> L.	BM		
<b>Myrtaceae</b>	<i>Eugenia</i>	<i>wallenii</i> Macfad.	BM/JC	Endemic	
<b>Myrtaceae</b>	<i>Myrcia</i>	<i>amazonica</i> DC.	JC	Native	WI
<b>Myrtaceae</b>	<i>Myrcianthes</i>	<i>fragrans</i> (Sw.) McVaugh	BM, JCM	Native	
<b>Myrtaceae</b>	<i>Myrciaria</i>	<i>floribunda</i> (H. West ex Willd.) O. Berg.	BM	Native?	
<b>Myrtaceae</b>	<i>Pimenta</i>	<i>dioica</i> (L.) Merr.	BM	Native	
<b>Myrtaceae</b>	<i>Pimenta</i>	<i>jamaicensis</i> (Britton & Harris) Proctor	BM	Endemic	
<b>Myrtaceae</b>	<i>Pimenta</i>	<i>racemosa</i> (Mill.) J. W. Moore var. <i>racemosa</i>	JC		
<b>Myrtaceae</b>	<i>Psidium</i>	<i>guajava</i> L.	JC	Native	
<b>Myrtaceae</b>	<i>Psidium</i>	<i>guineense</i> Sw.	JCM, BM	Native	
<b>Myrtaceae</b>	<i>Psidium</i>	<i>harrisianum</i> Urb.	JC	Endemic	GA
<b>Myrtaceae</b>	<i>Psidium</i>	<i>montanum</i> Sw.	JCM, BM	Endemic	WI
<b>Myrtaceae</b>	<i>Syzygium</i>	<i>jambos</i> (L.) Alston	JCM, BM		
<b>Nyctaginaceae</b>	<i>Boerhavia</i>	<i>coccinea</i> Mill.	BM	Native	GA
<b>Nyctaginaceae</b>	<i>Boerhavia</i>	<i>diffusa</i> L. var. <i>diffusa</i>	BM	Native	

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<b>Nyctaginaceae</b>	<i>Guapira</i>	<i>discolor (Spreng.) Little</i>	BM	Native	
<b>Nyctaginaceae</b>	<i>Boerhavia</i>	<i>erecta L.</i>	BM	Native	
<b>Ochnaceae</b>	<i>Ouratea</i>	<i>jamaicensis (Planch.) Urb.</i>	JC	Endemic	
<b>Ochnaceae</b>	<i>Ouratea</i>	<i>laurifolia (Sw.) Engl.</i>	JC	Endemic	
<b>Ochnaceae</b>	<i>Sauvagesia</i>	<i>erecta L. subsp. brownei (Planch.) Sastre</i>	BM	Native	WI
<b>Oleaceae</b>	<i>Chionanthus</i>	<i>domingensis Lam.</i>	JCM, BM	Native	
<b>Oleaceae</b>	<i>Forestiera</i>	<i>rhamnifolia Griseb. var. pilosa Stearn</i>	JC	Native	
<b>Oleaceae</b>	<i>Haenianthus</i>	<i>incrassatus (Sw.) Griseb</i>	JC	Endemic	
<b>Oleaceae</b>	<i>Jasminum</i>	<i>fluminense Vell.</i>	JC		
<b>Oleaceae</b>	<i>Jasminum</i>	<i>humile L.</i>	JC		
<b>Onagraceae</b>	<i>Fuchsia</i>	<i>hybrida Hort. ex Siebert &amp; Voss</i>	JCM, BM		
<b>Onagraceae</b>	<i>Fuchsia</i>	<i>magellanica Lam.</i>	BM		WI
<b>Onagraceae</b>	<i>Fuchsia</i>	<i>sp.</i>	BM		
<b>Onagraceae</b>	<i>Ludwigia</i>	<i>octovalvis (Jacq.) P. H. Raven</i>	JCM, BM	Native	
<b>Onagraceae</b>	<i>Ludwigia</i>	<i>peruviana (L.) H. Hara</i>	JC	Native	
<b>Onagraceae</b>	<i>Ludwigia</i>	<i>repens J. R. Forst.</i>	JC	Native	
<b>Onagraceae</b>	<i>Oenothera</i>	<i>longiflora L.</i>	BM		WI
<b>Onagraceae</b>	<i>Oenothera</i>	<i>rosea L'Her. ex Aiton</i>	BM	Native	
<b>Onagraceae</b>	<i>Oenothera</i>	<i>tetraptera Cav.</i>	BM		
<b>Orobanchaceae</b>	<i>Buchnera</i>	<i>longifolia Kunth</i>	JC	Native	nTR
<b>Orobanchaceae</b>	<i>Pedicularis</i>	<i>sceptrum-marianum Vell.</i>	BM		VU
<b>Oxalidaceae</b>	<i>Oxalis</i>	<i>corniculata L.</i>	BM		
<b>Oxalidaceae</b>	<i>Oxalis</i>	<i>corniculata var. villosa (M. Bieb.) Hohen.</i>	BM		
<b>Oxalidaceae</b>	<i>Oxalis</i>	<i>debilis Kunth var. corymbosa (DC.) Lourteig</i>	BM		
<b>Oxalidaceae</b>	<i>Oxalis</i>	<i>latifolia Kunth subsp. latifolia</i>	BM	Native	
<b>Papaveraceae</b>	<i>Bocconia</i>	<i>frutescens L.</i>	BM/JC	Native	
<b>Passifloraceae</b>	<i>Passiflora</i>	<i>edulis Sims.</i>	JCM, BM		
<b>Passifloraceae</b>	<i>Passiflora</i>	<i>lancifolia Desv. ex Ham</i>	BM/JC	Endemic	
<b>Passifloraceae</b>	<i>Passiflora</i>	<i>ligularis Juss.</i>	BM/JC		
<b>Passifloraceae</b>	<i>Passiflora</i>	<i>maliformis L.</i>	BM	Native	
<b>Passifloraceae</b>	<i>Passiflora</i>	<i>oblongata Sw.</i>	BM	Endemic	
<b>Passifloraceae</b>	<i>Passiflora</i>	<i>penduliflora Bertero ex DC.</i>	BM	Native	
<b>Passifloraceae</b>	<i>Passiflora</i>	<i>perfoliata L.</i>	BM	Endemic	
<b>Passifloraceae</b>	<i>Passiflora</i>	<i>rubra L.</i>	BM, JCM	Native	
<b>Passifloraceae</b>	<i>Passiflora</i>	<i>sexflora Juss.</i>	BM/JC	Native	
<b>Passifloraceae</b>	<i>Passiflora</i>	<i>tacsonioides Griseb.</i>	JC	Endemic	



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<b>Passifloraceae</b>	<i>Turnera</i>	<i>ulmifolia</i> L.	BM	Native
<b>Pentaphragaceae</b>	<i>Cleyera</i>	<i>theoides</i> (Sw.) Choisy	JCM	Native
<b>Pentaphragaceae</b>	<i>Ternstroemia</i>	<i>howardiana</i> Kobuski	JC	Endemic
<b>Phrymaceae</b>	<i>Mazus</i>	<i>pumilus</i> (Burm. f.) Steenis	JC	
<b>Phyllanthaceae</b>	<i>Phyllanthus</i>	<i>angustifolius</i> (Sw.) Sw.	BM	Native
<b>Phyllanthaceae</b>	<i>Phyllanthus</i>	<i>arbuscula</i> (Sw.) J. F. Gmel.	JCM	Endemic
<b>Phyllanthaceae</b>	<i>Phyllanthus</i>	<i>carolinensis</i> Walter	BM	Native GA
<b>Phyllanthaceae</b>	<i>Phyllanthus</i>	<i>cladanthus</i> Mull.	JCM	Endemic
<b>Phyllanthaceae</b>	<i>Phyllanthus</i>	<i>eximius</i> G. L. Webster	JCM	Endemic
<b>Phyllanthaceae</b>	<i>Phyllanthus</i>	<i>sp.</i>	JC	
<b>Phyllanthaceae</b>	<i>Phyllanthus</i>	<i>tenellus</i> Roxb.	BM	
<b>Phyllanthaceae</b>	<i>Phyllanthus</i>	<i>urinaria</i> L.	BM	
<b>Phytolacaceae</b>	<i>Phytolacca</i>	<i>icosandra</i> L.	BM	Endemic
<b>Phytolacaceae</b>	<i>Phytolacca</i>	<i>rivinooides</i> Kunth & C. D. Bouche	BM	Native
<b>Phytolaccaceae</b>	<i>Rivina</i>	<i>humilis</i> L.	BM	Native
<b>Picramniaceae</b>	<i>Picramnia</i>	<i>antidesma</i> Sw.	BM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>acuminata</i> Ruiz & Pav.	JCM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>alata</i> Ruiz & Pav.	BM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>alpina</i> (Sw.) A. Dietr.	JCM, BM	Native
<b>Piperaceae</b>	<i>peperomia</i>	<i>amplexicaulis</i> (Sw.) A. Dietr.	JCM	Endemic
<b>Piperaceae</b>	<i>Peperomia</i>	<i>clusiifolia</i> (Jacq.) Hook.	BM	Endemic
<b>Piperaceae</b>	<i>Peperomia</i>	<i>cordifolia</i> (Sw.) A. Dietr.	JCM	Endemic
<b>Piperaceae</b>	<i>Peperomia</i>	<i>crassicaulis</i> Fawc. & Rendle	JCM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>discolor</i> (Sw.) Loud.	BM/JC	Endemic
<b>Piperaceae</b>	<i>Peperomia</i>	<i>distachya</i> (L.) A. Dietr.	BM JCM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>emarginella</i> (Sw. ex Wikstr.) C. DC.	JCM, BM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>fawcettii</i> C. DC.	JCM, BM	Endemic
<b>Piperaceae</b>	<i>Peperomia</i>	<i>galiooides</i> Kunth	JCM, BM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>glabella</i> (Sw.) A. Dietr.	BM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>guadaloupensis</i> C. DC.	JCM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>harrisii</i> C. DC.	JCM	Endemic
<b>Piperaceae</b>	<i>Peperomia</i>	<i>hernandiifolia</i> (Vahl) A. Dietr.	BM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>hispidula</i> (Sw.) A. Dietr.	BM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>lewisii</i> Proctor	JCM	Endemic
<b>Piperaceae</b>	<i>Peperomia</i>	<i>maculosa</i> (L.) W. Hook.	BM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>obtusifolia</i> (L.) A. Dietr.	JCM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>quadrifolia</i> (L.) Kunth	BM	Native
<b>Piperaceae</b>	<i>Peperomia</i>	<i>rhombica</i> Ruiz & Pav.	JCM	Native GA
<b>Piperaceae</b>	<i>Peperomia</i>	<i>rotundifolia</i> (L.) Kunth	JCM	Native GA
<b>Piperaceae</b>	<i>Peperomia</i>	<i>septemnervis</i> Ruiz & Pav.	jb	Native

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<b>Piperaceae</b>	<i>Peperomia</i>	<i>serpens (Sw.) Loud.</i>	BM	Native	
<b>Piperaceae</b>	<i>Peperomia</i>	<i>stellata (Sw.) A. Dietr.</i>	JCM	Endemic	
<b>Piperaceae</b>	<i>Peperomia</i>	<i>swartziana Miq.</i>	JCM, BM	Native	
<b>Piperaceae</b>	<i>Peperomia</i>	<i>talinifolia Kunth</i>	JCM	Native	
<b>Piperaceae</b>	<i>Peperomia</i>	<i>tenella (Sw.) A. Dietr.</i>	JCM, BM	Native	
<b>Piperaceae</b>	<i>Peperomia</i>	<i>tetraphylla (G. Forst.) Hook. &amp; Arn.</i>	BM		
<b>Piperaceae</b>	<i>Peperomia</i>	<i>verticillata (L.) A. Dietr.</i>	BM	Native	
<b>Piperaceae</b>	<i>Piper</i>	<i>aduncum L.</i>	BM, JCM	Native	
<b>Piperaceae</b>	<i>Piper</i>	<i>amalago L.</i>	BM	Native	
<b>Piperaceae</b>	<i>Piper</i>	<i>arboreum Aubl. var. arboreum</i>	BM, JCM	Native	
<b>Piperaceae</b>	<i>Piper</i>	<i>auritum Kunth.</i>	JC		
<b>Piperaceae</b>	<i>Piper</i>	<i>fadyenii C. DC.</i>	BM/JC	Endemic	
<b>Piperaceae</b>	<i>Piper</i>	<i>hispidum Sw.</i>	BM	Native	
<b>Piperaceae</b>	<i>Piper</i>	<i>murrayanum C. DC.</i>	BM/JC	Endemic	
<b>Piperaceae</b>	<i>Piper</i>	<i>peltatum L.</i>	JC	Native	
<b>Piperaceae</b>	<i>Piper</i>	<i>umbellatum L.</i>	BM, JCM	Native	
<b>Pittosporaceae</b>	<i>Pittosporum</i>	<i>undulatum Vent.</i>	BM/JC		
<b>Plantaginaceae</b>	<i>Angelonia</i>	<i>angustifolia Benth.</i>	JC	Native	
<b>Plantaginaceae</b>	<i>Bacopa</i>	<i>monnieri (L.) Pennell</i>	JC	Native	nTR
<b>Plantaginaceae</b>	<i>Digitalis</i>	<i>purpurea L.</i>	BM		
<b>Plantaginaceae</b>	<i>Maurandya</i>	<i>barclaiana Lindl.</i>	JC		
<b>Plantaginaceae</b>	<i>Mecardonia</i>	<i>procumbens (Mill) Small</i>	BM, JCM	Native	
<b>Plantaginaceae</b>	<i>Misopates</i>	<i>orontium (L.) Raf.</i>	BM, JCM		
<b>Plantaginaceae</b>	<i>Plantago</i>	<i>lanceolata L.</i>	JCM, BM		WI
<b>Plantaginaceae</b>	<i>Plantago</i>	<i>major L.</i>	JCM, BM		
<b>Plantaginaceae</b>	<i>Plantago</i>	<i>virginica L.</i>	JCM, BM		GA
<b>Plantaginaceae</b>	<i>Scoparia</i>	<i>dulcis L.</i>	JC	Native	
<b>Plantaginaceae</b>	<i>Stemodia</i>	<i>durantifolia (L.) Sw</i>	JC	Native	
<b>Plantaginaceae</b>	<i>Stemodia</i>	<i>maritima L.</i>	JC	Native	
<b>Plantaginaceae</b>	<i>Stemodia</i>	<i>verticillata (Mill.) Hassl.</i>	JC		
<b>Plantaginaceae</b>	<i>Veronica</i>	<i>arvensis L.</i>	JCM, BM		
<b>Plantaginaceae</b>	<i>Veronica</i>	<i>peregrina L.</i>	JCM, BM	Native	
<b>Plantaginaceae</b>	<i>Veronica</i>	<i>persica Poir.</i>	JCM, BM		
<b>Plantaginaceae</b>	<i>Veronica</i>	<i>serpyllifolia L.</i>	JCM, BM		
<b>Plumbaginaceae</b>	<i>Plumbago</i>	<i>scandens L.</i>	JC	Native	
<b>Polygalaceae</b>	<i>Polygala</i>	<i>jamaicensis Chodat</i>	BM	Native	VU
<b>Polygalaceae</b>	<i>Polygala</i>	<i>paniculata L.</i>	BM	Native	
<b>Polygalaceae</b>	<i>Securidaca</i>	<i>brownii Griseb.</i>	BM	Endemic	
<b>Polygonaceae</b>	<i>Coccoloba</i>	<i>longifolia Fisch. ex Lindua</i>	JC	Endemic	
<b>Polygonaceae</b>	<i>Coccoloba</i>	<i>sp.</i>	JC		GA

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<b>Polygonaceae</b>	<i>Coccoloba</i>	<i>swartzii</i> Meisn. <i>F. swartzii</i>	BM/JC	Native	
<b>Polygonaceae</b>	<i>Coccoloba</i>	<i>troyana</i> Urb.	JC	Endemic	
<b>Polygonaceae</b>	<i>Coccoloba</i>	<i>wrightii</i> Lindau	JC	Native?	
<b>Polygonaceae</b>	<i>Polygonum</i>	<i>punctatum</i> Elliott	BM	Native	
<b>Portulacaceae</b>	<i>Talinum</i>	<i>paniculatum</i> (Jacq.) Gaertn.	BM	Native	
<b>Primulaceae</b>	<i>Anagallis</i>	<i>arvensis</i> L. var. <i>arvensis</i>	JC, BM		
<b>Primulaceae</b>	<i>Ardisia</i>	<i>brittonii</i> Stearn	BM	Endemic	
<b>Primulaceae</b>	<i>Ardisia</i>	<i>densiflora</i> Krug & Urb.	JC, BM	Native	GA
<b>Primulaceae</b>	<i>Ardisia</i>	<i>elliptica</i> Thunb.	JCM		
<b>Primulaceae</b>	<i>Ardisia</i>	<i>tinifolia</i> Sw.	JC	Endemic	
<b>Primulaceae</b>	<i>Myrsine</i>	<i>acrantha</i> Krug & Urb.	JCM, BM	Native	
<b>Primulaceae</b>	<i>Myrsine</i>	<i>coriacea</i> (Sw.) R. Br. ex Roem & Schult.	JCM, BM	Native	
<b>Primulaceae</b>	<i>Wallenia</i>	<i>calyprata</i> Urb.	JCM, BM	Endemic	
<b>Primulaceae</b>	<i>Wallenia</i>	<i>clusioides</i> (Griseb.) Mez	JC	Endemic	
<b>Primulaceae</b>	<i>Wallenia</i>	<i>crassifolia</i> Mez	JCM, BM	Endemic	GA
<b>Primulaceae</b>	<i>Wallenia</i>	<i>fawcettii</i> Mez	JCM	Endemic	
<b>Primulaceae</b>	<i>Wallenia</i>	<i>laurifolia</i> (Jacq.) Sw. var. <i>laurifolia</i>	JCM	Native	VU
<b>Primulaceae</b>	<i>Wallenia</i>	<i>subverticillata</i> (Britton) Ekman ex Urb.	JCM	Native	
<b>Primulaceae</b>	<i>Wallenia</i>	<i>sylvestris</i> Urb.	JCM	Endemic	
<b>Primulaceae</b>	<i>Wallenia</i>	<i>venosa</i> Griseb.	JCM	Endemic	
<b>Putranjivaceae</b>	<i>Drypetes</i>	<i>alba</i> Poit.	JCM	Native	
<b>Ranunculaceae</b>	<i>Ranunculus</i>	<i>recurvatus</i> Poir. var. <i>tropicus</i> (Griseb.) Fawc. & Rendle	JC	Native	GA
<b>Ranunculaceae</b>	<i>Ranunculus</i>	<i>repens</i> L.	BM		
<b>Rhamnaceae</b>	<i>Gouania</i>	<i>lupuloides</i> (L.) Urb.	BM	Native	EN
<b>Rhamnaceae</b>	<i>Krugiodendron</i>	<i>ferreum</i> (Vahl) Urb.	BM	Native	
<b>Rhamnaceae</b>	<i>Rhamnus</i>	<i>sphaerosperma</i> Sw. var. <i>sphaerosperma</i>	BM	Native	
<b>Rhamnaceae</b>	<i>Zizyphus</i>	<i>chloroxylon</i> (L.) Oliv.	JCM	Endemic	WI
<b>Rosaceae</b>	<i>Fragaria</i>	<i>vesca</i> L.	BM		
<b>Rosaceae</b>	<i>Prunus</i>	<i>myrtifolia</i> (L.) Urb.	JCM, BM	Native	
<b>Rosaceae</b>	<i>Prunus</i>	<i>occidentalis</i> Sw.	BM	Native	
<b>Rosaceae</b>	<i>Rubus</i>	<i>alpinus</i> Macfad. ex Griseb.	BM	Endemic	
<b>Rosaceae</b>	<i>Rubus</i>	<i>ellipticus</i> Sm.	BM	Native	
<b>Rosaceae</b>	<i>Rubus</i>	<i>jamaicensis</i> L.	BM		GA
<b>Rosaceae</b>	<i>Rubus</i>	<i>rosifolius</i> Sm.	BM	naturalized	
<b>Rosaceae</b>	<i>Spiraea</i>	<i>sp.</i>	BM		
<b>Rubiaceae</b>	<i>Catesbaea</i>	<i>spinosa</i> L.	JC		

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<b>Rubiaceae</b>	<i>Chimarrhis</i>	<i>cymosa</i> Jacq.	JC, BM	Native	
<b>Rubiaceae</b>	<i>Chiococca</i>	<i>alba</i> (L.) Hitchc.	JC, BM	Native	
<b>Rubiaceae</b>	<i>Cinchona</i>	<i>officianlis</i> L.	JCM, BM		
<b>Rubiaceae</b>	<i>Cinchona</i>	<i>pubescens</i> Vahl	JC, BM		
<b>Rubiaceae</b>	<i>Cinchona</i>	<i>sp.</i>	JC		
<b>Rubiaceae</b>	<i>Coccocypselum</i>	<i>repens</i> Sw.	JC, BM	Native	
<b>Rubiaceae</b>	<i>Diodia</i>	<i>sarmentosa</i> Sw.	JC	Native	
<b>Rubiaceae</b>	<i>Ernodea</i>	<i>littoralis</i> Sw.	JC	Native	
<b>Rubiaceae</b>	<i>Faramea</i>	<i>occidentalis</i> (L.) A. Rich.	JC	Native	
<b>Rubiaceae</b>	<i>Galium</i>	<i>hypocarpium</i> (L.) Endl. ex Griseb. <i>subsp. hypocarpium</i>	JCM, BM	Native	
<b>Rubiaceae</b>	<i>Galium</i>	<i>parishii</i> Hilend & J. T. Howell	JC		
<b>Rubiaceae</b>	<i>Gonzalagunia</i>	<i>brachyantha</i> (A. Rich.) Urb.	BM	Native	
<b>Rubiaceae</b>	<i>Guettarda</i>	<i>argentea</i> Lam.	JCM, BM	Native	GA
<b>Rubiaceae</b>	<i>Guettarda</i>	<i>elliptica</i> Sw.	JCM, BM	Native	
<b>Rubiaceae</b>	<i>Hamelia</i>	<i>axillaris</i> Sw.	JCM	Native	
<b>Rubiaceae</b>	<i>Hamelia</i>	<i>cuprea</i> Griseb.	BM	Native	
<b>Rubiaceae</b>	<i>Hamelia</i>	<i>patens</i> Jacq.	JC	Native	
<b>Rubiaceae</b>	<i>Hillia</i>	<i>parasitica</i> Jacq.	BM	Native	
<b>Rubiaceae</b>	<i>Hillia</i>	<i>tetrandra</i> Sw.	BM	Native	
<b>Rubiaceae</b>	<i>Hoffmannia</i>	<i>pedunculata</i> Sw.	BM	Endemic	nTR
<b>Rubiaceae</b>	<i>Ixora</i>	<i>pavetta</i> Andrews	JC		GA
<b>Rubiaceae</b>	<i>Ixora</i>	<i>sp.</i>	JC		nTR
<b>Rubiaceae</b>	<i>Lucya</i>	<i>tetrandra</i> (L.) K. Schum.	JC	Native	
<b>Rubiaceae</b>	<i>Machaonia</i>	<i>cymosa</i> (Sw.) Griseb.	JC	Endemic	
<b>Rubiaceae</b>	<i>Macroenumum</i>	<i>jamaicense</i> L.	JCM	Endemic	
<b>Rubiaceae</b>	<i>Manettia</i>	<i>lygistum</i> (L.) Sw.	JCM, BM	Native	
<b>Rubiaceae</b>	<i>Mitracarpus</i>	<i>hirtus</i> (L.) DC.	JCM, BM	Native	
<b>Rubiaceae</b>	<i>Morinda</i>	<i>citrifolia</i> L.	BM		
<b>Rubiaceae</b>	<i>Morinda</i>	<i>royoc</i> L.	JC	Native	GA
<b>Rubiaceae</b>	<i>Notopleura</i>	<i>discolor</i> (Griseb.) C. M. Taylor	JCM	Native	
<b>Rubiaceae</b>	<i>Notopleura</i>	<i>uliginosa</i> (Sw.) Bremek.	JC	Native	
<b>Rubiaceae</b>	<i>Oldenlandia</i>	<i>corymbosa</i> L.	JC		
<b>Rubiaceae</b>	<i>Palicourea</i>	<i>alpina</i> (Sw.) DC.	JCM	Native	
<b>Rubiaceae</b>	<i>Palicourea</i>	<i>crocea</i> (Sw.) Roem. & Schult.	BM	Native	
<b>Rubiaceae</b>	<i>Palicourea</i>	<i>croceoides</i> Ham.	JC		
<b>Rubiaceae</b>	<i>Palicourea</i>	<i>guianensis</i> Aubl.	JCM	Native	
<b>Rubiaceae</b>	<i>Palicourea</i>	<i>wilesii</i> C. D. Adams	JC	Endemic	
<b>Rubiaceae</b>	<i>Pentas</i>	<i>lanceolata</i> (Forssk.) Deflers	JC		
<b>Rubiaceae</b>	<i>Portlandia</i>	<i>platantha</i> Hook.	JC	Endemic	GA

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<b>Rubiaceae</b>	<i>Psychotria</i>	<i>balbisiana DC.</i>	JC	Endemic	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>berteroana DC.</i>	JCM	Native	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>brachiata Sw.</i>	JCM, BM	Native	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>clusioides Proctor</i>	JCM	Endemic	GA
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>corymbosa Sw.</i>	JCM, BM	Endemic	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>domatiata C. D. Adams</i>	JCM	Endemic	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>dura Sw. ex Griseb.</i>	JCM	Endemic	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>elata (Sw.) Hammel</i>	JC, BM	Native	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>foetida Griseb.</i>	JCM	Endemic	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>grandis Sw.</i>	BM	Native	nTR
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>manna Urb.</i>	JCM	Endemic	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>marginata Sw.</i>	JCM	Native	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>nervosa Sw.</i>	JCM, BM	Native	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>patens Sw.</i>	JCM, BM	Native	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>pubescens Sw.</i>	JC	Native	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>purdiaei Urb.</i>	BM	Endemic	
<b>Rubiaceae</b>	<i>Psychotria</i>	<i>sloanei Urb.</i>	JCM, BM	Endemic	
<b>Rubiaceae</b>	<i>Randia</i>	<i>aculeata L. var. aculeata</i>	JCM, BM	Native	
<b>Rubiaceae</b>	<i>Randia</i>	<i>aculeata L. var. jamaicensis (Spreng.) C. D. Adams</i>	BM	Endemic	
<b>Rubiaceae</b>	<i>Richardia</i>	<i>brasiliensis Gomes</i>	JCM, BM		
<b>Rubiaceae</b>	<i>Rondeletia</i>	<i>brachyphylla Proctor ex C. D. Adams</i>	BM	Endemic	
<b>Rubiaceae</b>	<i>Rondeletia</i>	<i>elegans Britton</i>	JCM	Endemic	
<b>Rubiaceae</b>	<i>Rondeletia</i>	<i>hirsuta Sw.</i>	JC	Endemic	
<b>Rubiaceae</b>	<i>Rondeletia</i>	<i>hirta Sw.</i>	BM	Endemic	
<b>Rubiaceae</b>	<i>Rondeletia</i>	<i>pallida Britton</i>	JCM	Endemic	GA
<b>Rubiaceae</b>	<i>Rondeletia</i>	<i>portlandensis Proctor</i>	JCM	Endemic	
<b>Rubiaceae</b>	<i>Rondeletia</i>	<i>racemosa Sw.</i>	JCM, BM	Endemic	
<b>Rubiaceae</b>	<i>Rondeletia</i>	<i>stipularis (L.) Druce</i>	JC	Endemic	
<b>Rubiaceae</b>	<i>Rondeletia</i>	<i>subsessilifolia Proctor</i>	JCM	Endemic	
<b>Rubiaceae</b>	<i>Sabicea</i>	<i>hirta Sw.</i>	BM	Endemic	
<b>Rubiaceae</b>	<i>Schradera</i>	<i>involuta (Sw.) K. Schum.</i>	JCM	Endemic	
<b>Rubiaceae</b>	<i>Spermacoce</i>	<i>laevis Lam.</i>	JC, BM	Native	
<b>Rubiaceae</b>	<i>Spermacoce</i>	<i>prostrata Aubl.</i>	BM	Native?	
<b>Rubiaceae</b>	<i>Spermacoce</i>	<i>tenuior L.</i>	JC	Native	
<b>Rubiaceae</b>	<i>Spermacoce</i>	<i>verticillata L.</i>	JC, BM	Native	
<b>Rubiaceae</b>	<i>Stenostomum</i>	<i>coriaceum (Vahl) Griseb.</i>	JCM	Native	WI
<b>Rubiaceae</b>	<i>Stenostomum</i>	<i>jamaicensis (Urb.) Borhidi</i>	BM	Endemic	nTR
<b>Rutaceae</b>	<i>Spathelia</i>	<i>glabrescens Planch.</i>	JCM	Endemic	

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<b>Rutaceae</b>	<i>Spathelia</i>	<i>sorbifolia (L.) Fawc. &amp; Rendle</i>	BM	Endemic	WI
<b>Rutaceae</b>	<i>Zanthoxylum</i>	<i>acuminatum (Sw.) Sw.</i>	BM	Native	
<b>Rutaceae</b>	<i>Zanthoxylum</i>	<i>culantrillo Kunth</i>	JCM, BM	Native	
<b>Rutaceae</b>	<i>Zanthoxylum</i>	<i>elephantiasis Macfad.</i>	BM	Native	
<b>Rutaceae</b>	<i>Zanthoxylum</i>	<i>hartii (Krug &amp; Urb.) P. Wilson</i>	JCM	Endemic	
<b>Rutaceae</b>	<i>Zanthoxylum</i>	<i>rhodoxylon (Urb.) P. Wilson</i>	N/A	Endemic	
<b>Salicaceae</b>	<i>Casearia</i>	<i>aculeata Jacq.</i>	BM	Native	
<b>Salicaceae</b>	<i>Casearia</i>	<i>arborea (Rich.) Urb. subsp. arborea</i>	JCM	Native	
<b>Salicaceae</b>	<i>Casearia</i>	<i>guianensis (Aubl.) Urb.</i>	BM	Native	
<b>Salicaceae</b>	<i>Casearia</i>	<i>sylvestris Sw.</i>	BM	Native	nTR
<b>Salicaceae</b>	<i>Homalium</i>	<i>racemosum Jacq.</i>	JCM, BM	Native	
<b>Salicaceae</b>	<i>Laetia</i>	<i>thamnia L.</i>	JCM, BM	Native	GA
<b>Salicaceae</b>	<i>Lunania</i>	<i>poldactyla Urb.</i>	BM	Endemic	
<b>Salicaceae</b>	<i>Lunania</i>	<i>racemosa Hook.</i>	BM/JC	Endemic	
<b>Salicaceae</b>	<i>Samyda</i>	<i>glabrata Sw.</i>	BM	Endemic	WI
<b>Salicaceae</b>	<i>Xylosma</i>	<i>nitidum (Hell.) A. Gray ex Griseb.</i>	BM/JC	Endemic	nTR
<b>Santalaceae</b>	<i>Dendrophthora</i>	<i>cupressoides (Macfad.) Eichler</i>	BM/JC	Native	nTR
<b>Santalaceae</b>	<i>Dendrophthora</i>	<i>opuntioides (L.) Eichler</i>	BM, JCM	Endemic	
<b>Santalaceae</b>	<i>Eubrachion</i>	<i>ambiguum (Hook. &amp; Arn.) Engl. Var. jamaicense Krug &amp; Urb.</i>	BM	Native	
<b>Santalaceae</b>	<i>Phoradendron</i>	<i>anceps (Spreng.) M. Gomez</i>	BM	Native	
<b>Santalaceae</b>	<i>Phoradendron</i>	<i>campbellii Krug &amp; Urb.</i>	BM	Endemic	
<b>Santalaceae</b>	<i>Phoradendron</i>	<i>chrysocladon A.Gray</i>	BM/JC	Native	
<b>Santalaceae</b>	<i>Phoradendron</i>	<i>grisebachianum Eichler</i>	BM	Endemic	
<b>Santalaceae</b>	<i>Phoradendron</i>	<i>racemosum (Aubl.) Krug &amp; Urb.</i>	JCM	Native?	
<b>Santalaceae</b>	<i>Phoradendron</i>	<i>wattii Krug &amp; Urb.</i>	BM	Endemic	
<b>Sapindaceae</b>	<i>Allophylus</i>	<i>cominia (L.) Sw. var. cominia</i>	BM	Native	
<b>Sapindaceae</b>	<i>Cardiospermum</i>	<i>corindum L. var. corindum</i>	BM	Native	
<b>Sapindaceae</b>	<i>Cardiospermum</i>	<i>grandiflorum Sw.</i>	BM	Native	
<b>Sapindaceae</b>	<i>Dodonea</i>	<i>viscosa Jacq. subsp. viscosa</i>	BM	Native	
<b>Sapindaceae</b>	<i>Exothea</i>	<i>paniculata (Juss.) Radlk.</i>	JCM	Native	VU
<b>Sapindaceae</b>	<i>Matayba</i>	<i>oppositifolia (A. Rich.) Britton</i>	BM	Native	WI
<b>Sapindaceae</b>	<i>Paullinia</i>	<i>jamaicensis Macfad.</i>	BM	Native	ED
<b>Sapindaceae</b>	<i>Sapindus</i>	<i>saponaria L.</i>	BM	Native	
<b>Sapotaceae</b>	<i>Chrysophyllum</i>	<i>cainito L.</i>	JC		
<b>Sapotaceae</b>	<i>Chrysophyllum</i>	<i>oliviforme L. subsp. oliviforme</i>	JC	Native	
<b>Sapotaceae</b>	<i>Mimusops</i>	<i>elengi L.</i>	JC		
<b>Sapotaceae</b>	<i>Pouteria</i>	<i>campechiana (Kunth) Baehni</i>	JC		
<b>Sapotaceae</b>	<i>Pouteria</i>	<i>multiflora (A. DC.) Eyma</i>	BM	Native	
<b>Sapotaceae</b>	<i>Sideroxylon</i>	<i>americanum (Mill.) T. D. Penn.</i>	BM	Native	

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<b>Sapotaceae</b>	<i>Sideroxylon</i>	<i>montana</i> (Sw.) T. D. Penn.	JC	Endemic	
<b>Sapotaceae</b>	<i>Sideroxylon</i>	<i>portoricense</i> Urb. subsp. <i>portoricense</i>	JCM, BM	Native	
<b>Sapotaceae</b>	<i>Sideroxylon</i>	<i>rotundifolium</i> (Sw.) T. D. Penn.	JC	Endemic	
<b>Sapotaceae</b>	<i>Sideroxylon</i>	<i>salicifolia</i> (L.) Lam.	JC	Native?	
<b>Schlegeliaceae</b>	<i>Schlegelia</i>	<i>axillaris</i> Griseb.	JCM	Native	
<b>Schlegeliaceae</b>	<i>Schlegelia</i>	<i>parasitica</i> (Sw.) Miers ex Griseb.	JCM, BM	Endemic	
<b>Scrophulariaceae</b>	<i>Buddleja</i>	<i>americana</i> L.	JCM, BM	Native	
<b>Scrophulariaceae</b>	<i>Buddleja</i>	<i>lindleyana</i> Fortune	BM		
<b>Scrophulariaceae</b>	<i>Capraria</i>	<i>biflora</i> L.	JC	Native	
<b>Scrophulariaceae</b>	<i>Verbascum</i>	<i>peregrinum</i> Fisch. ex Steud.	JC		
<b>Scrophulariaceae</b>	<i>Verbascum</i>	<i>thapsus</i> L.	JCM, BM		
<b>Smilacaceae</b>	<i>Smilax</i>	<i>canellifolia</i> Mill.	BM	Native	
<b>Smilacaceae</b>	<i>Smilax</i>	<i>domingensis</i> Willd.	BM/JC	Native	
<b>Solanaceae</b>	<i>Acnistus</i>	<i>arborescens</i> (L.) Schldtl.	JCM, BM	Native?	GA
<b>Solanaceae</b>	<i>Browallia</i>	<i>americana</i> L.	JCM, BM	Native	
<b>Solanaceae</b>	<i>Brugmansia</i>	<i>suaveolens</i> (Humb. & Bonpl. ex Willd.) Bercht. & C. Presl	JC, BM		
<b>Solanaceae</b>	<i>Brunfelsia</i>	<i>jamaicensis</i> (Benth.) Griseb.	JCM	Endemic	
<b>Solanaceae</b>	<i>Brunfelsia</i>	<i>maliformis</i> Urb.	JC, BM	Endemic	
<b>Solanaceae</b>	<i>Brunfelsia</i>	<i>membranacea</i> Urb.	JC	Endemic	
<b>Solanaceae</b>	<i>Brunfelsia</i>	<i>plicata</i> Urb.	JC	Endemic	
<b>Solanaceae</b>	<i>Brunfelsia</i>	<i>sp.</i>	JC		
<b>Solanaceae</b>	<i>Brunfelsia</i>	<i>undulata</i> Sw.	JC	Endemic	
<b>Solanaceae</b>	<i>Capsicum</i>	<i>baccatum</i> L.	JC		
<b>Solanaceae</b>	<i>Cestrum</i>	<i>diurnum</i> L.	JCM, BM	Native	
<b>Solanaceae</b>	<i>Cestrum</i>	<i>hirtum</i> Sw.	JC	Native	
<b>Solanaceae</b>	<i>Datura</i>	<i>inoxia</i> Mill.	JC	Native	
<b>Solanaceae</b>	<i>Datura</i>	<i>stramonium</i> L.	JC, BM	Native	
<b>Solanaceae</b>	<i>Iochroma</i>	<i>sp.</i>	JC		
<b>Solanaceae</b>	<i>Jaltomata</i>	<i>antillana</i> (Krug. & Urb.) D'Arcy	JCM, BM	Native	
<b>Solanaceae</b>	<i>Lycianthes</i>	<i>stellata</i> (Jacq.) Bitter	JC	Endemic	
<b>Solanaceae</b>	<i>Lycianthes</i>	<i>virgata</i> (Lam.) Bitter	JC	Native?	
<b>Solanaceae</b>	<i>Physalis</i>	<i>pubescens</i> L.	JCM, BM	Native	
<b>Solanaceae</b>	<i>Solandra</i>	<i>acropterum</i> Griseb.	JCM	Endemic	
<b>Solanaceae</b>	<i>Solanum</i>	<i>americanum</i> Mill.	JCM, BM	Native	
<b>Solanaceae</b>	<i>Solanum</i>	<i>erianthum</i> D. Don	JC	Native	
<b>Solanaceae</b>	<i>Solanum</i>	<i>grandiflora</i> Sw.	BM	Native	
<b>Solanaceae</b>	<i>Solanum</i>	<i>grandiflorum</i> Ruiz & Pav.	JC		
<b>Solanaceae</b>	<i>Solanum</i>	<i>nigrescens</i> M. Martens & Galeotii	JC	Native?	
<b>Solanaceae</b>	<i>Solanum</i>	<i>nudum</i> Humb. ex Bonpl. ex Dunal	JC	Native	

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<b>Solanaceae</b>	<i>Solanum</i>	<i>paniculatum</i> L.	JC	
<b>Solanaceae</b>	<i>Solanum</i>	<i>polygamum</i> Vahl	JC	Native?
<b>Solanaceae</b>	<i>Solanum</i>	<i>puntulatum</i> Dunal	JC	Endemic
<b>Solanaceae</b>	<i>Solanum</i>	<i>quitoense</i> Lam.	BM, JCM	WI
<b>Solanaceae</b>	<i>Solanum</i>	<i>seafortianum</i> Andrews	JC	
<b>Solanaceae</b>	<i>Solanum</i>	<i>tetramerum</i> Dunal & A. DC.	JC	Native
<b>Solanaceae</b>	<i>Solanum</i>	<i>torvum</i> Sw.	JC	Native WI
<b>Solanaceae</b>	<i>Witheringia</i>	<i>solanacea</i> L'Her.	JCM	Native
<b>Staphyleaceae</b>	<i>Turpinia</i>	<i>occidentalis</i> (Sw.) G. Don	BM	Native GA
<b>Symplocaceae</b>	<i>Symplocos</i>	<i>martinicensis</i> Jacq. subsp. <i>martinicensis</i>	JCM	Native
<b>Symplocaceae</b>	<i>Symplocos</i>	<i>octopetala</i> Sw.	JCM, BM	Endemic
<b>Theaceae</b>	<i>Camellia</i>	<i>sinensis</i> (L.) Kuntze	BM	
<b>Theaceae</b>	<i>Laplacea</i>	<i>haematoxylon</i> (Sw.) G. Don	JCM	Endemic
<b>Theaceae</b>	<i>Laplacea</i>	<i>villosa</i> Macfad.	BM	Endemic
<b>Thymelaeaceae</b>	<i>Daphnopsis</i>	<i>americana</i> (Mill.) J. R. Johnst. subsp. <i>tinifolia</i> (Sw.) Nevling	BM/JC	Native
<b>Tovariaceae</b>	<i>Tovaria</i>	<i>diffusa</i> (Macfad.) Fawc. & Rendle	BM	Endemic
<b>Urticaceae</b>	<i>Boehmeria</i>	<i>caudata</i> Sw.	BM/JC	WI
<b>Urticaceae</b>	<i>Boehmeria</i>	<i>jamaicensis</i> Urb.	BM	Endemic
<b>Urticaceae</b>	<i>Cecropia</i>	<i>peltata</i> L.	BM	Native
<b>Urticaceae</b>	<i>Gyrotaenia</i>	<i>microcarpa</i> (Wedd.) Fawc. & Rendle	BM/JC	Endemic
<b>Urticaceae</b>	<i>Phenax</i>	<i>hirtus</i> (Sw.) Wedd.	BM/JC	Native VU
<b>Urticaceae</b>	<i>Phenax</i>	<i>sonneratii</i> (Poir.) Wedd.	BM/JC	
<b>Urticaceae</b>	<i>Pilea</i>	<i>alpestris</i> (Urb.) Fawc. & Rendle	JCM, BM	Endemic
<b>Urticaceae</b>	<i>Pilea</i>	<i>andersonii</i> C. D. Adams	BM	Endemic
<b>Urticaceae</b>	<i>Pilea</i>	<i>brittoniae</i> Urb.	BM/JC	Endemic
<b>Urticaceae</b>	<i>Pilea</i>	<i>cilata</i> (Sw.) Blume	JC	Endemic
<b>Urticaceae</b>	<i>Pilea</i>	<i>crassifolia</i> (Willd.) Blume	BM/JC	Endemic
<b>Urticaceae</b>	<i>Pilea</i>	<i>diffusa</i> Griseb.	BM	
<b>Urticaceae</b>	<i>Pilea</i>	<i>grandifolia</i> (L.) Blume	BM/JC	Endemic
<b>Urticaceae</b>	<i>Pilea</i>	<i>herniarioides</i> (Sw.) Lindl. var. <i>herniarioides</i>	JCM	Native WI
<b>Urticaceae</b>	<i>Pilea</i>	<i>impressa</i> Urb. var. <i>impressa</i>	JC	Endemic
<b>Urticaceae</b>	<i>Pilea</i>	<i>inaequalis</i> (Juss. ex Poir.) Wedd.	JCM	Native
<b>Urticaceae</b>	<i>Pilea</i>	<i>lamiifolia</i> Fwc. & Rendle var. <i>lamiifolia</i>	JCM	Endemic
<b>Urticaceae</b>	<i>Pilea</i>	<i>lucida</i> (Sw.) Blume	BM/JC	Endemic
<b>Urticaceae</b>	<i>Pilea</i>	<i>microphylla</i> (L.) Lieb. var. <i>microphylla</i>	BM	Native





<b>GA</b>	<b>Greater Antillean Endemic</b>
<b>VU</b>	<b>Vulnerable</b>
<b>TR</b>	<b>Threatened</b>
<b>nTR</b>	<b>Near Threatened</b>
<b>WI</b>	<b>West Indian Endemic</b>
<b>ED</b>	<b>Endangered</b>
<b>Endemic Hisp.</b>	<b>Endemic to Hispaniola</b>

### PLANTS – FERNS & ALLIES

<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>Range</b>	<b>Notes</b>
<b>Pteridaceae</b>	<i>Adiantum</i>	<i>concinnum</i> Humb. & Bonpl. ex Willd.	BM	
<b>Pteridaceae</b>	<i>Adiantum</i>	<i>cuneatum</i> (introduced) [ <i>raddianum</i> G. Forst.]	BM	
<b>Pteridaceae</b>	<i>adiantum</i>	<i>deltoideum</i> Sw.	JCM	
<b>Pteridaceae</b>	<i>Adiantum</i>	<i>latifolium</i> Lam.	JCM	
<b>Pteridaceae</b>	<i>Adiantum</i>	<i>pyramidale</i> (L.) Willd.	BM	
<b>Pteridaceae</b>	<i>Adiantum</i>	<i>raddianum</i> G. Forst.	BM	
<b>Pteridaceae</b>	<i>Adiantum</i>	<i>tenerum</i> Sw.	JCM	
<b>Pteridaceae</b>	<i>Ananthacorus</i> aka <i>vittaria</i>	<i>angustifolius</i> (Sw.) Underw.	BM	
<b>Anemiaceae</b>	<i>Anemia</i>	<i>adiantifolia</i> (L.) Sw.	BM	
<b>Marattiaceae</b>	<i>Angiopteris</i>	<i>evecta</i> (G. Forst.) Hoffm.	BM	
<b>Pteridaceae</b>	<i>Anopteris</i>	<i>hexagona</i> (L.) C. Chr.	JCM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>alatum</i> Humb. & Bonpl. ex Willd.	BM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>auritum</i> ( <i>sulcatum</i> Lam.)	JCM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>cuneatum</i> Lam.	JCM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>diplosceum</i> Hieron.	BM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>fawcettii</i> Jenman	BM	Endemic
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>formosum</i> Willd.	BM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>fragrans</i> ( <i>cuspidatum</i> Lam.)	BM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>harrisii</i> Jenman	BM	Endemic
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>laetum</i> Sw.	JCM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>monanthes</i> L.	BM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>pumilum</i> Sw.	BM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>radicans</i> L.	JCM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>resiliens</i> Kunze	BM	
<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>serra</i> Langsd. & Fisch.	JCM	

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<b>Aspleniaceae</b>	<i>Asplenium</i>	<i>underwoodii</i> Maxon	JCM	Endemic
<b>Blechnaceae</b>	<i>Blechnum</i>	<i>fragile</i> (Liebm.) C. V. Morton & Lellinger	BM	
<b>Blechnaceae</b>	<i>Blechnum</i>	<i>jamaicense</i> (Broadh.) C. Chr.	BM	Endemic
<b>Blechnaceae</b>	<i>Blechnum</i>	<i>lineatum</i> (Sw.) C. Chr.	BM	
<b>Blechnaceae</b>	<i>Blechnum</i>	<i>occidentalis</i> L.	BM	
<b>Blechnaceae</b>	<i>Blechnum</i>	<i>unilaterale</i> Willd.	JCM	
<b>Dryopteridaceae</b>	<i>Bolbitis</i>	<i>nicotianaefolia</i> (Sw.) Alston	JCM	
<b>Ophioglossaceae</b>	<i>Botrychium</i>	<i>cicutarium</i> (virginianum (L.) Sw.	BM	
<b>Tectariaceae</b>	<i>Camptodium</i> ( <i>Tectaria</i> )	<i>pedata</i> (Desv.) R. M. Tryon & A. F. Tryon	JCM	
<b>Pteridaceae</b>	<i>Cheilanthes</i>	<i>microphylla</i> (Sw.) Sw.	BM	
<b>Polypodiaceae</b>	<i>Cochlidium</i>	<i>linearifolium</i> (Desv.) Maxon ex C. Chr.	JCM	
<b>Polypodiaceae</b>	<i>Cochlidium</i>	<i>seminudum</i> Willd.) Maxon	BM	
<b>Dryopteridaceae</b>	<i>Ctenitis</i>	<i>grisebachii</i> (Baker) Ching	BM	
<b>Dryopteridaceae</b>	<i>Ctenitis</i> ( <i>Megalastrum</i> )	<i>pulverulentum</i> (Poir.) A. R. Sm. & R. C. Moran	JCM	
<b>Dryopteridaceae</b>	<i>Ctenitis</i> ( <i>Megalastrum</i> )	<i>villosum</i> (L.) Holttum	JCM	
<b>Cyatheaceae</b>	<i>Cyathea</i>	<i>arborea</i> (L.) Sm.	JCM	
<b>Cyatheaceae</b>	<i>Cyathea</i>	<i>armata</i> (hirsuta C. Presl)	BM	
<b>Cyatheaceae</b>	<i>Cyathea</i> ( <i>Trichipteris</i> )	<i>aspera</i> (L.) R. M. Tryon	JCM	
<b>Cyatheaceae</b>	<i>Cyathea</i> ( <i>Nephelea</i> )	<i>concinna</i> (Baker ex Jenman) R. M. Tryon	JCM	Endemic
<b>Cyatheaceae</b>	<i>Cyathea</i>	<i>furfuracea</i> Baker	BM	
<b>Cyatheaceae</b>	<i>Cyathea</i>	<i>gracilis</i> Griseb.	BM	
<b>Cyatheaceae</b>	<i>Cyathea</i> ( <i>Alsophila</i> )	<i>grevilleana</i> (Mart.) D. S. Conant	JCM, BM	Endemic
<b>Cyatheaceae</b>	<i>Cyathea</i>	<i>harrisii</i> Underw. ex Maxon	BM	
<b>Cyatheaceae</b>	<i>Cyathea</i> ( <i>Cnemidaria</i> )	<i>horrida</i> (L.) C. Presl	BM	
<b>Cyatheaceae</b>	<i>Cyathea</i>	<i>insignis</i> D. C. Eaton	BM	
<b>Cyatheaceae</b>	<i>Cyathea</i>	<i>nigrescens</i> (Hook.) J. Sm.	JCM	
<b>Cyatheaceae</b>	<i>Cyathea</i>	<i>parvula</i> (Jenman) Domin	JCM	
<b>Cyatheaceae</b>	<i>Cyathea</i> ( <i>Nephelea</i> )	<i>pubescens</i> (Mett. ex Kuhn) R. M. Tryon	BM	Endemic
<b>Cyatheaceae</b>	<i>Cyathea</i> ( <i>Alsophila</i> )	<i>tussacii</i> (Desv.) D. S. Conant	BM	Endemic
<b>Cystopteridaceae</b>	<i>Cystopteris</i>	<i>fragilis</i> (L.) Bernh.	BM	
<b>Marattiaceae</b>	<i>Danaea</i>	<i>jamaicensis</i> Underw.	BM	
<b>Marattiaceae</b>	<i>Danaea</i>	<i>jenmani</i> Underw.	BM	
<b>Marattiaceae</b>	<i>Danaea</i>	<i>nodosa</i> (L.) Sm.	BM	
<b>Dennstaedtiaceae</b>	<i>Dennstaedtia</i>	<i>cicutaria</i> (Sw.) T. Moore	BM	
<b>Dennstaedtiaceae</b>	<i>Dennstaedtia</i>	<i>cornuta</i> (Kaulf.) Mett.	BM	
<b>Dennstaedtiaceae</b>	<i>Dennstaedtia</i>	<i>dissecta</i> (Sw.) T. Moore	BM	
<b>Dennstaedtiaceae</b>	<i>Dennstaedtia</i>	<i>globulifera</i> (Poir.) Hieron	BM	

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<b>Athyriaceae</b>	<i>Diplazium</i>	<i>altissimum (Jenman) C. Chr.</i>	BM
<b>Athyriaceae</b>	<i>Diplazium</i>	<i>centripetale (Baker) Maxon</i>	BM, JCM
<b>Athyriaceae</b>	<i>Diplazium</i>	<i>costale (Sw.) C. Presl</i>	BM
<b>Athyriaceae</b>	<i>Diplazium</i>	<i>cristatum (Desr.) Alston</i>	JCM, BM
<b>Athyriaceae</b>	<i>Diplazium</i>	<i>hians Kunze ex Klotzsch</i>	BM
<b>Athyriaceae</b>	<i>Diplazium</i>	<i>oreophilum Underw. &amp; Maxon</i>	JCM Endemic
<b>Athyriaceae</b>	<i>Diplazium</i>	<i>unilobum Hieron.</i>	BM
<b>Athyriaceae</b>	<i>Diplazium</i>	<i>wilsonii (Baker) Diels</i>	BM Endemic
<b>Dryopteridaceae</b>	<i>Dryopteris (Arachniodes)</i>	<i>denticulata (Sw.) Ching</i>	JCM
<b>Dryopteridaceae</b>	<i>Dryopteris</i>	<i>gemmaipara (C. Chr.) Maxon ex Proctor</i>	JCM
<b>Dryopteridaceae</b>	<i>Dryopteris (Stigmatopteris)</i>	<i>nothochlaena (Maxon) C. Chr.</i>	BM, JCM
<b>Dryopteridaceae</b>	<i>Dryopteris</i>	<i>parallelogramma (wallichiana (Spreng.) Hyl.)</i>	BM
<b>Dryopteridaceae</b>	<i>Dryopteris</i>	<i>patula (Sw.) Underw.</i>	BM
<b>Dryopteridaceae</b>	<i>Dryopteris (Arachniodes)</i>	<i>rigidissima (Hook.) Proctor</i>	BM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>apodum (Kaulf.) Schott ex J. Sm.</i>	BM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>chartaceum (Baker ex Jenman) C. Chr.</i>	JCM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>crinitum (L.) Christ</i>	JCM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>denudatum (Jenman) Maxon ex C. V. Morton</i>	JCM Endemic
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>eggertii (Baker) Christ</i>	JCM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>glabellum J. Sm.</i>	BM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>herminieri (Bory ex Fee) T. Moore</i>	JCM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>huacsaro (Ruiz) Christ</i>	BM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>inaequalifolium (Jenman) C. Chr.</i>	BM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>latifolium (Sw.) J. Sm.</i>	BM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>maxoni Underw. ex Maxon</i>	BM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>muscosum (Sw.) T. Moore</i>	JCM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>paleaceum (Hook. &amp; Grev.) Sledge</i>	BM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>petiolatum (Sw.) Urb.</i>	JCM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>siliquoides (Jenman) C. Chr.</i>	JCM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>tambillense (Hook.) T. Moore</i>	BM, JCM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>tectum (Humb. &amp; Bonpl. ex Willd.) T. Moore</i>	BM
<b>Dryopteridaceae</b>	<i>Elaphoglossum</i>	<i>villosum (mortitzianum (Klotzsch) T. Moore</i>	BM

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<b>Tectariaceae</b>	<i>Fadyenia</i>	<i>hookeri</i> (Sweet) Maxon	JCM	
<b>Gleicheniaceae</b>	<i>Gleichenia</i> ( <i>Diplopterygium</i> )	<i>bancroftii</i> (Hook.) A. R. Sm.	BM	
<b>Gleicheniaceae</b>	<i>Gleichenia</i> ( <i>Sticherus</i> )	<i>bifidus</i> (Willd.) Ching	BM	
<b>Gleicheniaceae</b>	<i>Gleichenia</i> ( <i>Dicranopteris</i> )	<i>flexuosa</i> (Schrad.) Underw.	BM	
<b>Gleicheniaceae</b>	<i>Gleichenia</i> ( <i>Sticherus</i> )	<i>jamaicensis</i> (Underw.) Nakai	BM	
<b>Gleicheniaceae</b>	<i>Gleichenia</i> ( <i>Sticherus</i> )	<i>palmatus</i> (W. Schaffn. ex E. Fourn.) Copel.	BM	
<b>Gleicheniaceae</b>	<i>Gleichenia</i> ( <i>Dicranopteris</i> )	<i>pectinata</i> (Willd.) Underw.	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i>	<i>anfractuosa</i> (Kunze ex Klotzsch) Proctor	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i>	<i>asplenifolia</i> (L.) Proctor	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Micropolypodium</i> )	<i>basiattenuata</i> (Jenman) A. R. Sm.	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Stenogrammitis</i> )	<i>delitescens</i> (Maxon) Labiak	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i>	<i>flabelliformis</i> (Poir.) C. V. Morton	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i>	<i>graminea</i> (Sw.) Ching	JCM, BM	
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Stenogrammitis</i> )	<i>hartii</i> (Jenman) Labiak	JCM	
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Enterosora</i> )	<i>insidiosa</i> (Sloss.) L. E. Bishop	JCM	
<b>Polypodiaceae</b>	<i>Grammitis</i>	<i>limbata</i> Fee	JCM	
<b>Polypodiaceae</b>	<i>Grammitis</i>	<i>marginella</i> (Sw.) Sw.	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Alansmia</i> )	<i>mollissima</i> ( <i>elastica</i> (BoryWilld.) Moguel & M. Kessler	JCM	
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Lellingeria</i> )	<i>myosuroides</i> (Sw.) A. R. Sm. & R. C. Moran	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i>	<i>nimbata</i> (Jenman) Proctor	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Ceradania</i> )	<i>nubigena</i> (Maxon) L. E. Bishop	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Lellingeria</i> )	<i>pendula</i> (Sw.) Proctor	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Cochlidium</i> )	<i>proctorii</i> (Copel.) L. E. Bishop	JCM	Endemic
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Stenogrammitis</i> )	<i>ruglessi</i> (Proctor) Labiak	JCM	Endemic
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Terpsichore</i> )	<i>semihirsuta</i> (Klotzsch) A. R. Sm.	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i> ( <i>Xiphopteris</i> )	<i>serrulata</i> (Sw.) Kaulf.	JCM	
<b>Polypodiaceae</b>	<i>Grammitis</i>	<i>trichomanoides</i> (Sw.) Ching	BM	
<b>Polypodiaceae</b>	<i>Grammitis</i>	<i>trifurcata</i> (L.) L. E. Bishop	JCM	

Supplementary Information provided on  
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<i>(Enterosora)</i>			
<b>Pteridaceae</b>	<i>Gymnopteris</i> <i>(Hemionitis)</i>	<i>rufa</i> (L.) Sw	BM
<b>Dennstaedtiaceae</b>	<i>Histiopteris</i>	<i>incisa</i> (Thunb.) J. Sm.	BM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>abruptum</i> Hook.	JCM, BM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>asplenioides</i> (Sw.) Sw.	BM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>axillare</i> Sw.	BM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>crispum</i> Kunth	JCM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>fucooides</i> (Sw.) Sw.	BM, JCM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>hirsutum</i> (L.) Sw.	JCM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i> <i>(Sphaerocionium)</i>	<i>hirtellum</i> (Sw.) C. Presl	JCM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>lanatum</i> Fee	BM, JCM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>lineare</i> (Sw.) Sw.	JCM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>polyanthos</i> Sw.	JCM, BM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>protrusum</i> Hook.	JCM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>sericeum</i> (Sw.) Sw.	JCM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>undulatum</i> (Sw.) Sw.	JCM, BM
<b>Hymenophyllaceae</b>	<i>Hymenophyllum</i>	<i>urbanii</i> Brause	BM
<b>Dennstaedtiaceae</b>	<i>Hypolepis</i>	<i>nigrescens</i> Hook.	BM
<b>Dryopteridaceae</b>	<i>Lastreopsis</i>	<i>effusa</i> (Sw.) Tondale	BM
<b>Dennstaedtiaceae</b>	<i>Lonchitis</i>	<i>hirsuta</i> L.	BM
<b>Dicksoniaceae</b>	<i>Lophosoria</i>	<i>quadripinnata</i> (J. F. Gmel.) C. Chr.	BM
<b>Lygodiaceae</b>	<i>Lygodium</i>	<i>volubile</i> Sw.	BM
<b>thelypteridaceae</b>	<i>Macrothelypteris</i>	<i>torresiana</i> (Gaudich.) Ching	BM
<b>Marattiaceae</b>	<i>Marattia</i> ( <i>Eupodium</i> )	<i>alata</i> (laeve (Sm.) Murdock	JCM
<b>Nephrolepicaeae</b>	<i>Nephrolepis</i>	<i>exaltata</i> (L.) Schott	BM
<b>Nephrolepicaeae</b>	<i>Nephrolepis</i>	<i>pectinata</i> (Willd.) Schott	BM Exotic
<b>Pteridaceae</b>	<i>Notholaena</i>	<i>trichomanoides</i> (L.) Desv.	BM
<b>Lindsaeaceae</b>	<i>Odontosoria</i>	<i>fumaroides</i> (Sw.) J. Sm.	BM, Endemic JCM
<b>Lindsaeaceae</b>	<i>Odontosoria</i>	<i>jenmanii</i> Maxon	BM
<b>Oleandraceae</b>	<i>Oleandra</i>	<i>articulata</i> (Sw.) C. Presl	BM
<b>Saccolomataceae</b>	<i>Orthiopteris</i> <i>(Saccoloma)</i>	<i>domingense</i> (Spreng.) C. Chr.	BM
<b>Dennstaedtiaceae</b>	<i>Paesia</i>	<i>viscosa</i> ( <i>glandulosa</i> (Sw.) Kuhn	BM
<b>Pteridaceae</b>	<i>Pityrogramma</i>	<i>calomelanos</i> (L.) Link	BM

Supplementary Information provided on  
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<b>Pteridaceae</b>	<i>Pityrogramma</i>	<i>ornithopteris (chrysoconia (Desv.) Maxon ex Domin</i>	BM
<b>Pteridaceae</b>	<i>Pityrogramma</i>	<i>tartarea (ebenea (L.) Proctor</i>	BM
<b>Plagiogyriaceae</b>	<i>Plagiogyria</i>	<i>semicordata (C. Presl) Christ</i>	BM
<b>Dryopteridaceae</b>	<i>Polybotrya (Olfersia)</i>	<i>cervina (L.) Kunze</i>	BM
<b>Dryopteridaceae</b>	<i>Polybotrya</i>	<i>osmundacea Humb. &amp; Bonpl. ex Willd.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Campyloneurum)</i>	<i>angustifolium (Sw.) Fee</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Terpsichore)</i>	<i>asplenifolia (L.) A. R. Sm.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Pleopeltis)</i>	<i>astrolepis (Liebm.) E. Fourm.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Phlebodium)</i>	<i>aureum (L.) J. Sm.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Ceradenia)</i>	<i>capillaris (Desv.) L. E. Bishop</i>	JCM
<b>Polypodiaceae</b>	<i>Polypodium</i>	<i>chnoodes (dissimile L.)</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Campyloneurum)</i>	<i>costatum (phyllitidis (L.) Presl)</i>	JCM
<b>Polypodiaceae</b>	<i>Polypodium (Niphidium)</i>	<i>crassifolium (L.) Lellinger</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Terpsichore)</i>	<i>cretata (Maxon) A. R. Sm.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Alansmia)</i>	<i>cultrata (Willd.) Moguel &amp; M. Kessler</i>	JCM
<b>Polypodiaceae</b>	<i>Polypodium (Ceradenia)</i>	<i>curvata (Sw.) L. E. Bishop</i>	JCM
<b>Polypodiaceae</b>	<i>Polypodium</i>	<i>delicatulum M. Martens &amp; Galeo</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Terpsichore)</i>	<i>exornans (Maxon) A. R. Sm.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Microgramma)</i>	<i>heterophylla (L.) Wherry</i>	JCM
<b>Polypodiaceae</b>	<i>Polypodium (Terpsichore)</i>	<i>jenmanii (Underw. ex Maxon) A. R. Sm.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Grammitis)</i>	<i>jubiforme (suspensa (L.) Proctor)</i>	JCM
<b>Polypodiaceae</b>	<i>Polypodium (Pleopeltis)</i>	<i>lanceolatum (Macrocarpa (Bory ex Willd.) Kaulf.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium</i>	<i>loriceum L.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Microgramma)</i>	<i>lycopodioides (L.) Copel.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Alansmia)</i>	<i>mollissium (elastica (Bory ex Willd.) Moguel &amp; M. Kessler</i>	JCM
<b>Polypodiaceae</b>	<i>Polypodium</i>	<i>moniliformis (Lag. ex Sw.) A. R. Sm. &amp; R.</i>	BM

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	<i>(Melpomene)</i>	<i>C. Moran</i>	
<b>Polypodiaceae</b>	<i>Polypodium (Pecluma)</i>	<i>pectinata (L.) M. G. Price</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Microgramma)</i>	<i>piloselloides (L.) Copel.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Pecluma)</i>	<i>plumula (Humb. &amp; Bonpl. ex Willd.) M. G. Price</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium</i>	<i>polypodioides (L.) Watt</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Campyloneurum)</i>	<i>repens (Aubl.) C. Presl</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium (Melpomene)</i>	<i>rigens (Xiphopteroides (Liebm.) A. R. Sm. &amp; R. C. Moran</i>	JCM
<b>Polypodiaceae</b>	<i>Polypodium</i>	<i>squamatum L.</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium</i>	<i>thyssanolepis A. Braun ex Klotzsch</i>	BM
<b>Polypodiaceae</b>	<i>Polypodium</i>	<i>vexatum D. C. Eaton</i>	BM
<b>Dryopteridaceae</b>	<i>Polystichum</i>	<i>mucronatum (Sw.) C. Presl</i>	BM, JCM Endemic
<b>Dryopteridaceae</b>	<i>Polystichum</i>	<i>plaschnickianum (Kunze) T. Moore</i>	JCM
<b>Dryopteridaceae</b>	<i>Polystichum</i>	<i>polystichiforme (Fee) Maxon</i>	JCM
<b>Dryopteridaceae</b>	<i>Polystichum</i>	<i>rhizophorum (Janman) Maxon</i>	BM
<b>Dryopteridaceae</b>	<i>Polystichum (Dryopteris)</i>	<i>tridens (T. Moore ex Hook.) Kuntze</i>	BM
<b>Dryopteridaceae</b>	<i>Polystichum</i>	<i>underwoodii Maxon</i>	BM Endemic
<b>Pteridaceae</b>	<i>Polytaenium</i>	<i>discoideum (cajenense (Desv.) Benedict)</i>	BM
<b>Pteridaceae</b>	<i>Polytaenium</i>	<i>feei (W. Schaffn. x Fee) Maxon</i>	JCM
<b>Pteridaceae</b>	<i>Polytaenium</i>	<i>linaetum (Sw.) J. Sm.</i>	BM
<b>Pteridaceae</b>	<i>Anetium</i>	<i>citrifolium (L.) Splitg.</i>	JCM
<b>Dennstaedtiaceae</b>	<i>Pteridium</i>	<i>aquilinum (L.) Kuhn</i>	BM
<b>Dennstaedtiaceae</b>	<i>Pteridium</i>	<i>arachnoideum (Kaulf.) Maxon</i>	BM
<b>Dennstaedtiaceae</b>	<i>pteridium</i>	<i>caudatum (L.) Maxon</i>	BM
<b>Pteridaceae</b>	<i>Pteris</i>	<i>hexagona (L.) Proctor</i>	JCM
<b>Pteridaceae</b>	<i>Pteris</i>	<i>podophylla Sw.</i>	JCM
<b>Pteridaceae</b>	<i>Pteris</i>	<i>purdoniana Maxon</i>	BM
<b>Dryopteridaceae</b>	<i>Rhipidopteris (Elaphoglossum)</i>	<i>peltata (obovatum Mickel)</i>	BM
<b>Saccolomataceae</b>	<i>Saccoloma</i>	<i>domingensis (Spreng.) C. Chr.</i>	BM
<b>Dryopteridaceae</b>	<i>Stigmatopteris</i>	<i>nothochlaena (Maxon) C. Chr.</i>	BM
<b>Tectariaceae</b>	<i>Tectaria</i>	<i>apiifolia (Schkuhr) Copel.</i>	BM Endemic
<b>Tectariaceae</b>	<i>Tectaria</i>	<i>incisa Cav.</i>	JCM
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>asplenioides (Sw.) Proctor</i>	BM
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>cheilanthoides (Kunze) Proctor</i>	BM
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>concinna (Willd.) Ching</i>	BM



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The cultural and natural heritage of the Blue and John Crow Mountains, JAMAICA

<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>decussata</i> (L.) Proctor	BM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>deltoidea</i> (Sw.) Proctor	JCM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>firma</i> (Baker ex Jenman) Proctor	JCM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>gracilis</i> (Heward) Proctor	BM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i> ( <i>Amauropelta</i> )	<i>heteroclita</i> (Desv.) Pic. Serm.	BM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>navarrensis</i> ( <i>oligocarpa</i> (Humb. & Bonpl. ex Willd.) Ching	JCM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i> ( <i>Amauropelta</i> )	<i>nockiana</i> (Jenman) Pic. Serm.	BM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>normalis</i> ( <i>kunthii</i> (Desv.) C. V. Morton	BM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>obliterata</i> (Sw.) Proctor	JCM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>pachyrachis</i> (Kunze ex Mett.) Ching	BM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>resinifera</i> var. <i>caribaea</i> (Jenman) Proctor	BM	Endemic
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>reticulata</i> (L.) Proctor	JCM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i> ( <i>Goniopteris</i> )	<i>sagittata</i> (Sw.) Pic. Serm.	JCM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>sancta</i> (L.) Ching	JCM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>setigera</i> (Blume) Ching	BM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>tetragona</i> (Sw.) Small	BM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>thomsonii</i> (Jenman) Proctor	BM	
<b>Thelypteridaceae</b>	<i>Thelypteris</i>	<i>underwoodiana</i> (Maxon) Ching	BM	Endemic
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>alatum</i> Sw.	JCM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>aureovestitum</i> Proctor	JCM	Endemic
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>capillaceum</i> L.	BM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>crinitum</i> Sw.	BM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>crispum</i> L.	BM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>holopterum</i> Kunze	JCM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>hookeri</i> ( <i>kapplerianum</i> J. W. Sturm.)	JCM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>hymenophylloides</i> Bosch	JCM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>lineolatum</i> (Bosch) Hook.	BM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>lucens</i> Sw.	BM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>membranaceum</i> L.	BM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>osmundoides</i> DC.	JCM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>polypodioides</i> L.	JCM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>radicans</i> var. <i>antillarum</i> (Bosch) Proctor	BM	Endemic
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>reptans</i> Sw.	JCM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i> ( <i>Abrodictyum</i> )	<i>rigidum</i> (Sw.) Ebihara & Dubuisson	JCM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>robustum</i> E. Fourn.	BM	
<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>scandens</i> L.	JCM	

Supplementary Information provided on  
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<b>Hymenophyllaceae</b>	<i>Trichomanes</i>	<i>punctatum</i> subsp. <i>sphenoides</i> (Kunze) Wess. Boer	JCM	
<b>Pteridaceae</b>	<i>Vittaria</i>	<i>filifolia</i> ( <i>graminifolia</i> Kaulf.)	BM	
<b>Pteridaceae</b>	<i>Vittaria</i>	<i>lineata</i> (L.) Sm.	BM	Native
<b>Pteridaceae</b>	<i>Vittaria</i>	<i>remota</i> Fee	BM	Native
<b>Lycopodiaceae</b>	<i>Lycopodium</i> ( <i>Lycopodiella</i> )	<i>cernua</i> (L.) Pic. Serm.	BM	
<b>Lycopodiaceae</b>	<i>Lycopodium</i>	<i>clavatum</i> L.	BM	
<b>Lycopodiaceae</b>	<i>Lycopodium</i> ( <i>Diphasiastrum</i> )	<i>fawcettii</i> (F. E. Lloyd & Underw.) Holub	BM	
<b>Lycopodiaceae</b>	<i>Lycopodium</i>	<i>jussiaei</i> Desv. ex Poir	JCM	
<b>Lycopodiaceae</b>	<i>Lycopodium</i> ( <i>Huperzia</i> )	<i>linifolium</i> (L.) Trevis.	JCM	
<b>Lycopodiaceae</b>	<i>Lycopodium</i> ( <i>Huperzia</i> )	<i>reflexum</i> Lam.	BM	
<b>Lycopodiaceae</b>	<i>Lycopodium</i> ( <i>Huperzia</i> )	<i>taxifolia</i> (Sw.) Trevis.	BM, JCM	
<b>Equisetaceae</b>	<i>Equisetum</i>	<i>giganteum</i> L.	BM	
			<b>261</b>	<b>TOTAL</b>
			<b>21</b>	<b>ENDEMIC</b>

**Appendix 3: Statement on Funding Commitment – Ministry of Youth and Culture**



REPLY OR SUBSEQUENT  
REFERENCE TO THIS  
COMMUNICATION SHOULD BE  
MADE TO THE PERMANENT  
SECRETARY AND THE  
FOLLOWING REFERENCE  
QUOTED:

NO: **MYSC.495/9/2**

**Ministry of Youth and Culture**  
**4-6 Trafalgar Road**  
**Kingston 5**  
**Jamaica, West Indies**  
**Tel: 876-978-7654**  
**Fax: 876-978-7072**

**STATEMENT OF FUNDING FROM THE MINISTER OF YOUTH AND CULTURE RE  
JAMAICA'S BID FOR WORLD HERITAGE STATUS, BLUE AND JOHN CROW  
MOUNTAINS**

The Government of Jamaica (GOJ) commits in its annual budget financial and technical support for protecting and safeguarding tangible and intangible cultural heritage programmes. These funds are made available through the agencies which fall under the Ministry of Youth and Culture, the Ministerial body that has direct oversight of Jamaica's cultural heritage.

Building on its current management programmes for the island's cultural heritage sites and assets, the Government actively supports World Heritage and its recognition that inscription of same, will require additional and continued sustained funding. The approach that has been taken within the Ministry of Culture is one of partnership and inclusiveness, acknowledging that heritage preservation is our collective responsibility. As such, we are pleased with the inter-ministerial management committee that now forms part of the Management for the Blue and John Crow Mountains.

The responsible agency of the Ministry of Water, Land, Environment and Climate Change, as well as the Ministry of Tourism and Entertainment, have both committed support to help shape a strong World Heritage programme for the nominated property and its buffer zone. The required funding support will become available within Year One of inscription, with funding agreed based on the scope of projects to be undertaken at the Site in each ensuing Budget Year.

As a Small Island Developing State, we recognize the impact that World Heritage status may have on Jamaica's tourism product, and as a country with a rich and diverse culture, we are aware that safeguarding our outstanding cultural heritage sites such as the Blue and John Crow Mountains for present and future generations is important to the sustainable development of our country. The relevant entities of Government have committed to supporting the nominated property through their portfolio responsibilities, in order to address critical management components such as Natural and Cultural Heritage Conservation; Enforcement and Compliance; Sustainable Tourism; and Monitoring and Evaluation.

Importantly, the Ministry of Youth and Culture is itself committing that each financial year World Heritage initiatives will continue to be budgeted, particularly those programmes that support capacity building for community members, in particular the Windward Maroons.

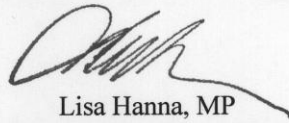
We are attaching as part of the Appendices, Statements of Commitments from the relevant Government entities, to supporting the funding requirements that will be necessary to ensure that the heritage values of Blue and John Crow Mountains are maintained.

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**STATEMENT OF FUNDING FROM THE MINISTER OF YOUTH AND CULTURE RE  
JAMAICA'S BID FOR WORLD HERITAGE STATUS, BLUE AND JOHN CROW  
MOUNTAINS**


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As the Minister that has led the charge in strengthening Jamaica's position in World Heritage, I wish to reiterate the commitment of the Government of Jamaica and other stakeholders to ensure that the integrity, authenticity and Outstanding Universal Value associated with the Blue and John Crow Mountains remains a distinction today, tomorrow and well into the future.



Lisa Hanna, MP  
Minister of Youth and Culture  
February 2015

**Appendix 5: Statement on Funding Commitment – National Environment and Planning Agency**

  
**NATIONAL ENVIRONMENT & PLANNING AGENCY**

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10 & 11 Caledonia Avenue, Kingston 5, Jamaica W.I. Tel: (876) 754-7540/3 Fax: (876) 754-7595-6 Tollfree: 1-888-991-5005  
E-mail: ceo@nepa.gov.jm, Website: http://www.nepa.gov.jm

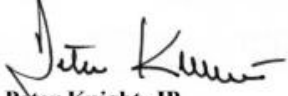
**Statement of Financial Commitment  
National Environment and Planning Agency**

The Natural Resources Conservation Authority (NRCA) has for more than fourteen years delegated management responsibility to the Jamaica Conservation and Development Trust (JCDDT), under the NRCA's Act of 1991. The NRCA has provided annual financial support to the JCDDT and is expected to continue to provide financial support, to assist in the management of the National Park. The National Environment & Planning Agency (NEPA) and the NRCA look forward to the continuing good working relationship with the JCDDT to ensure the sustainable management of the National Park.

**National Environment and Planning Agency**

  
**Peter Knight, JP**  
**Chief Executive Officer/Government Town Planner**

Any reply or subsequent reference to this communication should be addressed to the Chief Executive Officer, to the attention of the officer dealing with the matter, and the reference quoted where applicable.

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**Appendix 6: Statement on Funding Commitment – Ministry of Tourism and Entertainment**



**MINISTRY OF TOURISM AND ENTERTAINMENT**

*Office of the Minister*

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1ST & 3RD FLOORS, 64-70 KNUTSFORD BOULEVARD, KINGSTON 5, JAMAICA, WEST INDIES  
TEL: (876) 920-4945-6 • FAX: (876) 906-0198 • email: wykeham.mcneill@mot.gov.jm

**Statement of Commitment  
Ministry of Tourism and Entertainment**

The Ministry of Tourism and Entertainment and its agencies wishes to use this medium to officially state its endorsement, funding support and commitment of Jamaica's nomination of the Blue and John Crow Mountains (BJCM) for inscription to the UNESCO-World Heritage List.

Through the Ministry's Tourism Enhancement Fund (TEF) we are committed to promoting growth and development in Jamaica and encouraging better management of environmental resources in Jamaica. With this in mind, the Ministry is committing its continued funding support of the site in critical management areas such as Natural Heritage Conservation; Cultural Heritage Conservation Programme; Enforcement and Compliance Programme; Education and Public Involvement Programme; Recreation and Tourism Programme and Monitoring and Evaluation Programme.

We anticipate a favourable evaluation of this majestic feature of Jamaica's natural and cultural heritage, as we continue our funding support of the Blue and John Crow Mountains.



Honourable Dr. Kenneth Wykeham McNeill, MD, MP  
Minister  
February 2015

**Appendix 7: Statement on Funding Commitment – Forest Conservation Fund**

## Forest Conservation Fund

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February 23, 2015

**Statement of Financial Commitment  
Jamaica Protected Areas Trust/Forest Conservation Fund  
and  
Environmental Foundation of Jamaica**

The Jamaica Protected Areas Trust (JPAT)/Forest Conservation Fund (FCF) has been partnering with the Jamaica Conservation and Development Trust (JCDT) for eight (8) years. The JPAT/FCF has provided financial support through grant funding to the JCDT and is expected to continue to provide financial support until 2017. The amount of J\$33.65M has been committed to the organisation until 2017 to implement two (2) projects entitled Capacity Building for Forest Conservation and Sustainable Livelihoods – Phase 2, and Reforestation and Sustainable Agriculture for Soil Stabilization in the Blue Mountains.

Additionally, the JPAT/FCF is on the cusp of consolidation with the Environmental Foundation of Jamaica (EFJ) which has over fifteen (15) years experience working with JCDT. Over the years, the EFJ has provided financial support in excess of J\$55M, towards the management of the Blue and John Crow Mountains National Park.

The existing entities and the consolidated entity which will retain the EFJ name expect to continue working with JCDT, and look forward to continuing a good working relationship with the JCDT to ensure the sustainable management of the Blue and John Crow Mountains National Park.



Allison Rangolan McFarlane (Mrs.)  
Executive Director, Jamaica Protected Area Trust/Forest Conservation Fund  
Acting Co-CEO and Programme Manager, Environmental Foundation of Jamaica

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1B Norwood Avenue, Kingston 5  
(876) 960-6744  
[forestconservationfund@gmail.com](mailto:forestconservationfund@gmail.com)

**Appendix 8: Statement on mining- The Ministry of Science, Technology, Energy and Mining**

**MINING STATEMENT FOR THE**  
**BLUE AND JOHN CROW MOUNTAINS WORLD HERITAGE NOMINATION**

The Government of Jamaica through the Ministry of Science, Technology, Energy and Mining (MSTEM) is committed to the sustainable development and management of the island's resources. We continue to evaluate how resources are explored, cognizant of the importance of balanced development.

In consideration of the proposed World Heritage site of the Blue and John Crow Mountains, it is to be noted that there are five (5) Special Exclusive Prospecting Licenses (SEPLs) that are currently in force, which cover areas located in the parishes of St. Thomas, Portland and St. Andrew. The SEPL's authorize the licensees to conduct exploration/prospecting activities for specific minerals within the designated areas and which, as far as possible, avoid any archeological and ecologically sensitive areas. The MSTEM, through its agency, the Mines and Geology Division, ensures that these conditionalities are upheld.

While the MSTEM recognizes the significance of culturally and naturally rich sites such as the Blue and John Crow Mountains, subject to the decision of Cabinet, it will pursue all necessary avenues to ensure the impact of any mining activities which may occur in the future is minimized as far as possible, through the application of progressive rehabilitation measures. We indicate our commitment to assist in the maintenance of the outstanding universal value, integrity and authenticity of the Blue and John Crow Mountains.




Phillip Paulwell, MP

Minister of Science, Technology, Energy and Mining

February 26, 2015



**Appendix 9: Statement on mining - The National Environment and Planning Agency**

  
**NATIONAL ENVIRONMENT & PLANNING AGENCY**

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10 & 11 Caledonia Avenue, Kingston 5, Jamaica W.I. Tel: (876) 754-7540/3 Fax: (876) 754-7595-6 Tollfree: 1-888-991-5000  
E-mail: ceo@nepa.gov.jm, Website: <http://www.nepa.gov.jm>

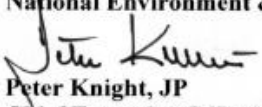
**Statement from the National Environment and Planning Agency**

The Mines and Geology Division of the Ministry of Science, Technology, Energy and Mining (MSTEM) grants Special and Exclusive Prospecting Licences and Leases for mining in Jamaica. The NRCA Act and its regulations require that a permit be obtained from the NRCA for specific categories of enterprise, construction or development of which mining is one such category.

Additionally, an Environmental Impact Assessment (EIA) may be required if it is considered that the proposed activities are likely to have a negative impact on the environment. The Natural Resources (National Parks) Regulations, 1993; also state that mining shall not be conducted in a national park without the NRCA's permission or except in keeping with the provisions of a licence granted under any other enactment.

The Agency's position with respect to mining in the nominated property is guided by the Government of Jamaica's policies and legislation. Jamaica's National Minerals Policy; *Fostering Sustainability in Jamaica's Minerals Industry*, which was prepared by the Ministry of Energy and Mining in 2011 states that mineral exploitation will not be undertaken in protected areas equivalent to the International Union for Conservation of Nature (IUCN) categories I and II, unless mandated by Cabinet. The policy also states that the impact assessment of any decision should **"...fully reflect the economic cost of the natural resources and eco-systems of the protected areas that might be affected."** The Blue and John Crow Mountains nominated property would be equivalent to the IUCN category II.

The Agency remains committed to supporting efforts regarding the designation of the Blue and John Crow Mountains as a World Heritage Site.

**National Environment & Planning Agency**  
  
**Peter Knight, JP**  
**Chief Executive Officer/Government Town Planner**

Any reply or subsequent reference to this communication should be addressed to the Chief Executive Officer, to the attention of the officer dealing with the matter, and the reference quoted where applicable.

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Supplementary Information provided on  
The cultural and natural heritage of the Blue and John Crow Mountains, JAMAICA

**Blue and John Crow Mountains National Park (BJCMNP) - Nominated Property & Buffer Zone 3 Year Joint Work-plan (Jan, 2015 – December 2017)**

In providing a 3 year work plan for the Blue and John Crow Mountains National Park, in which is contained both the nominated property and the buffer zone, the Co management committee determines that it has adequately provided for the management of all aspects of the nominated area and its buffer zone in respect to the preservation of the cultural and natural heritage of the Blue and John Crow Mountains.												
BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
<b>ENFORCEMENT &amp; COMPLIANCE PROGRAMME</b> – Whilst the BJCMNP Rangers employed to the Jamaica Conservation and Development Trust (JCDT) are the core team; Forestry Department (FD) also conduct patrols to monitor incidents of encroachment and compliance with notices served. Ideally, the number of Park Rangers should be 15 but currently there are 6 persons employed. To rectify the shortfall, The Government of Jamaica through the Ministry of Youth and Culture will ensure that the additional Park Rangers are in place. The intention is to use some of these funds to employ Rangers from the Maroon community and to provide stipends for community assistance e.g. Accompany Rangers on patrol near their communities. The National Environment and Planning Agency (NEPA) has a team of Enforcement Officers and these are called on as needed to implement enforcement action.												
<b>Objective 1: Increase level of presence and effectiveness of Enforcement Officers – by patrolling property, sharing personnel, conducting training and increasing number of Rangers</b>									<b>Outcome:</b> Decrease in illegal activities and (outside the protected area) those harmful to natural and cultural heritage values.			
1.1 Conduct routine patrols									2015 - 2016: 130 patrols/yr 2017: 140 patrols/yr N.B.: FD conducts additional patrols	JCDT: Chief of Corps (C/Corps) & Park Rangers Corps	Funded: NEPA	
1.2 Organise Joint Agency Patrols									1.2 At least 1 Joint Agency Patrol/mth - shows strength of unity and numbers	JCDT: C/Corps liaises with other agencies	Funded: NEPA & FD	
1.3 Organise patrols during "off" hours									2015 – 2016: At least 6 "off" hours patrols/yr ; 2017: At least 10	JCDT: C/Corps, Park Ranger Corps	Funded: NEPA	
1.4a Prepare Training Manual									2015: Training Manual Draft finalised by Sept 30, 2015	JCDT: C/Corps liaising with other agencies	Funded: NEPA	
1.4b. Conduct training sessions									2015: At least 5 sessions e.g. First Aid & CPR, legislation(NEPA/FD) & field skills (JDF)	JCDT: C/Corps	Funded 2015: Forest Conservation Fund (FCF)	
1.5 Employ additional Park Rangers									1.5 At least 2 suitably qualified full-time Rangers of Maroon heritage & funds for community Ranger honoraria	Ministry of Youth & Culture (MoYC)	Funded by Government of Jamaica (GOJ)	
<b>Objective 2: Address &amp; Resolve breaches of legislation</b> - JCDT Park Ranger Corps observe, warn & report breaches; FD &/or NEPA or JNHT Enforcement & Legal Officers investigate & take legal action including prosecution as needed.									<b>Outcome:</b> Decreased illegal and threatening activities			
2.1 Record threats & offences from patrols									2.1 Monthly Report & Map	JCDT: C/Corps	Funded: NEPA	
2.2 Report breaches to NEPA, FD &/or JNHT									2.2 Reports, Emails &/or Letters to relevant agency	JCDT:C/Corps	Funded: NEPA	

BJCMNP 3 Year Co management workplan 2015 – 2017

Supplementary Information provided on  
The cultural and natural heritage of the Blue and John Crow Mountains, JAMAICA

BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
2.3 Investigate & Take legal action										2.3 Legal Reports	NEPA, FD or Jamaica National Heritage Trust (JNHT): Legal Officers	Funded: NEPA, FD & JNHT
<b>Objective 3: Improve Boundary Clarity in the Field</b> – whilst the boundaries are clear on maps and with use of GPS units are used, they are not clear in the field/on the ground.									Outcome: Reduction in encroachment of National Park boundary			
3.1 Liaise with NEPA/FD/JNHT re: boundary clarification & demarcation including Nominated property and zones										2015: Plan for improved boundary demarcation by August, 2015 2016: Plan implemented by June, 2016	Park Manager NEPA/FD/JNHT	Funding – Co-management committee agencies
3.2 Conduct mapping & marking (signage) of key sites adjacent to Park boundary										2015: Maps (2) and signage – Holywell Back Road (Communities: Free-town/Woodford to Norbrook). Different areas each year.	Park Manager C/Corps	Small Grants & Sponsorship being sought for signs
<b>Objective 4: Community Outreach &amp; Involvement</b> – Encourage & facilitate involvement of local community members in addressing illegal and threatening activities.									Outcome: Increased involvement of local community members especially Maroons.			
4.1 Rangers liaise with communities										April 2015 on: Rangers stop in communities 2/mth and record of interaction documented	JCDT: C/Corps & Park Rangers	Funded: NEPA
4.2 Liaison system operational (HQ cell phone & # circulated via business card)										March 2015: Telephone Records indicate that community members call to provide information	JCDT: C/Corps & Receptionist	Donation obtained for phone & business cards
4.3 Rangers assist with implementation of all other Programmes										5. Park Management Programmes implemented	JCDT: Park Manager	
4.4 Community meetings with FD, NEPA and JNHT in conjunction with JCDT										Meetings occur separately or together dependent on the nature	FD/NEPA/JNHT/JCDT	
<b>NATURAL HERITAGE CONSERVATION PROGRAMME</b> –To maintain and enhance remaining area of closed broadleaf forest and the flora and fauna of the BJCM. JCDT conducts invasive species control and native species forest rehabilitation and the Forestry Dept. conducts reforestation inside and outside the protected area boundary.												
<b>Objective 1: Between 2011 – 2015 rehabilitate and maintain at least 120 ha of degraded forest in shale &amp; limestone areas.</b> N.B.: Community members implement the reforestation and some of the invasive species control under Park Ranger/FD personnel supervision.									Outcome: Increased forest cover and reduced invasive species.			
(a) Conduct Reforestation										2015/JCDT: At least 8ha in Cinchona & 10ha at Sherwood (private land adjacent to National Park) 2015/FD: Start on 100ha	JCDT: C/Corps, Administrative (Admin) Manager. Park Rangers, FD	JCDT: FCF & private sector FD:GEF/IDB/GOJ

Supplementary Information provided on  
The cultural and natural heritage of the Blue and John Crow Mountains, JAMAICA

BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
(b) Maintain acreage planted in previous years										1.1bi JCDT: Maintain 22ha in B/Zone 1.1bii FD: Maintain over 50ha in B/Zone	1.1bi JCDT: C/Corps, Admin Manager, Park Rangers 1.1bii FD	JCDT: FCF, & private sector FD: GEF/IDB/GOJ
(a)Mt. Horeb/Fairy Glade - Wild Ginger Control Find alternative disposal										Maintain existing 6.65ha; Add 1ha. Disposal alternative e.g. composting by April.	JCDT: C/Corps, Park Manager & Rangers	FCF
(b) Blue Mtn. Peak Trail – Check 2/yr & Remove Wild Coffee – <i>P. undulatum</i>										1.2b Peak Trail clear of Wild Coffee	JCDT: C/Corps, Park Manager & Rangers	FCF
(c) Holywell (assorted invasives controlled)										1.2c H/well: Dick's Pond Trail & Freetown Rd clear of W/Coffee	JCDT: C/Corps, Park Manager & Rangers	FCF & private sector
(d) Cinchona – Wild Coffee										1.2d Selected site clear of W/Coffee	JCDT: C/Corps, Park Manager & Rangers	FCF
<b>Objective 2: Propagate and supply native &amp; endemic species for rehabilitation/reforestation</b>									<b>Outcome: At least 18ha in Buffer and Community Buffer Zone with improved biodiversity</b>			
2.1 Propagation of native, broadleaf species for forest rehabilitation										2.1a At least 12,000 native and other seedlings for forest rehabilitation* 2.1b Complete fixing of nursery at Holywell	JCDT: Park Manager, C/Corps & Rangers	FCF & Recreation Pathways
2.2 Propagation & sale of lumber, landscaping & other commercial species to help sustain natives prod'n,										2.2 Produce & sell at least 1,500 plants to help support nurseries	JCDT: Admin Nursery Manager, Worker	FCF & Recreation Pathways
<b>Objective 3: Promote &amp; facilitate research that will inform/assist Park management/conservation</b>									<b>Outcome: Increased information for Park management/conservation</b>			
3.1 Prepare outlines based on Management Plan Research Prospectus										3.1 Outlines for at least 10 priority projects from Research Prospectus sent to 2 universities and posted on website annually	JCDT: Park Manager, Conservation Science Officer	JCDT
3.2 Examine & reply to all research applications sent by NEPA & direct email to researchers re: 3.4 and 3.5.										3.2 Reply to all research applications	JCDT: Park Manager, Conservation Science Officer (CSO)	JCDT
3.3 Maintain & promote Research Data-base										3.3 Updated Research Data-base	JCDT: Park Manager, CSO	JCDT

BJCMNP 3 Year Co management Workplan 2015 – 2017

Supplementary Information provided on  
The cultural and natural heritage of the Blue and John Crow Mountains, JAMAICA

BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
3.4 Write requesting to work with/assist researchers in the field									3.4 At least 2 field sessions with researchers	JCDT: Park Manager, CSO	JCDT	
3.5 Repatriation & use of research results									3.5 Obtain papers from at least 2 researchers	JCDT: Park Manager, CSO	JCDT	
3.6 Participate in relevant national committees									3.6 Committee meeting attendance	JCDT: Park Manager or other as appropriate	JCDT	
3.7 Promote work through publications & participation in conferences etc.									3.7 At least one publication and/or presentation per year	JCDT: Park Manager or other as appropriate	JCDT	
3.8 Conduct field visits to record & collect species for national data-base									3.8i At least 2 field trips/annum 3.8ii Increased species data on the BJCMNP	Natural History Museum of Jamaica (NHMJ) staff in liaison with JCDT	Funding Government of Jamaica	
<b>Objective 4:</b> Implement specific programmes for conservation targets as information becomes available. Conservation knowledge suggests that conservation of the forest ecosystems will help ensure conservation of flora and fauna species and so this has been the focus of most conservation actions. However, as specific information becomes available, it will be used to enhance conservation of targets e.g. epiphytic communities, headwater ecosystems, forest birds, Jamaican Hutia, Boa and Giant Swallowtail Butterfly.									<b>Outcome:</b> Improved conservation of targeted species and faunal groups.			
4a. Identify any additional steps to better conserve the Park's conservation targets and implement as possible									4a. Reports	JCDT: Park Manager	Dependent on funding currently being sought or response from universities	
4b. Implement parrot and coney surveys as possible									4b. Report	JCDT: Park Manager	Funding being sought: Whitley Fund for Nature	
<b>CULTURAL HERITAGE PRESERVATION PROGRAMME</b> – aims to preserve and conserve the tangible and intangible heritage of the nominated property and its buffer zone (National Park) and the Protected National Heritage in the Rio Grande Valley and satellite Maroon communities. It is a joint effort guided by the Windward Maroon Councils through Maroon Advisory Committee & implemented by Maroon Councils with assistance from JNHT, JCDT, African Caribbean Institute of Jamaica (ACIJ) and Jamaica Intellectual Property Office (JIPO).												
<b>Objective 1:</b> Facilitate the preservation of the tangible cultural heritage of the Windward Maroons e.g. sacred and battle sites, trails, springs, ancestral towns and villages and current sites.									<b>Outcome:</b> Sites and trails are preserved because of studies and documentation leading to increased knowledge ability to preserve the sites.			

Supplementary Information provided on  
The cultural and natural heritage of the Blue and John Crow Mountains, JAMAICA

BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
1.1 Site Surveys – 2015 - identify 5 sites 2016 - identify 6 sites 2017 - identify 3 sites										1.1 Reports including GIS coordinates, survey and mapping Inventory records ; 14 sites identified and surveyed	JNHT with Maroon Cultural Assistants	Funding - MoYC
1.2 Site Monitoring – site database created										1.2 Database created and updated regularly	JNHT with Maroon Cultural Assistants	Funding - MoYC
1.3 Site Monitoring– 26 sites and trails to be monitored										1.2 26 Sites and trails are visited on a monthly, 3- month and 6 -month basis based on ease of access	JNHT with Maroon Cultural Assistants	Funding - MoYC
1.4 Site Evaluation/Excavation/Research – 3 sites										1.3 3 Site Reports and updated database	JNHT with Maroon Councils	Funding - MoYC
1.5 Workshops/Meetings - Recruitment - Training of Maroon Cultural Assistants – carried out in 3 Maroon communities										1.4 Plans for Monitoring and Management developed Recruited, Trained Maroon Cultural Assistants	JNHT with Maroon Cultural Assistants	Funding - MoYC
1.6 Purchase of Equipment										1.5 Equipment for Monitoring & Management, excavation	JNHT with Maroon Councils	Funding - MoYC
1.7 Site Development										1.6 Plan created; implementation within 2016/2017 financial year	JNHT with Maroon Councils	Funding - MoYC
1.8 Guidelines for Development and Operations of Trails and Sites										1.7 Comprehensive Set of Guidelines for Development and Operations of Trails and Sites within the BJCM PA, with details for key sites.	JCDT	Funding - Ministry of Tourism (Tourism Enhancement Fund (TEF))
1.9 Develop a plan for site development, maintenance and conservation of the tangible cultural heritage										A detailed plan will be developed	Maroon councils JNHT/ACIJ/JCDT	
<b>Obj. 2: Intangible Heritage:</b> Facilitate the preservation of the intangible heritage of the Windward Maroons – building on the work already implemented on the project ACIJ implemented with the Moore Town Maroon Council following proclamation of their Intangible Heritage as a Masterpiece of Humanity which included documentation and training.										<b>Outcome:</b> Preservation of the intangible cultural heritage of the Windward Maroons including music, dance, language, cuisine, use of herbs, governance, religious and other practices.		
2.1 Research (see below)										See Research (below)	ACIJ with Maroon Councils	Funding - MoYC
2.2 Organise 2 community meetings and a workshop to develop formal strategies to promote, inventory and										Workshop Report and Strategy for Promotion & Preservation of Windward Maroon Cultural Heritage including a Tool for	ACIJ with Maroon Councils, JNHT & JCDT	Funding - MoYC

BJCMNP 3 Year Co management Workplan 2015 – 2017

Supplementary Information provided on  
The cultural and natural heritage of the Blue and John Crow Mountains, JAMAICA

preserve intangible heritage including the development of a tool for monitoring & evaluation										Monitoring.		
<b>Objective 3:</b> Promote awareness & appreciation of the cultural heritage of the Windward Maroons and its connections with the natural heritage of the Blue & John Crow Mountains.										<b>Outcome:</b> Pride and increased protection of both natural and cultural heritage. Increased public participation in festivals and tours.		
3.1 Assist Maroon Councils with organisation and sponsorship of festivals (4) & events										Festivals successfully held & documented	JCDT with Maroon Councils	Funding being sought from private sector & TEF
3.2 Develop & Implement Educational & Interpretive tour packages										2015: Tour packages detailed; Visitors Centre at Ambassabeth improved. 2015/16: MOUs – JCDT & Councils Additional Marketing.	JCDT with Maroon Councils	JCDT
3.3 Improve facilities for tours in communities e.g. bathrooms										2015/16: Improvements at Scots Hall, Hayfield & 2016/17: Moore Tow	JCDT with Maroon Councils	Funds: TEF
<b>Objective 4:</b> Promote, facilitate and conduct research to inform management and aid preservation of the cultural heritage and connections with the natural heritage										<b>Outcome:</b> Improved conservation of cultural heritage with increased knowledge, information, documentation and dissemination of information.		
4.1a Conduct research e.g. interviews with Elders re: Intangible cultural heritage (ICH)										4.1ai. 10 Oral History Interviews recorded 4.1aii. Research Report	ACIJ with Maroon Councils	Funds - MoYC
4.1b Authenticate, Archive & Document Intangible cultural heritage										4.1b. A/V documentation of (i) Nanny Day celebrations in Moore Town (ii) Asafu Yard in Charles Town (iii) Expand the existing electronic archives of Mooretown Library & the Jamaica Memory Bank	ACIJ with Maroon Councils	Funds - MoYC
4.1c Dissemination of information										4.1ci. Print brochures on the:- (a) intangible cultural heritage of the BJCM region (b) Safeguarding the intellectual property of the Windward Maroons & the cultural & bio-diversity of the BJCM region (c) Tangible cultural heritage of the BJCM 4.1cii. Use of radio and TV to promote Windward Maroon ICH	ACIJ with Maroon Councils	Funds - MoYC
4.1d Create cultural landscape Map indicating tangible and intangible heritage										Facilitate collaborative meetings Create map by Q6 of 2016 and continue to update		



Supplementary Information provided on  
The cultural and natural heritage of the Blue and John Crow Mountains, JAMAICA

BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
4.1d Equipment										4.1d Purchase equipment:- 1 HD video camera, 1 digital still camera, 1 TB hard drive	ACIJ with Maroon Councils	Funds - MoYC
4.1e Outreach/Capacity Building										4.1e Conduct community presentations on the safeguarding of intellectual property of the Windward Maroons in Moore Town, Charles Town & Scott's Hall Conduct community presentations on the preservation of the trails, archaeological and sacred sites	ACIJ with Maroon Councils, JNHT & JCDT	Funds - MoYC
<b>MONITORING &amp; EVALUATION PROGRAMME</b> – This programme aims to track and record both the threats and the changes to ecosystem health, so that it is possible to assess whether or not the BJCMNP is achieving its over-arching conservation goal. Except for Forest Cover monitoring, this work is implemented by JCDT with the collaboration of experts in each field.												
<b>Objective 1:</b> Track, record & mitigate threats from resource use within the National Park.									<b>Outcome:</b> Information to guide mitigation and reduction of threats.			
1.1 Collect & Enter Information from Patrols										1.1a. Information in Monthly Patrol Reports 1.1b. Annual Threats & Offences Map	JCDT: C/Corps	NEPA
1.2 Conduct Permanent Point Photo-monitoring										1.2a. Photos of at least 10 of 12 sites 1.2b. Report on Comparison of photos	JCDT – C/Corps	NEPA
<b>Objective 2:</b> Monitor populations of key, threatened species – Giant Swallowtail Butterfly, Jamaican Coney and Jamaican Boa.									<b>Outcome:</b> Information to help assess population status.			
2. Record all sightings etc. from patrols, monitoring & communities using GIS										2a. Records in Monthly Patrol Reports 2b. Annual Map	JCDT	NEPA
<b>Objective 3:</b> Monitor forest cover and encroachment.									<b>Outcome:</b> Improved information to guide management and enforcement			
3.1 Seek funds for JDF Helicopter Monitoring										3.1 Proposals & Funds	JCDT	Funds to be sought from TEF
3.2 FD completes analysis of Satellite imagery analysis done under EU Project 2014.										3.2 Forest Cover information updated	FD	FD

Supplementary Information provided on  
The cultural and natural heritage of the Blue and John Crow Mountains, JAMAICA

BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
<b>Objective 4:</b> Monitor quality of freshwater ecosystems									<b>Outcome:</b> Information to guide management of freshwater ecosystems			
4a. Sample sites in both dry and wet seasons 4b. Update monitoring approach & data collection; Analyse data; Prepare Report. 4c. Finalise Reports for previous years									4a. 12 sites sampled (May/Nov) 4b. Annual Monitoring reports 4c. Finalised Reports by March annually	JCDT – C/Corps & Rangers	NEPA	
<b>Objective 5:</b> Monitor bird distribution in the BJCMNP – one area/year – 5 year cycle around the Park.									<b>Outcome:</b> Information to guide conservation of birds			
5a. Establish & monitor points for Summer Season: one of 5 established areas 5b. Establish and monitor points for Winter Season in the same area 5c. Analyse data and Prepare Reports (including any climate change findings)									5a. Monitor all 120 points for Summer annually 5b. Monitor all 120 points for Winter annually 5c. Annual Reports produced	JCDT	Partially funded; JCDT seeking small grant or sponsorship	
<b>EDUCATION &amp; PUBLIC INVOLVEMENT PROGRAMME</b> – This programme aims to raise support for conservation of the BJCMNP's natural and cultural heritage and improve resource management and the sustainability of livelihoods, particularly in the communities just outside the Park boundary.												
<b>Objective 1:</b> To facilitate capacity building of at an estimated 120 people in at least 6 communities around the National Park (Buff Bay Valley – including Charles Town, Rio Grande Valley, Millbank & Moore Town – which are Maroon communities) and communities around the Park's recreation areas.									<b>Outcome:</b> Increased support for Park management and increased sustainability of livelihood activities around the National Park.			
1.1 Work with communities to build their technical capacity & implement relevant activities									1.1a. Liaise with CBOs in at least 6 communities to plan activities 1.1b. New sustainable livelihood activities/projects being implemented in at least 2 communities 1.1c Training in monitoring of cultural heritage sites – Maroon Cultural Assistants	JCDT – Education & Community Outreach Officer (ECCO)	GIZ Caribbean Aquaterrestrial Solutions (CATS) Project & FCF Capacity Building Project (2015 & 2016)	
1.2 Training of community members especially youth/young adults in sustainable livelihoods									1.2 1.2 2015: 3 communities - including Maroons, will receive 3 days training in sustainable agriculture including demonstration plots for practical work. 2015/6: community members will visit Ambassabeth to see a successful community eco-resort.	JCDT – ECCO	GIZ (CATS) FCF Capacity Building Project	

BJCMNP 3 Year Co management Workplan 2015 – 2017

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BJCMNP Programme of Activities	2015				2016				2017	Expected Outputs/Outcomes	Responsible Agency & Officer/Implementing Officer(s)	Funding
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
1.3 Involve community members in Park management activities as far as possible.									1.3 40 (incl. Park staff & Maroon Councils)	Park Manager & Admin Manager	JCDT	
<b>Objective 2:</b> Increase awareness about the BJCMNP's natural and cultural heritage, importance and management in order to increase the level of support for the BJCMNP.									<b>Outcome:</b> Increased awareness and support for conservation of the heritage of the BJCMNP			
2.1 Local Community - Meetings									2.1 At least 10/year re: Park	JCDT - ECOO	FCF	
2.2 Social Media 2.2a Website maintained & updated 2.2b Facebook Page 2.2c Media Releases or advertorials 2.2d Participate in exhibitions/mini-expos									2.2a Major Update every two years 2.2b. At least 3 posts/mth 2.2c Coverage – 8 times in print or electronic (+ events) 2.2d At least 3/yr	JCDT – Park Manager	FCF	
2.3a Maintain/refresh Visitors' Centre, Holywell									2.3a Improvement/repairs	JCDT – Park Manager	US-DOI Climate Friendly Parks	
2.3b Conduct educational tours as requested									2.3b Provide support as requested	JCDT - ECOO	Self-funded	
<b>2.4 Buffer Zone Schools</b>												
2.4a Intensive work with schools e.g. help with project									2.4a At least 4/yr	JCDT - ECOO	FCF Capacity Bldg Proj	
2.4b Visits to buffer zone schools – presentation and activity									2.4b At least 30 schools/yr (all primary level schools around Park)	JCDT - ECOO	FCF Capacity Bldg Proj	
2.4c Buffer Zone teacher training workshop re: integrating BJCM information & issues into the curriculum									2.4c At least 1 with at least 20 teachers	JCDT - ECOO	FCF Capacity Bldg Proj	
2.5 WHS Awareness Campaign (on inscription)									2.5(i) At least 10 comm. mtgs 2.5(ii) Posters/brochures 2.5(iii) PR: Round Table/Articles & Interviews 2.5(iv) TV/Radio Advts. 2.5(v) Newspaper & Magazine Advts (National/Intl. e.g. WH)	MoYC with JCDT, JNHT, ACIJ, NHMJ, NEPA & FD	Funds being sought from Ministry of Tourism and Entertainment (MTE) through the Tourism Enhancement Fund (TEF)	

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	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
<b>RECREATION &amp; TOURISM PROGRAMME</b> – The goal of this programme is to provide and facilitate the provision of recreational opportunities for local and international visitors using ecotourism and sustainable tourism principles in order to generate income and support for the BJCMNP. The lead on this programme is the JCDT.												
<b>OBJECTIVE 1:</b> Provide and facilitate recreational and educational opportunities geared at raising awareness and support of the BJCMNP, as per existing plans (a Sustainable Tourism Programme which targeted the Maroon communities and those around the Park's recreational areas, was developed between 2006 – 9, with funding from the IDB) and is being implemented in phases.									<b>OUTCOME:</b> Increased number and quality of tours and facilities			
1.1a Enhance "Tuck-Shop" to Café/Gift Shop									1.1a Enhanced building & café operational	JCDT – Park Manager & Admin Manager	TPDCo/TEF	
1.1b Improved cabin interiors									1.1b Improved cabins & all facilities			
1.1c Internal road works									1.1c Road improvements	JCDT – Park Manager	TPDCo./TEF	
1.1d Provide educational tours at Holywell									1.1d At least 45/yr	JCDT – ECOO	Self-funded	
1.2a Peak Trail & Portland Gap Area Improvements & Refurbishing									1.2a Urgent trail repairs done by June with existing funding and funds sourced for major improvements – JSIF. 1.2b System in place	JCDT – Park Manager & Admin Manager	FCF, NPAS & TPDCo/TEF	
1.2b Address user fee non-payment: meet & establish system: guest houses/tour guides								Major funding anticipated from JSIF				
1.3 Establish BM Sustainable Tourism Prog: Park & Community Attractions being marketed & percentage returning to Park management.									1.3a BMST System in place (as per Manual e.g. MOUs with community attractions & tour companies 2016 1.3b Tours & Events marketed	JCDT – Park Manager & Admin Manager working with Maroon & other communities.	Seeking funding: Tourism Coordination & Marketing Officer	
<b>Objective 2:</b> Generate income to support park management by increasing income from the National Park's recreational areas and the BM Sustainable Tourism Programme by 150% over 5 years. JCDT is responsible and is so far just below the target despite challenges. The current focus is on improving facilities and increasing the number of things for visitors to spend money on e.g. merchandise, camping equipment rental, additional tours and lobbying government to increase the user fees.									<b>Outcome:</b> Increased income for Park management			
2.1 Improve management & supervision									2.1a Employ Tourism Marketing & Coordination Officer 2.1b Staff meetings at least 3/yr	JCDT – Park Manager	Seeking funds	

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	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
2.2 Increase revenue:- 2.2a Increase cabin rental after improvements; marketing; start sale of souvenirs, concessions, tent rentals 2.2b Follow up NEPA re: increase in entry fees										2.2 By at least 150% 2.2a. Increased income 2.2b Increased income	JCDT – Park Manager & Admin Manager	JCDT
<b>Objective 3:</b> Engender community support for the BJCMNP as well as natural and cultural heritage conservation by facilitating benefits to local communities.									<b>Outcome:</b> Increased community support and involvement for natural and cultural heritage preservation			
3.1a Support for community attractions/ventures & capacity building										See above: 1.3 and Cultural Heritage Preservation and Education & Public Involvement Programmes	JCDT – Park Manager	Jamaica Energy Partners (JEP)
<b>Objective 4:</b> Ensure that recreation and tourism activities do not threaten the National Park's biodiversity, provision of ecosystem services and cultural heritage.									<b>Outcome:</b> Environmental impacts mitigated at recreational areas.			
4.1 Revisit Conservation Management Plans developed under USAID and identify possible improvements. 4.2 Climate & Environmentally Friendly Parks Workshop										4.1 Plan for initiating Conservation Management 4.2a Workshop held and Report with Recommendations produced 4.2b Improvements to environmental sustainability made e.g. composting and recycling of PET bottles.	JCDT – Park Manager	2015 – US DOI Climate Friendly Parks
<b>GOVERNANCE AND ADMINISTRATION PROGRAMME</b> – The goal of this programme is to provide efficient, effective and sustained management that will allow the BJCMNP to meet its over-arching conservation and other goals.												
<b>Objective1 :</b> Coordinate management at the policy level comprising key public, private sector and community stakeholders – Advisory Committee (meeting twice/year)									<b>Outcome:</b> Improved support from government agencies and private sector			
1. Organise BJCMNP Advisory Committee meetings										1.Meet twice for the year with minutes	JCDT – Park Manager	JCDT, NEPA, MoYC
<b>Objective 2:</b> Coordinate management at the operational level through regular meetings of the Co-Management Committee.									<b>Outcome:</b> Improved management efficiency and effectiveness through collaborative approaches.			
2.1 Organise Co-management Committee meetings										2.1 Minutes from 3 meetings/year	JCDT – Park Manager	JCDT, NEPA, MoYC
2.2 Organise Maroon Community Advisory Committee Meetings										2.2 Minutes from 3 meetings/year	JCDT – Park Manager	JCDT, NEPA, MoYC

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	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8				
Liaise with Buffer Zone Community Groups for projects & programmes										2.3 Reports on Joint activities e.g. BPFA	JCDT – Park Manager	JCDT, NEPA, MoYC
<b>Objective 3:</b> To provide supervision, project management, financial management and administrative support for the BJCMNP Programmes									<b>Outcome:</b> Improved effectiveness of management			
3.1 Preparation Annual Plans & Reports										3.1a Annual Report & Work Plan by 26/1/16 3.2 Monthly Reports by 15 <sup>th</sup> of each month 3.3 By 21 <sup>st</sup> or 30 <sup>th</sup> of each relevant month 3.4 Meeting notes & coordination  3.5. Project proposals (at least 6/yr totalling US\$250,000); Successful Project Implementation.  3.6. At least 10 Training days  3.7 Opportunities for collaboration increased 3.8 Risk Assessment & Management Plan prepared & Disaster Preparedness/ Emergency Management Plan updated to include protection of cultural heritage	JCDT – Park Manager & Admin Manager	NEPA & JCDT
3.2 Preparation of monthly & bi-monthly Programme Reports												
3.3 Preparation of project reports												
3.4 Regular meetings:-												
3.4a Programme Management & Rangers' Roster Meetings												
3.4b Staff meetings quarterly												
3.5 Project Development and Management- Develop, Manage & Implement as per Park Plan												
3.6. Human Resource Development/Management												
3.7 Networking and Collaboration												
3.8 Disaster Preparedness, Emergency & Risk Management Plan Updated to include protection of cultural heritage												
<b>Objective 4:</b> To source short- and long-term funding for Park management through grant funding, government subvention, donations, sponsorship and opportunities through the Recreation & Tourism Programme.									<b>Outcome:</b> Improved funding for the BJCMNP			
4.1 Proposals to NEPA & JNPTF										4. Budget need for basic operations and for infrastructural development and plans for improvement for recreational areas and community tourism	JCDT – Park Manager/Executive Director in association with Board, GOJ and other agencies	JCDT
4.2 Follow up proposals to JSIF re: Peak Trail/Portland Gap												
4.3 Proposals to TEF												
4.4 Proposals to donors & private sector												

