Carioca Landscapes between the Mountain and the Sea

Rio de Janeiro

World Heritage Nomination

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2011

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FOREWORD

With eighteen properties in Brazil already inscribed as historical, natural or mixed sites in the List of World Heritage, the inclusion of the **cultural landscapes** of Rio de Janeiro city represents an important step by the Brazilian government to ensure the protection of the country's World Heritage for future generations.

Rio was included on the Tentative List on 7th August 2001 under the title of *Rio de Janeiro Cultural Landscape*. The nomination was initially submitted to UNESCO in 2002 as a mixed site, but was recommended to be included in a new category, that of cultural landscape. A new nomination has now been prepared, representing, we believe, a set of values, influences and places of true universal significance, which we also hope will contribute to the latest debates on the concept of World Heritage as applied to historical urban landscapes.

Nothing better represents the stage of civilisation, the creativity, the challenges, the contradictions or the cultural uniqueness of Brazilian society than the Cultural Landscape of the City of Rio de Janeiro. The confirmation of the city's outstanding universal value, as defined in this new nomination to the World Heritage List, is of great importance to the Brazilian people, to our process of self-knowledge and our sense of public-spiritedness and ethics. It is the fruit of the sensibilities awakened in the first dwellers of this land when they were confronted with its spectacular, singular natural beauty, inspiring them to build a city which seems more like "second nature" when we look at the cultural landscapes it contains.

Over the years, Rio de Janeiro has been hailed as a city which provides a unique balance in the relationship between man, city and nature, where quality of life and the pleasures of city living can go hand in hand. The construction of the city's cultural landscape was premeditated, predetermined, and ultimately the outcome of historical and cultural processes, which is why its protection should also be dynamic, taking account of this as yet unfinished process and allowing its history to unfold into the future.

The understanding of the different environments, their agency and protection, as granted by the institutions which manage the cultural landscapes in the proposed site, including the Botanic Gardens of Rio de Janeiro and Tijuca National Park, plus the more recent legacy of Burle Marx, are perennial goals which can be assured for future generations by the inscription of the site on the World Heritage List.

One of the results of the mobilisation of the institutions involved in the studies for this proposal – the Brazilian Institute of Historical and Artistic Heritage (Instituto do Patrimônio Histórico e Artístico Nacional – IPHAN) in collaboration with the Ministry for the Environment Through the Chico Mendes Institute for Biodiversity (Instituto Chico Mendes da Biodiversidade), the Rio de Janeiro State Government and the Rio de Janeiro City Council – has been the creation of a technical steering committee for Rio de Janeiro's

nomination as Brazilian World Heritage. This initiative by IPHAN is designed to meet the need created by the application to bring the coordination of the future administration of the world heritage site under a single public federal institution with the responsibility, technical capacity and power of decision that are unique to IPHAN.

We extend our thanks to the State Government of Rio de Janeiro, the Rio de Janeiro City Council, the many public and private institutions involved and the professionals actively engaged in developing the nomination document.

LUIZ FERNANDO DE ALMEIDA
CEO, IPHAN (Brazilian Institute of Historical and Artistic Heritage)

CONTENTS

NOMINATION FILE OF THE CITY OF RIO DE JANEIRO AS WORLD HERITAGE

I. IDENTIFICATION OF THE PROPERTY

I.A. COUNTRY

Brazil

I.B. STATE, PROVINCE OR REGION

Rio de Janeiro: City and State

Rio de Janeiro Metropolitan Area

Location of Rio de Janeiro Metropolitan Region in the World

I.C. NAME OF THE PROPERTY

Rio de Janeiro, Carioca Landscapes between the Mountain and the Sea

I.D. GEOGRAPHICAL COORDINATES

The coordinates of the four components are shown bellow:

Nº	NAME OF THE COMPONENT	DISTRICT	COORDINATES OF THE CENTRAL POINT
001	Tijuca Forest, Pretos Forros and Covanca – Tijuca National Park	Alto da Boa Vista	43°28'W 22°94'S
002	Pedra Bonita and Pedra da Gávea – Tijuca National Park	São Conrado	43°28'W 22°99'S
003	Carioca mountain range – Tijuca National Park and Botanic Gardens	Alto da Boa Vista, Sumaré and Jardim Botânico	43°23'W 22°95'S
004	Mouth of Guanabara Bay and manmade shorelines – Flamengo Park, Historic Forts of Niterói, Sugar Loaf Natural Monument, Copacabana seafront	Jurujuba, Urca, Rio de Janeiro City Centre, Flamengo, Botafogo and Copacabana	43°21'W 22°95'S

MAP Nº	TITLE	FORMAT	SCALE
IDENTIFICATION, DESCRIPTION AND JUSTIFICATION			
D01	Location Map	A3	1:200.000
D02	Site Map	A3	1:100.000
D02 (A)	Site Map	A0	1:20.000
D02 (B)	Site Map	A0	1:20.000
D03	Categories	A3	1:125.000
D04	Criteria	A3	1:125.000
D05	Visual Analysis	A3	1:125.000
D05 (A)	Visual Analysis – Images	A3	No Scale
D06	Geological Map	A3	1:125.000
D07	Sector (A) Map– Components 1,2 and 3	A3	1:75.000
D08	Sector (B) Map– Component 4	A3	1:50.000
D09	Sector (C) Map – Buffer Zone	A3	1:50.000
HISTORY AND DEVELOPMENT			
H01	The City and the External Defense	A3	1:50.000
H02	The Productive City	A3	1:50.000
H03	The City and the gardens	A3	1:50.000
H03 (A)	The City and the Gardens – Development Plans	A3	No Scale
H04	The City and The Forest	A3	1:50.000
H05	The City and The Sea	A3	1:50.000
H05 (A)	The City and The Sea – Flamengo Park and Copacabana Seafront Drawings	A3	No Scale
H06	Cultural Territorialities	A3	1:125.000
PROTECTION AND MANAGEMENT			
P01	Federal Listed Landmarks	A3	1:125.000
P02	State Listed landmarks	A3	1:125.000
P03	Municipal Listed Landmarks	A3	1:125.000
P04	Federal and State Conservation Units	A3	1:125.000
P05	Municipal Conservation Units	A3	1:125.000
P06	Mosaic of Protected Areas	A3	1:125.000

I.F. AREA OF NOMINATED PROPERTY

Nº	NAME OF THE COMPONENT PART	CORE ZONE (ha)	BUFFER ZONE (ha)
001	Floresta da Tijuca, Pretos Forros e Covanca – Tijuca National Park	1,982.58	**8,621,38**
002	Pedra Bonita e Pedra da Gávea – Tijuca National Park	257.89	
003	Serra da Carioca – Tijuca National Park and Botanical Garden	1,823.97	
004	Mouth of Guanabara Bay and Manmade Shorelines – Flamengo Park, Historic Forts of Niterói, Pão de Açúcar Natural Monument, Copacabana Seafront	3,184.34	
	TOTAL	**7,248.78**	

II. DESCRIPTION

II.A. DESCRIPTION OF THE PROPERTY

According to the definition for cultural heritage in Article 1 of the World Heritage Convention of 1972, the property shall be considered a *site*. It should also be regarded as a *cultural landscape*, following paragraph 47 of the Operational Guidelines for the Implementation of the World Heritage Convention.

Urban cultural landscapes are characterised by the complexity of their natural and anthropological elements. In the case of Rio de Janeiro, the diversity of the natural site on which the city grew has produced a variety of cultural landscapes in which the relationship between the mountain and the sea is paramount.

The proposed property stretches from the southern area of the city of Rio de Janeiro to the western tip of Niteroi, both part of Greater Rio, encompassing the outstanding Tijuca massif, whose uppermost peak reaches an altitude of 1,021 m. It is characterised by steep descents and big rocky clusters, some of which stretch right up to the coastline and are covered with tropical vegetation, both native and resulting from re-forestation. The site also includes the part of the city which has developed along the narrow strip of alluvial plain between Guanabara Bay, the Atlantic Ocean and the mountains, where the coastal landscape has been successively altered over the centuries, whether to provide fortifications for the defence of the city or facilities for its residents.

The proposed property contains Rio de Janeiro's principal landmarks, as can be seen in MAP D05 and its annex. The viewing points correspond to the tops of the main mountains in the site. Some of them have been built on, such as Corcovado, Sugar Loaf, and Pico, Leme and Glória hills, and all of them provide panoramic views, giving the city its characteristic landmarks that make it easier to interpret and comprehend the urban landscape.

The area contained within the quadrilateral formed from the straight lines leading from two points on Map D05 contain important elements in the urban landscape within the proposed site. Vistas 34, 35, 36 and 37 from Map D05 (A) represent different aspects of the elements in the Rio landscape – the sea, the city, the mountains and its forests – and show how they are interconnected. These lines and zones mark out the other features in the proposed site, some representing open spaces, such as parks and beaches, others representing developed areas, such

as Rua Claudio Coutinho and Rua Portugal, which enhance the landscape and play an important role in the urban fabric.

From the top of each of the highest viewing points in the proposed site – Corcovado, inside Tijuca National Park, and Pico Hill, within the area of the historical forts of Niterói – two lines were drawn on Map D05, forming a quadrilateral, which, alongside vistas 1, 2 and 3 from Map D05(A), form the main area of the proposed site. These analyses were responsible for defining the four components which constitute the proposed property:

Nº	NAME OF THE COMPONENT	DISTRICT
001	Tijuca Forest, Pretos Forros and Covanca – Tijuca National Park	Alto da Boa Vista
002	Carioca mountain range – Tijuca National Park and Botanic Gardens	São Conrado
003	Carioca mountain range – Tijuca National Park and Botanic Gardens	Alto da Boa Vista, Sumaré and Jardim Botânico
004	Mouth of Guanabara Bay and Manmade Shorelines – Flamengo Park, Historic Forts of Niterói, Sugar Loaf Natural Monument, Copacabana seafront	Jurujuba, Urca, Rio de Janeiro City Centre, Flamengo, Botafogo and Copacabana

The boundaries of all the components are defined by law (on a federal, state and municipal level) as can be seen by comparing Map D02 (Site Map) with the maps designating the areas of legal protection (P01, 02, 03, 04, 05 and 06).

II. A.1. Geography and Geomorphology

The proposed site is situated in a complex and diversified area, both from a geographical and a geomorphological point of view, which is one of the motives of its originality.

Its geomorphological formations have been gradually taken over by man, from the mountain to the sea, between the bay, the lagoon and the ocean. These contrasts comprise the principal feature of the Conversation Site.

The Tijuca massif extends in altitude from sea level up to 1,021 m, with a substrata dating from the Precambrian era that is entirely composed

of different gneisses (microclimate, biotite and granitoids), as well as some granite intrusions, various rocky outcrops and the sediment accumulated over time in the plains, as a result of the erosion of the massifs and the alternating advances and regressions of the sea. Its geological formation is characterised by the abundant Neoproterozoic granite genesis resulting from the amalgamation of the Gondwana supercontinent, at the end of the Brazilian/Pan-African Orogenic Cycle (see Map D06).

From a geomorphological point of view, the site stands in the realm of the coastal massifs, which consist of blocks pushed up during the Cenozoic era, parallel to the frontal escarpment of the Mar and Mantiqueira mountain chains (Asmus and Ferrari, 1978, cited in Silva and Ramos, 2002). These massifs are a remainder of the ancient southern edge of the Guanabara graben, which rose along the Atlantic long before, during the Palaeocene era, and was intensely eroded by the retreat of the escarpment of Mar mountain range. There are steep descents that are often rocky and covered with deposits of stalks and stumps, and reach the coastline in the form of rocky promontories, forming river or lagoon estuaries. The gradients are very steep, and form rounded (e.g. Sugar Loaf) or sharp (e.g. Carioca range) crests. Their drainage density is high or very high, with a general pattern which is mostly dendritic and centrifugal but occasionally trellis, owing to the steep descent.

Tijuca massif is segmented into two parts - Tijuca mountain range and Carioca mountain range – and a further series of jutting peaks and hills. Owing to the high relative relief, there are two lines of mountains aligned along a northeast-southeast axis. The first is Carioca mountain range and the second encompasses the coastal mountains, Pico Hill and Sugar Loaf, marking the mouth of the bay up to the rocks at Arpoador. The line of offshore islands to the south and the Serra dos Orgãos range to the north of Rio de Janeiro city are part of the same process.

In the strip of land between the sea and the mountain, the formation of stretches of sandbanks supported by exposed rocky points directly linked to the sea gave rise to a series of shallow lagoons formed by the accumulation of sediment in the sandbanks and partial impoundment of the water inside them. In these areas, the accumulation of sediment caused by the erosion of the mountains and continuous advances and retreats of the sea has resulted in most of the land being originally made up of sand dunes, marshland and lagoons. This is now the area of the city which is most densely populated and developed.

The climate is tropical, with approximate annual rainfall of 2,200 mm and a medium temperature of around 22ºC, wet summers and dry winters. The winters are mild, but subject to low pressure fronts from the Antarctic.

The geomorphological diversity and associated climate are the features which give the city site its rich biodiversity. The main ecosystems that the Portuguese encountered when they arrived in the sixteenth century were the mangroves in the bays, lagoons and wetlands; the vegetation on the sandbanks near the sea; and the tropical rainforest, known as the Atlantic Forest, which occupied most of the area where the city was founded. After more than four centuries of intensive human activity, this vegetation has been significantly altered, but the city has developed a special way of relating to nature as transformed by man. Whether through the reforestation of its massifs, the landscaping and reshaping of its coastline, or the use of its beaches, nature plays a special role in the city. In this sense the interaction between man and nature in Rio de Janeiro is unique and is at the very heart of the city.

The vegetation to be found today in the Tijuca massif, resulting from the reforestation that started in the 19th century, is composed of perennial broadleaf trees with a great variety of native and non-native species, many of which are fruit trees brought from Africa or Asia by the Portuguese. There are three well defined layers. In some areas, such as the slopes of Sugar Loaf and Arpoador rock, there is still some original coastal vegetation. Similarly in the area surrounding Rodrigo de Freitas Lagoon, reforestation initiatives have brought back the original mangrove vegetation.

The site has been defined to include the most important examples of the city's geomorphological and ecological diversity, with which man has constructed a special interaction and in which the relation between the mountain and the sea is strongest.

II.A.2 Landscape features which make up the proposed property and its components

II.A.2.1. The mountain, the forest and the garden within components 1, 2 and 3

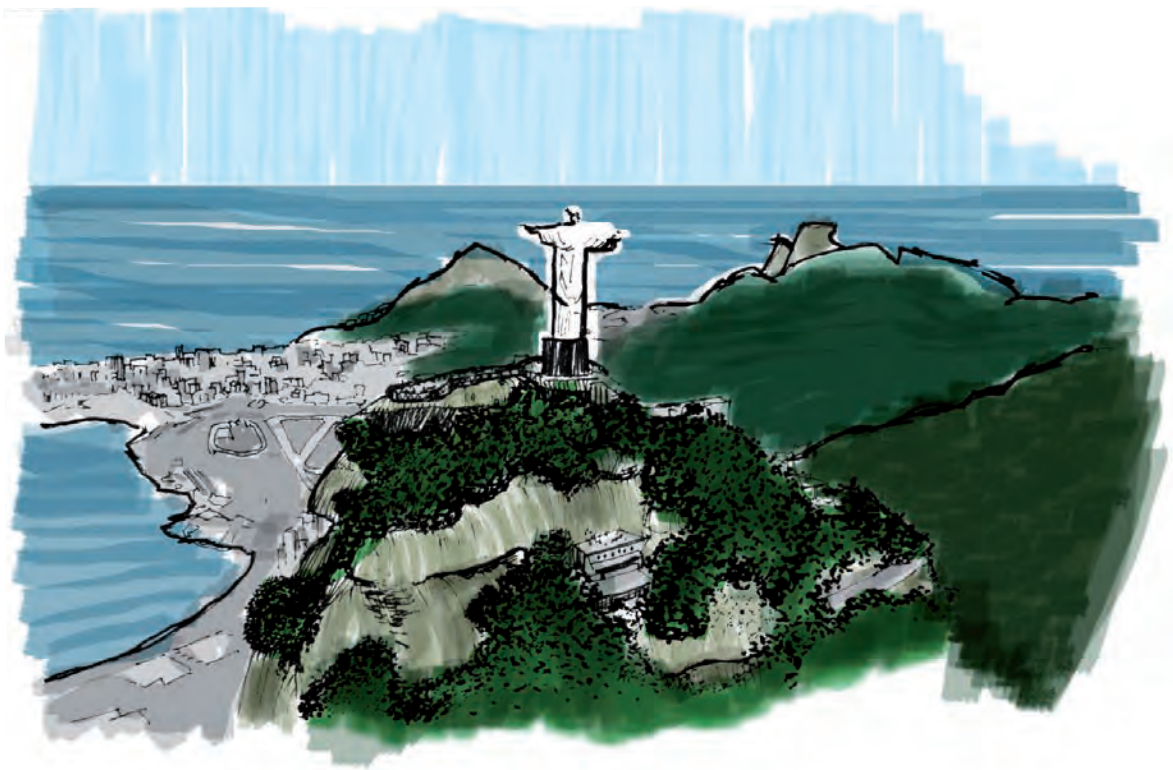
Components 1, 2 and 3 include all the sectors of Tijuca National Park, all of which occupies land on the Tijuca massif, and the Rio de Janeiro Botanical Garden, situated between the foothills of the massif and the shores of Rodrigo de Freitas Lagoon. Over the decades, Tijuca Forest has served as a laboratory for various studies concerning the relationship between the city and the forest, from its microclimatic

influence on the city and the urban water supply system, and its impact on daily life.

The buffer zone for these components encompasses the area specified in the management plan of the park and the area surrounding the Botanical Garden, forming an ecological corridor which protects the biodiversity of the flora and the mobility of the fauna. Map D07 shows the features of components 1, 2 and 3 and the buffer zone.

Tijuca National Park

Specialists consider the most notable characteristics of urban forests like Tijuca Forest to be their geomorphology, geological substrata, soil, fauna, climatic conditions and the relationship with man.



The city and the forest

In the 19th century, Tijuca massif was entirely covered with great coffee plantations. However, the romantic ideals of the second half of the century alongside increased scientific knowledge of the native flora, plus successive environmental disasters related to coffee cultivation and the city's expansion, led to a concern with environmental preservation and resulted in the expropriation of the land in the massif and the reforestation of these vast areas formerly used for agriculture.

The coffee plantations were mostly in the massifs surrounding Guanabara Bay, which resulted in the deforestation of its slopes. Tijuca Forest was one of the most affected areas, which directly affected the water courses which supplied the city. A plan was introduced to preserve the city's water sources, which resulted in the government passing a directive in December 1861 that authorised a programme for the planting and conservation of Tijuca and Paineiras forests, under the command of Major Gomes Archer. In less than 15 years around 100,000 saplings of native species brought in from neighbouring forests or from the local nursery had been planted thanks to the exhaustive work of slaves. It was not long before Tijuca Forest was growing again.

This work was further developed by Baron d'Escragnolle with the collaboration of Glaziou, who introduced romantic landscaping to part of the forest, setting down trails, recreation areas, viewing points and making a feature of the watercourses. In the 1940s, Raymundo Castro Maya, a patron of the arts in Rio de Janeiro, took it upon himself to restore Tijuca Forest, for which task he was assisted by landscape designer Roberto Burle Marx, who created the park's present structure. Castro Maia also restored certain buildings, like the Mayrink chapel, which was also embellished by paintings by Portinari commissioned especially for the site.

The reforestation of the Tijuca massif is considered to be the world's most successful example of the natural regeneration of a forest. It was to celebrate this feat that Tijuca National Park was created by Federal Decree nº 50.923 of 6th July1961, under the name of Rio de Janeiro National Park (Parque Nacional do Rio de Janeiro); it subsequently received its current name 8th February 1967 by Federal Decree 60.183. It was listed by IPHAN on 27th April 1967 in the Book of Archaeology, Ethnography and Landscape. It is currently administrated by the Chico Mendes Institute for the Conservation of Biodiversity (ICMBio), under the auspices of the Ministry for the Environment. It was included in the part of Brazilian territory declared a Biospherical Reserve in 1991, due to its importance for maintaining the balance of the world's ecosystem

The landscape design for Tijuca National Park was the first of its kind in Latin America, both in catering to an environmental necessity which had as yet hardly impinged on the consciousness of the contemporary population, and in offering attractions for visitors along the lines of European parks. These ideas were soon to spread to various Brazilian and American cities. This is the only Brazilian national park that is completely inside the bounds of an urban area, and is one of the biggest urban parks in the world.

The forest in Tijuca National Park and adjacent areas exercises an important role in reducing air pollution and making the city's climate more agreeable, as well as being fundamental for the containment of the slopes of the Tijuca massif. In his article: *City, Mountain and Forest,* annexed at the end of this document, Máuricio Abreu attests to the importance of preserving the forest in the heart of the city of Rio de Janeiro: *"...situated as it is in the heart of a large metropolis, it goes on playing a fundamental role in the life of Rio and its inhabitants. Its mere presence, for example, guarantees not only a more agreeable microclimate for a city located in the tropics but also attracts an important flow of tourists, which generates jobs and revenue."*

A detailed description of the history, geomorphology, flora and fauna of Tijuca National Park can be found in the annexed article *Tijuca National Park - General Characteristics*, edited by Jean Pierre Halévy, with the collaboration of Pedro de Castro da Cunha e Menezes, Ana Cristina Pereira Vieira, and Sônia Peixoto. As can be observed in the article, the park today contains great biodiversity, including 1619 plant species, of which 433 are in endangered, and 328 animal species, ranging from amphibians to birds and mammals, 16 of which are at endangered. The historical significance of the park is also noteworthy: it harbours buildings dating from the 18th and 19th centuries, as well as 120 archaeological sites. It covers a total area of 39.58 km2, corresponding to:

- Andaraí- Tijuca - Três Rios, known as Tijuca Forest and the area of Covanca and Pretos Forros, added in 2004 (component 1)
- Pedra Bonita- Pedra da Gávea (component 2)
- Parque Lage- Corcovado- Sumaré- Gávea Pequena, making the Carioca mountain range (component 3)

The park offers countless opportunities for leisure and cultural tourism. Worthy of note is Corcovado, which opened to the public in 1885 with the inauguration of the Corcovado railway, an impressive feat of engineering in its day, which continues to operate in complete safety and comfort to this day. In 1931, the monumental statue of Christ the Redeemer was installed on its peak (704 metres high) instantly becoming one of the city's main icons. The art deco project was designed by architect Heitor da Costa e Silva under the supervision of the French artist Paul Landowsky.

All the roads inside Tijuca National Park are paved and in a good state of repair, with signposts indicating the main facilities and places of interest. In Tijuca Forest, the area that received landscaping treatment from Glaziou and Burle Marx, there are various areas designated for

picnics, children's recreation, relaxation and contemplation, containing appropriate facilities. Walks can be taken along existing trails, most of which date back to the 19th century, when they were used by the residents of the farms and by members of the court, as well as for the reforestation work. The peaks most sought after by rock climbers are Papagaio (989 m), Tijuca (1,021 m) and Conde (821 m), which give fine views of the city.

The area contains various natural resources, such as grottos, waterfalls, lakes and viewing points. Among others, worthy of note are: Paulo e Virgínia grotto and Almirante viewing point, on Estrada do Major Archer; Açude da Solidão reservoir, on Estrada do Bom Retiro; Cascatinha Taunay waterfall, on Estrada do Imperador; and Lago da Fadas and Bom Retiro lakes, on Estrada dos Picos. There is a small souvenir shop and basic facilities at Praça da Cascatinha Square, and there are three restaurants open to the public: Cascatinha, A Floresta and Esquilos.

Bicycle rides and treks can be taken along the existing paths of Carioca mountain range. Estrada das Paineiras is the most popular for these activities, especially on Sundays and bank holidays, when it is closed to traffic. Along this route there are several waterfalls, which are popular with visitors. There are many paths criss-crossing this area, granting access to the different corners of the Park and linking it to different parts of the city.

This is the area that offers the most varied selection of viewing points. Besides Corcovado, the most remarkable are Vista Chinesa (where there is an oriental style pavilion in homage to the Chinese who grow tea), Paineiras and Dona Marta. At this latter point, there is a heliport where tourists can take helicopter tours. The viewing point with the most facilities – railway, shops, a restaurant, and snack bar – is Corcovado. At Paineiras, a fine building built in 1884 used to be a top-end hotel. Preparations for its restoration are underway, which will be contracted by means of a public contest organised by the park's administration. This will be undertaken alongside the renovation of the parking area and the exit for the Corcovado transport system.

Hang-gliding from the top of Pedra Bonita is the main attraction in the Pedra Bonita-Pedra da Gávea area, where special facilities have been installed. Specialised tour guides take visitors on walks and rock climbs to the top of the hills.

The Botanical Garden of Rio de Janeiro

At the foot of the Tijuca Massif, between the lagoon and the mountain, the Rio de Janeiro Botanical Garden was installed in 1808. The

Macacos River and the Riacho de Iglezias stream, whose sources are in the Tijuca National Park, both cut through the gardens. Only the 53 hectares of the existing area of 137 hectares, which make up its arboretum, are open to the public. The rest of the space is an integral part of Tijuca National Park and is dedicated to preservation and scientific research.

Botanical Garden - Fountain

The urban design of the arboretum has a neoclassical tone, with its geometrical avenues, distributed around carefully balanced axes, with the immensely tall palm trees, a landmark of the gardens from their beginning, conferring spaciousness to the whole. At the end of the principal alleyway, a portico from the ancient National Academy of Fine

Art, a project of Grandjean de Montigny was installed. It was transferred to the garden after the demolition of that building at the beginning of the 20th Century.

The Research Institute of the Rio de Janeiro Botanical Garden, created in 2001, has as its mission: to promote, administer and propagate teaching and techno-scientific study of the floral resources of Brazil, aiming at the understanding and preservation of the biodiversity, as well as the maintenance of scientific collections under its responsibility.

Over the years, the Botanical Garden have put together the following collections:

- The Herbarium - founded in 1890 by the then director of the Botanical Gardens, João Barbosa Rodrigues, containing the basic collection for botanical research and supplying fundamental elements for taxonomic and floristic analyses, with a collection of about 330.000 plants, including those acquired by Dom.Pedro II during the last century.
- The Seed Bank (Carpoteque) - the seed laboratory offers support for research, involving biology and technology of seeds and seedlings developed by the research programme, as well as answering for gathering and conserving the seeds of the arboreto.
- The Xiloteque - with some 8200 samples of wood from 160 tree families and approximately 35.000 wood shavings obtained from 2200 individual trees, many of them obtained through donations from international institutions like the Xiloteque of Yale, the Smithsonian Institute, the Natural History Museum of New York, the U. S. National Herbarium and New York Botanical Garden.
- The Library - created in 1890, from the collection donated by the Imperial Family accumulated a priceless scientific, historic and cultural collection, with about 108.700 books, of which 13.000 are specialised works and reference books, 3.000 rare volumes and about 2.000 magazine titles.

The Botanical Garden edits a periodical, the *Revista Rodriguésia*, which publishes articles and scientific essays in all areas of vegetable biology, the latest volume being nº 60, which came out in 2009.

With a qualified body of researchers, the Botanical Gardens Research Institute also maintains intensive teaching programmes in

the School of Tropical Botany. Of special interest among the branches of research are the programmes of Conservation, Taxonomic Diversity, Atlantic Forest, Coastal Region, Marine Ecosystems and the Molecular Diversity of Plants.

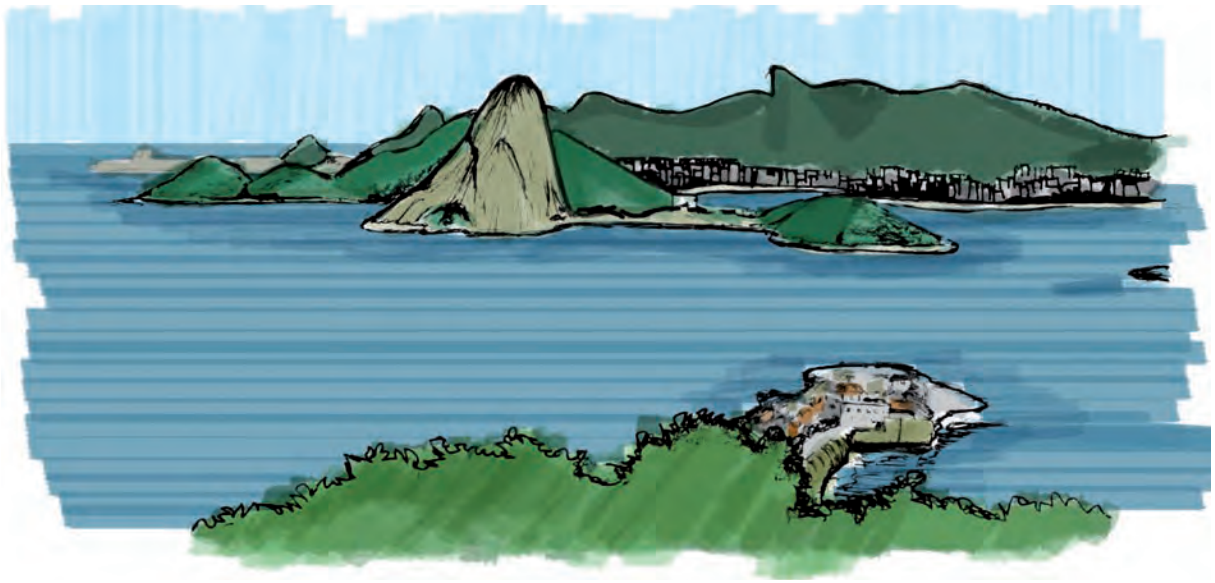
The attached article, *The Rio de Janeiro Botanical Garden*, by Carmelita Santoro Bottino, Lourdes Arbex Hallack, Sheila Regina Profice, contains a detailed description of the Rio de Janeiro Botanical Garden.

II.A.2.2. Component 4 - The mouth of Guanabara bay and manmade shorelines

This sector delineates the interaction of the city with the bay and the sea and comprises the promontories which dominate the mouth of Guanabara Bay, with their outstanding rocky formations to the east and west, Sugar Loaf and Pico Hill, which were initially employed for defensive purposes and later as icons of the landscape. The areas adjacent to the bay and the ocean have manmade shorelines, such as Flamengo Park, Botafogo Cove and Copacabana beachfront (see Map Do8).

Component nº 4 contains the following parks, conservation units or areas listed by public authorities: Passeio Público, Paris Square and Flamengo Park, from Santos Dumont airport in the city centre to the tip of Viúva Hill; the seafront of Botafogo Cove (except for the road and the landscaped area); the area of Sugar Loaf (except for Urca district, which is its buffer zone); Copacabana beachfront, as designed by Burle Marx, up to the front of the buildings; the tips of Leme Hill and Copacabana Fort, as listed by IPHAN.

The westward boundary of the buffer zone for component 4 is the urban landscape that separates components 3 and 4. To the south, its boundary runs along the seashore of Copacabana Beach and extends out as far as the historic forts of Niterói, on the east side of the mouth of Guanabara Bay. The boundary then traces a line around the bottom of the hills in that area, until it comes to the shoreline of Jurujuba Beach. From this point, it cuts across Guanabara Bay in a straight line towards Santos Dumont airport, where it curves around the northern tip of Flamengo Park. It then takes in Passeio Público, the historic aqueduct in Lapa district and goes up along the top of Santa Teresa Hill until it meets the edge of the buffer zone for Tijuca National Park.



Mouth of the Bay framed by Sugar Loaf and Santa Cruz fortress

Sugar Loaf Natural Monument

During the *31st International Geological Congress* in July 2000, Sugar Loaf mountain was recognised as one of the world's most important geological sites and a commemorative plaque was placed there[1]. Its maximum altitude is 306 m, at the second cable car station.

Recent studies have identified that the rock of which Sugar Loaf is made crystallised some 560 million years ago. This makes the site an important example of the Brasiliana orogeny and the collision and eventual amalgamation of the South American and African continents, forming the West Gondwana supercontinent. Surrounded by characteristic tropical vegetation, including remnants of Atlantic rainforest, it still contains endemic varieties of Brazilian coastal vegetation which have become extinct in other areas, and rare plant species like the *"laelia lobata"* orchid, which only flowers in two areas in the whole planet: on Sugar Loaf and Pedra da Gávea mountains, both in Rio de Janeiro. Sugar Loaf has more climbing routes than any other Brazilian peak, (by 1997 there were 38), and is visited daily by hundreds of rock climbers, ecologists and mountaineers from Brazil and other countries.

The Sugar Loaf cable car was designed in 1908 by Brazilian engineer Augusto Ferreira Ramos and inaugurated on 27th October 1912; its 100th anniversary will be in 2012. It was the first cable car to be

1 Silva, Luiz Carlos & Ramos, Antonio José Lopes de. Pão de Açúcar, RJ: geological postcard of Brasil. In: Schobbenhaus, C.; Campos, D.A.; Queiroz, E.T.; Winge, M.; Berbert-Born, M.L.C. (Edit.) 2002. *Sítios Geológicos e Paleontológicos do Brasil*. DNPM/ CPRM - Comissão Brasileira de Sítios Geológicos e Paleobiológicos (SIGEP) - Brasília 2002; 554pp; illust.

installed in Brazil and the third in the world, and has become one of the most important of Rio's tourist attractions and an unmistakable picture postcard of the city. According to statistics produced by the Rio Tourist Board (Riotur), the cable car has carried more than 30 million tourists since its inauguration. During the high season - December, January, February and July – there are as many as three thousand visitors a day. Over nearly a century of operations, the Sugar Loaf cable car has received tourists from all over the world, including celebrities, political leaders and entertainers; Einstein travelled in it in 1925.

Standing as it does at the mouth of Guanabara Bay, Sugar Loaf is one of a group of hills that includes Cara de Cão, Urca and Babilônia hills on the western shore (Rio de Janeiro) and Pico hill on the eastern shore (Niteroi). These formed an important asset for the bay's defence, as explained in the annexed article, Sugar Loaf, by Claudia Maria Girão Barroso, from IPHAN. Also worthy of note is the rock on which the Copacabana fortress was built, overlooking the ocean but nonetheless fundamental for the city's defence. The bay itself was seen as a key to the possession and dominion of the territory, and was therefore hotly disputed.

The manmade shorelines

The city developed by reclaiming territory from the swamps, lagoons, the sea and even from the hills. The first occupations of the coast at the mouth of Guanabara Bay were of a military nature, as Santa Cruz fort (at the foot of Pico hill in Niterói) and São João fort (at the foot of Sugar Loaf in Rio de Janeiro) built in the mid 1700s to defend the bay.

The fortresses functioned in conjunction with a strategic observation point on the top of Pico hill in Niteroi, which would set off a warning signal whenever a ship was sighted offshore near the mouth of the bay. Other forts were added later (Pico, Rio Branco and Imbuí) in the same area of Niterói, and their architecture has remained unchanged to this day although the buildings are now tourist attractions, receiving visitors who can appreciate their historic structures while also taking in the fine cultural landscape of Rio de Janeiro.

In the 20th century, the practice of reclaiming land, which had been the norm since the first century of colonization, was intensified. The growing value attached to the waterside and the city's expansion towards the ocean resulted in a series of measures designed to develop the shoreline, constructing spaces which enabled greater interaction between the city and its natural environment. The establishment of open areas was a particular mark of the way man interacted with the Rio de Janeiro landscape.

Passeio Público Square and Flamengo Park are examples of city parks constructed at different historic times (the first was constructed in the 18th century and the second in the 20th century) but with the same objective: to enhance the quality of the environment and provide access to the views of the Guanabara Bay landmarks.

The first park to be created in Brazil, in 1783, was Passeio Público, designed by Mestre Valentim. Beside its use as a botanic garden, it was a popular spot for appreciating the natural beauty of Guanabara Bay, and became a popular meeting point for the city's residents from the late 1700s to the early 1900s. At the time it was used for evening promenades, encounters and music and poetry gatherings. A reform it underwent in 1862, directed by landscape artist Auguste Glaziou, gave Passeio Público an English style. A coffee house with musical entertainment was inaugurated and people used the park for the "contemplation of nature, joyful children's games, walking, flirting, the cult of Eros among the flowering shrubs and of Bacchus in the cafés and bars installed in its interior". Later, during a reform headed by Pereira Passos (1902-1906), the area of sea bordering on Passeio was reclaimed.

In the 1930s, Paris Square, created along the new shoreline of Guanabara Bay, was also appreciated by Rio's well-heeled residents, especially owing to its French design, its fountains, vegetation and statues. In 1938, on the creation of the roads linking the centre to Lapa and the construction of Deodoro Square, Paris Square was reduced by 8,510m2. The most significant era of Paris Square was between the 1930s and 60s, when it was one of the city's most important leisure areas. After this, the public's attention turned to Flamengo Park, and it was closed down for ten years during which time it was used as a worksite for the construction of the underground. The vegetation was partly destroyed in the process, which led to a public outcry. It was reopened in 1976, but had lost some of its former charm. In 1995, it again went through new reforms, and was placed under a municipal protection order. It continues to be enjoyed by the city's residents, especially the inhabitants of Catete district and the centre.

Flamengo Park

In this city marked by hills, forest and sea, Flamengo Park provides one of the most important links between the centre and the south zone, and also makes an outstanding transition between the city per se and Guanabara Bay. Although given the official title of Brigadeiro Eduardo Gomes Park, it is popularly known as Aterro (landfill), referring to the process by which it was created, which involved razing Santo Antonio Hill in the centre of the city. It contains 1.2 million m² of lawns, flowering shrubs and trees.

Its creation is credited to Maria Carlota Macedo Soares (Lota, as she was popularly known), who came from an upper-class family in Rio. Although she did not have a degree in urbanism or architecture, she did study under Brazilian artist Candido Portinari, was very interested in architectural aesthetics, and a keen amateur botanist. With the support of the then governor, Carlos Lacerda, she was able to kindle the interest of a distinguished group of friends and professionals.

The working group was created by state decree nº 607 of 4th October 10/1961, chaired by Maria Carlota de Macedo Soares. We know from Enaldo Cravo Peixoto (5) that the members of this committee were: Affonso Eduardo Reidy, Jorge Machado Moreira Sérgio Bernardes, Hélio Mamede, Maria Hanna Siedlikowski, Juan Derlis Scarpellini Ortega and Carlos Werneck de Carvalho (architects); Berta Leitchic (engineer), Luiz Emygdio de Mello Filho (botanist), Magú Costa Ribeiro and Flávio de Britto Pereira (botanical consultant); Ethel Bauzer Medeiros (recreation specialist), Alexandre Wollner (visual programmer), Roberto Burle Marx and associated architects: Fernando Tábora, John Stoddart, Julio César Pessolani and Mauricio Monte (landscapers), Sérgio Rodrigues e Silva and Mário Ferreira Sophia (designers), Fernanda Abrantes Pinheiro (secretary).

Having established the design of the park, 11,600 trees were planted from 190 native and non-native species. Fifty of the 4,400 palm trees are the rare "talipot" (*Corypha umbraculifera*), which blossoms only once then dies (as we saw in 2003 and 2004). Alongside its leisure areas, it has special characteristics, such as groups of plants of the same species and the use of Brazilian plants that were not usually employed in landscaping, such as abricó-macaco (*Couroupita guianensis*) and pau-mulato (*Calycophyllum spruceanum*) (this information is given by the architect Haruyoshi Ono, who participated in the project as a trainee and is now Director of the Burle Marx Estate; *O Globo* 5th November 2005).

When the contours of the park were being defined, the characteristics of the urban area around it were paramount. Not only should the reclaimed area have an expressway running through it, but the park design should include important urban facilities that had already been built, such as Santos Dumont airport (1944), the Museum of Modern Art (1956) and the monument to the soldiers who died in World War II (1956).

Implicit in the park's conception was also the idea of creating a "living park", which would have designated spaces for children, teenagers, adults and old people. This functional design was incorporated into the purposes developed for the three main strips of land. The first would

be between the road nearest to the buildings and the expressway, which would contain car parks, multi-sport courts and children's playgrounds. One of the reasons the car parks were put in this part of the park was to encourage its users to walk.

The second strip of land was made up of the expressway itself and its central reservation, which was designed to have a deep perspective that could be seen from the cars travelling past at high speed. The third strip, between the expressway and the water of the bay, would contain all the facilities for leisure activities, the beach and associated activities. The different strips are connected by footbridges and pedestrian underpasses. Different systems of circulation were created for use inside the park, taking into account the needs of pedestrians and cyclists.

The original plans for the park contain 26 individual elements, including a marina, seating areas, children's playgrounds, coppices, parking area, football pitches, a restaurant, model aeroplane strips, kart tracks, picnic areas and an artificial beach.

The selection of the plants to grow in the park was the fruit of more than a simple plan, but the outcome of a great experiment in growing plants in adverse climatic conditions (strong winds, salty air from the sea) and poor soil (the reclaimed land included dirt, rubble and saline mud). Flamengo Park also expanded the horizons of what plant species were deemed acceptable for use in a city environment. Ivete Farah has listed some 31 new native and non-native species with a great capacity to adapt to the environment, which were used for the first time for landscape design in the country[2].

The park was informally inaugurated on 12th October 1965, with a big celebration for the people idealized by Lota. It was merged into the city landscape, and has become one of Rio's icons, like Sugar Loaf and Corcovado mountain, just as Lota had hoped.

Copacabana Beach

The occupation of Copacabana began with the construction of Prefeito Alaor Prata Tunnel (Túnel Velho) in the late 19th century, heralding the transformation of the city into a seaside resort. The contemporary coastline is the result of land reclamation in the 1970s, when the original sea-front avenue was doubled in width, the pavement broadened and the beach widened.

2 The information was taken from Ana Rosa de Oliveira's article, 'Parque do Flamengo: instrumento de planificação e resistência', In: *Arquitextos* - 079.05-ano 07, dez 2006, and from the website: http://www.rio.rj.gov.br/web/riotur.en/exibeconteudo?article-id=156627

The proposed site extends for 4.15 km along the Copacabana waterfront until the front of the private properties overlooking the sea. The ends are marked at one end by the rock on which Copacabana Fort is built, and at the other by Leme Hill. Its most important feature is the landscaping project by Roberto Burle Marx, whose exceptional geometric design won him international recognition.

Continuing on from his work at Flamengo Park, Burle Marx created a design for the Copacabana promenades using a mosaic of Portuguese cobblestones. It was built in 1971 after the beach and pavements had been widened. This master work enhanced the public area of the neighbourhood, and was offset by a patchwork of vegetation.

The eastern side of the mouth of Guanabara Bay: the Niteroi Complex of Fortresses

The east side of the mouth of Guanabara Bay, which also has a very rugged relief including some peaks and rock faces rising from the sea to as high as 230 metres, makes up the other point in the defensive structure that safeguarded the city, representing one of the primary appropriations and transformations of the natural features encountered by the first Portuguese arrivals. The boundary of the proposed world heritage site follows the boundary of the area under military administration, whose buildings are listed by the federal government.

The most important from this group of fortifications is Santa Cruz Fort (Fortaleza de Santa Cruz), built almost at sea level on the rocks, forming the main structure in the city's defence and facing across to São João Fort (Forte de São João), on the other side of the bay in Rio de Janeiro. The Portuguese finally occupied the site where the fort stood in 1584, as part of their unification strategy to occupy the area and more especially to drive out the French, following their attempt to establish Antarctic France, a colony in Guanabara Bay, between 1555 and 1560. Having routed the French, the Portuguese built an artillery battery, followed by a chapel dedicated to Our Lady of Guidance (Nossa Senhora da Guia) in 1612, which was later transformed into Saint

Barbara chapel (Santa Bárbara). Following various attempts to invade the city, the fort was manned more strongly, and when the government was transferred from Salvador to Rio de Janeiro in the 17th century, owing to the gold mining in Minas Gerais, it became increasingly important. Around this time, the fort was described thus:

> *"Santa Cruz Fort, the most important in the country, stands on a rocky promontory, in a place where all the boats which enter or leave the harbour are obliged to pass by at a distance less than the range of a musket shot. The fort consists of a compact structure of masonry between 20 and 25 feet in height, covered with fragile-looking white stones. As regards artillery it possesses 60 cannon, from 18 to 24 inch calibre, positioned specifically to cover the external area of the harbour entrance, the passage and part of the interior of the bay,"* (translation of manuscript *Relâche du Vaisseau L'Arc-en-ciel* à Rio de Janeiro, 1748. Biblioteca Nacional da Ajuda, Lisbon, cited in: FRANÇA, 1997, bold type added).

After a series of transformations, during which it was used as a prison, the fort was listed by the National Institute for Historical and Artistic Heritage (IPHAN) in 1939. The complex consists of an irregular polygonal plan with a total built up area of 7,153 square metres. It is currently open to the public.

Pico Fort, also known as São Luis Fort, was built beside it, at a height of 180 metres, in the second half of the 18th century. It offered an exceptional vantage point of the whole of the mouth of the bay and surrounding land, serving an important defensive function at the time. In 1938, the complex made up of the former Praia de Fora arsenal, São Luiz Fort and the Pico arsenal were collectively denominated the Barão do Rio Branco Fort. This complex is open to the public at weekends.

The other component part is Imbuí Fort, built at the end of the 1800s overlooking the sea. This whole complex is an outstanding example of the way the Portuguese colonisers, and later the Brazilians, took advantage of the different characteristics of the terrain to build the city's defences, which were only possible thanks to the geological and geomorphological diversity of the site. Today, they provide an unparalleled vantage point from which to admire Rio de Janeiro's cultural landscape.(FRANCA, Jean M. Carvalho. Um Visitante do Rio de Janeiro Colonial. *Rev. bras. Hist.* [online]. 1997, vol.17, n.34 [cited 2010-12-29], pp. 149-161).

II. A.2.3. The urban landscape between the sea and the mountain – buffer zone

The buffer zone is the densely populated, built-up area between the sea and the mountain, between components 1, 2 , 3 and 4 (see Map D09). It surrounds the main highpoints in the site and other areas that contribute towards its sustainability, protection and the promotion of the universal values of its elements. It encompasses Babilônia, São João, Saudade, Cabritos and Catacumba hills, which border Copacabana, Botafogo and Lagoa districts, as well as Viúva Hill in Flamengo, the valley of Cosme Velho and Laranjeiras, and the southern slopes of Santa Teresa Hill down to the tip of Flamengo Park in the city centre. It also includes Rodrigo de Freitas Lagoon and Jardim Botânico district, which provides a buffer zone both for Tijuca National Park and for the Botanical Garden of Rio de Janeiro. It also covers the green areas bordering Flamengo Park (Marechal Deodoro and Russel Squares, and the gardens Catete Palace). The district of Urca is part of the buffer zone for Sugar Loaf.

Gloria Hill on the edge of Flamengo Park

II. A.2.4. Cultural Territories

The city and the landscape: the living fabric of social relations in time and space. Where do the city's people meet?

The Rio landscape has been moulded in a unique way by the uses and customs of its spaces and its cultural manifestations. The city culture not only reflects, but actively constitutes and cultivates the relationship between the natural environment and its cultural expressions, which have given the city its form over time (see Map H06 – Cultural Territories).

Rio de Janeiro's cultural territories have emerged from the physical space of the city environment, revealing a dynamic relationship between its inhabitants on the one hand, and its vegetation, climate and topography on the other, combining to form cityscape. The social

dimension of this city and how it has evolved and changed must be taken into account if one is to fully understand the occupied areas.

Any discussion of cultural territories requires directing attention towards the representations which make up the inhabitants' identities, encompassing the landscape, activities, knowledge, beliefs and habits. In this city dominated by such exuberant nature, one hallmark is the use of open spaces and the social encounters which take place on walks, excursions and street corners.

The outdoor culture takes full advantage of the city's green spaces, the outskirts of the forest and the seaside. There is an ingrained habit of outdoor living both in daily life and on festive occasions. Typical features are football on the beach and in the street, walks and bike rides along the pavements and cycle paths in Copacabana and Flamengo Park. The samba groups that perform in the squares, open air markets and street bars are another much appreciated leisure option.

Cultural territories are the living fabric of social relations in this environment. They demonstrate the temporal layers of city life, expressing distinct ways of living that permit a diversity of religious, sporting and festive manifestations.

Some excursions in Rio de Janeiro: parks, squares, walks and gardens

These outdoor leisure options are tied in with the city's history, imprinted on its urban memory and associated to particular periods of the its development. Parts of the city are given over to large leisure areas, such as Tijuca National Park and the Botanical Garden, Passeio Público and the gardens of the Modern Art Museum (MAM) in Flamengo Park.

Flamengo Park is an unrivalled venue for leisure in the city. It is a place where people meet up and also a stage for major public events. It is used for sporting activities, and provides a variety of interesting forms and contours for the rambler, or a direct route for people who are just passing through. Even though most people are not familiar with all of the monuments and constructions in Flamengo Park, it is used continuously by the local residents. Even the projects to reform the park reveal the city's urban memory. The idealization of modernity and rationalism are evident in the initial project, while the preservation of its physical space signifies the construction of a collective memory, through the maintenance of the characteristics which were valued in the past.

The initial idea of Reidy, director of the municipal department of urban development at the time the park was constructed (between the

1950s and 70s), was to create a large city park in collaboration with Burle Marx, who was in charge of the landscape design. The plan envisioned areas and facilities for different sports, different kinds of performances, picnics and restaurants, providing attractions for every age group. Pedestrian crossings were provided by means of broad pedestrian underpasses and footbridges at regular intervals throughout the park. Flamengo Beach was reformed, providing the city's most popular form of leisure.

The park gives a fine view of the Museum of Modern Art, whose modern design makes it a leading example of national architecture, and whose location extends the embankment as far as the city centre. The beauty of the footbridges crossing Avenida Beira-Mar and the many activities which take place at Gloria Marina are other advantages. The monument to the soldiers who died in the Second World War is another landmark of Flamengo Park, and is the biggest project of funereal architecture in Brazil. This site is often used by the armed forces for routine activities and more important ceremonial events. There is also a model airplane runway and the garden known as Horto, which functions as a meeting place, a stage for events and a leisure area. Many events, shows and festivals take place there.

Over the years, several buildings have been erected in the park, revealing its characteristics, uses and some of its history. There are constructions designed especially for theatre and music performances, such as the arena for dance and open air performances, the pergola and the puppet theatre. There are also constructions destined for leisure activities (restaurants), for sports (multi-sport courts, football pitches and the cycle path), and there is another museum (Carmem Miranda) and monuments (e.g. Estácio de Sá).

The beaches

While the green spaces offer an opportunity for promenades and walks, the sea, sun and beaches are also an important part of the Rio culture. The beach is a cultural space: "you only have to see other Brazilian coastal cities to understand that the beach was Rio's choice, not its destiny"[3]. Rio's inhabitants like going to the beach, and this is not just because of its location. The beach was where the first encounters, disputes and social relationships took place between the colonizers and the colonized. The Rio coast was the starting point for the foundation of Rio de Janeiro City. The metropolis brought the colonial capital to Rio de Janeiro because it was there that Brazil's most important commercial activities took place. The beach became a focal point for slave labour and shifts in population patterns, but also an

3 FARIAS, Patrícia. Pegando uma cor na praia.

area for the disposal of waste and the bodies of dead slaves.

When the royal family came to Brazil, some of the beaches in the south of the city stopped being used as rubbish sites and areas of slave labour, and were transformed into attractive bathing spots, places for contemplation where literary personalities could meet.

The city really began to open up towards the sea when a tunnel was built in 1892, connecting Botafogo district to the new seaside areas of Copacabana. It housed the first tramline to Copacabana district, via Botafogo, thus overcoming the difficult access to the city's beaches, which were cut off by the mountains. The building of the tunnel at the beginning of the Republican Period was promoted by Ferro Carril Botanical Garden Company. They had an eye on the real estate market and made investments in the coastal area of Copacabana, which they then promoted as offering a new lifestyle as part of a broader plan to modernize the city.

After the Second World War, at a time when mass consumption was on the rise, supported by the notion of a market which valued the individual, the beach was a place of relative democracy. It was no longer the domain of a health-seeking aristocracy.

The 1960s saw the emergence of groups of regular frequenters of the south zone beaches, which mostly attracted young people. Simultaneously, a musical culture developed around the beaches and the south zone of the city. The coastal development of the city stretched from Copacabana towards Ipanema, and a new appreciation of women's bodies emerged in line with the beach culture, in a metaphor associated the female shape with the neighbourhood itself ("Copacabana, little princess of the sea"). This movement is best expressed in the music and lyrics of Bossa Nova[4], whose leading exponents, João de Barro, Billy Blanco, Tom Jobim and Vinícius de Moraes, would play in the small nightclubs, mostly in Copacabana.

Copacabana Beach (and Copacabana as a whole) became a cosmopolitan area, attracting the upwardly mobile and serving as a leisure area for people from the north and west zones of the city. In the 1960s and 70s, Copacabana Beach was a meeting point for big crowds of people. This resulted in the institutionalization of New Year's

4 Dick Farney is credited with having heralded the Bossa Nova musical genre with his recording of chamber music (arranged by Radamés Gnattali, also a Modernist), the samba song *Copacabana* (by João de Barro and Alberto Ribeiro) in 1946. The forme-most proponents of Bossa Nova, led by João Gilberto, were Antônio Carlos Jobim, with his dense harmonies, whose *Sinfonia do Rio de Janeiro* (also an arrangement of Radamés Gnattali) made waves in the 1950s, and who was also behind the provocative *Teresa da Praia* (both in partnership with Billy Blanco), and diplomat Vinicius de Moraes, who lent his poetic genius as of their inaugural partnership in *Orfeu da Conceição* in 1956.

Eve on the beach, drawing thousands of people every year to throng the pavements designed by Burle Marx, and watch the pyrotechnic firework display.

In the 1980s, considerable reforms were carried out of the coastline and the transport system linking the whole city to the south zone in response to the demands of the suburban population (especially from the north zone). This included improvements to the districts in the south zone itself. The beaches started to attract an ever wider variety of people, and at the same time different parts of the beach started to be associated with different groups. On Copacabana Beach in front of Copacabana Palace Hotel is the meeting place for people of different income groups, races and sexual preferences.

The collective social appreciation of the beaches transcends the actual limits of the sand itself to infect the whole city. The beaches function as a parameter for the classification and appreciation of the territory.

Territories of popular festivals and samba

The city's street parties and festivals are important cultural fixtures, not just as "events", but as the culmination of cultural processes that often last the whole year round. From the most traditional to the most modern, they exert a profound influence on the lives of the groups who promote them.

During the imperial period, the poor people made their presence felt during the Festival of Our Lady of Penha and the Divino Espírito Santo (Holy Spirit), with their samba groups, drum beats and afro dances, combined with religious, leisure and commercial activities. They were at once dance parties, street markets and festivals, and comprised different rituals that sometimes went on for days. There was a strong influence of African culture, with the black community preserving and reinventing its unique expression. They made their festivals a way of remembering their communities of origin and bringing them closer to the city.

Generally, the starting point is a small group of people: groups made up of family members, friends or neighbours, often belonging to the same social club, school, parish centre, diocese, Candomblé ritual centre, brotherhood of religious devotees or even the city council. Sometimes, unstructured socializing gradually become organised, as in the classic case of the Rio samba guilds, which have spread to various other Brazilian cities. The mutual interest of various groups of the same kind leads them to create associations. In Rio de Janeiro there are various associations linked to the diverse forms of popular culture such as: religious/ceremonial/ritual groups (folias de reis),

popular poets (repentistas), musicians (violeiros), and traditional dances (quadrilhas, congadas).

Some festive events, particularly carnival, stand out for their originality

and capacity to bring together diverse groups of people. The Rio carnival attracts all social classes, ethnic groups and different age groups, all jostling for space in the public arena. Historically, the main cultural societies of the 19th century were primarily restricted to the elite, and therefore had the permission of the authorities to perform and parade, while the African *entrudo* and *cucumbi* came up against a wall of prohibition. At the end of the 19th century new kinds of elite carnival organisations, the *ranchos* and *corsos*, were able to take to the streets with official blessing, but the parades of African Brazilians continued to be discriminated against and persecuted.

It was a long time before samba was recognised as a cultural and musical manifestation of great social value, leaving its indelible mark on a several parts of the city during the 19th century and continuing to create new ones to the current day. In every part of Rio there are sites with historical links to samba, such as the innumerable carnival parades involving millions of people that take just before Lent, all of which are included within the proposed site.

The emergence and proliferation of samba schools has accompanied the growth and increasing complexity of the city, especially as regards its expansion towards the periphery. Their central status and the significance of their parades were acknowledged when the City of Samba was created in the vicinity of the port.

The city view – favourite observation points

Enjoyment of the view and contemplation of the city has long been a habit for the city's residents, visitors and tourists alike, especially Sugar Loaf and Corcovado (see Maps D05 and D05 A – Visual Analysis).

Besides being the city's most famous observation point, tourist attraction and ecological landmark, the Sugar Loaf complex is also an important cultural site. In the 1970s, it housed the Urca mountain amphitheatre, known as the Concha Verde (Green Shell), which staged concerts and gigs that launched many of the great names in Brazilian music, in a calendar of events that attracted as many as fifty thousand people a year. Concha Verde was also the scenario for famous carnival balls between 1977 and 1987, like the internationally famous "Sugar Loaf Carnival Ball". These days the amphitheatre houses art exhibitions, business conferences, events for product launching, and private functions.

Another favourite viewing point is the top of Corcovado mountain, which gives a panoramic view of the city centre of Rio de Janeiro, Rodrigo de Freitas Lagoon, Copacabana Beach, Ipanema Beach, the Gávea hippodrome, Leblon Beach, Botafogo Cove, Flamengo Park, Maracanã football stadium, and various neighbourhoods and *favelas* in the city's north, south and central zones. The most remarkable feature of Corcovado is the statue of Christ the Redeemer, which attracts more than a million visitors from Brazil and abroad every year. The statue was inaugurated on 12th October 1931. The Corcovado railway, which travels up through Tijuca National Park, predates the statue, having entered service in 1884 during the reign of Emperor Dom Pedro II.

The other side of the mouth of Guanabara Bay, in the Protected Area of the Historic Forts of the City of Niteroi, the top of Pico Hill gives a fine view of the whole of Rio de Janeiro: its hills, forests, escarpments and coves. The contemplation of this cultural landscape cannot be dissociated with the importance of its social networks and the city's history and mem**ory.**

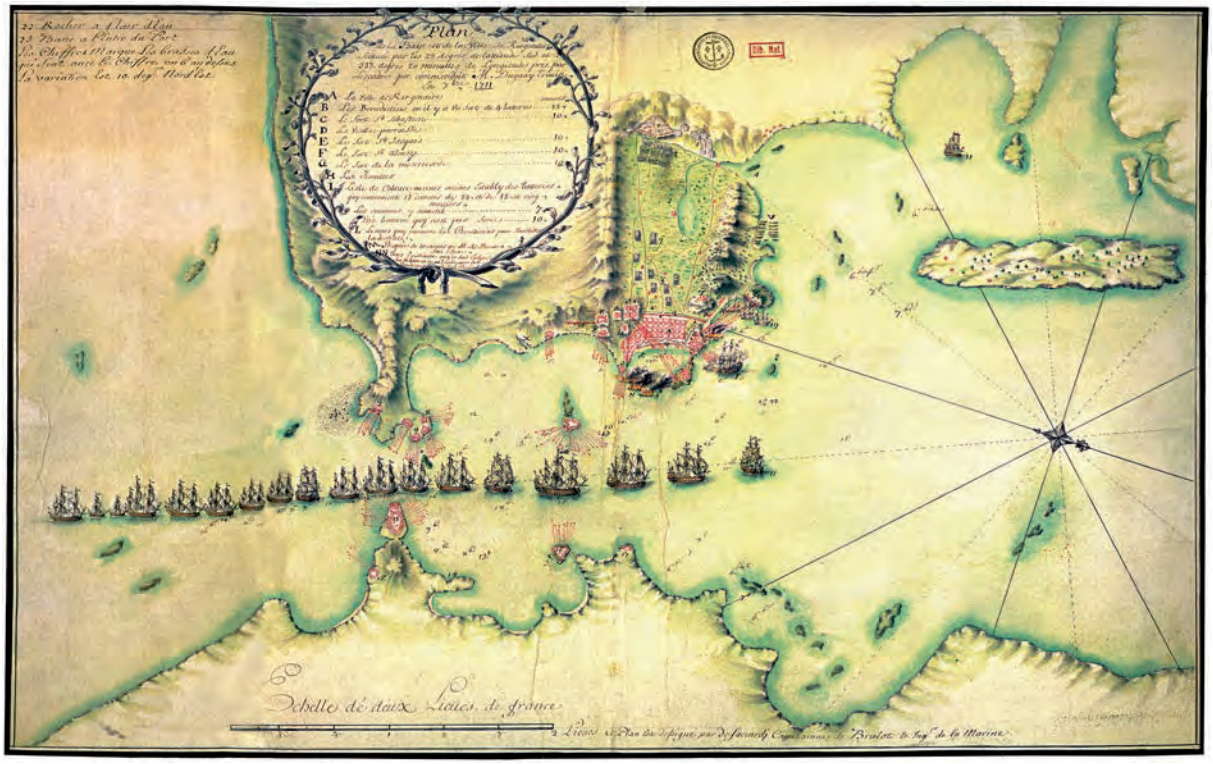
II. B. HISTORY AND DEVELOPMENT OF THE LANDSCAPE

The Rio de Janeiro landscape has gradually been imprinted on the national and international imagination, revealing a dynamic relationship between its inhabitants and its vegetation, climate and topography. The value of its cultural landscape can be understood from the unique appropriation of natural elements, the way the space has been occupied, and the buildings hugging the hills and the seashore, with their repercussions on the way of life and social relationships in the urban setting. Understanding the development of the Rio de Janeiro landscape means understanding its different phases as a territory in continuous interaction with its internal and external contours and its structural elements over time: the city and its external defences, the city's economic output and agriculture; the way its people interact with its gardens, the forest and the sea.

II.B.1 The City and its external defences

The landscape constructed for the city's defence: the escarpments and hills transformed into fortresses in Guanabara Bay

Guanabara Bay occupied a fundamental position in the formation of the Rio de Janeiro city landscape. Wide and well sheltered, due to the narrow, 1,600-metre gap provided by the sand bar at the mouth of the bay, it is part of a natural bulwark of protection that includes two hills: Sugar Loaf and Pico Hill. Two big fortresses were built at its entry point: Santa Cruz and São João. Any shipping which entered the bay

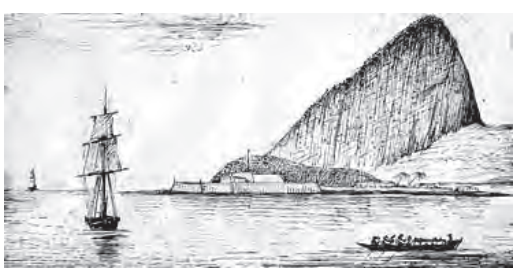


Plan of the bay and the City of Rio de Janeiro, with the invading squadron of Duguay-Trouin in 1711. (CITY COUNCIL OF THE CITY OF RIO DE JANEIRO, 2000, 48, 49)

would also have to pass Lage fortress, constructed a bit further inside in 1646, forming a triangle with the other two fortresses.

At this time, when Rio de Janeiro was basking in the wealth of the gold rush, the city was fortified both at the mouth of the bay and on the routes leading inland, creating one of the most complex, comprehensive defensive systems. Map H01 shows the principal elements.

The main defensive structure of Guanabara Bay and the city and harbour of Rio de Janeiro during the colonial period was Santa Cruz fort, built in 1555. It is still garrisoned to the present day, and attracts around two thousand visitors a month.



Sugar Loaf at the entrance of Rio de Janeiro harbour. 1837. (FERREZ, 2000,133, II)

The building of the fortification complex surrounding São João fort began at the time of Estácio de Sá's arrival, on 1st March 1565, on the occasion of the foundation of Rio de Janeiro City, in the fertile plain between Cara de Cão and Sugar Loaf hills.

The scene chosen for the city's defences remains unaltered to this day, although they are no longer used for their original purpose, as they are now tourist attractions that interest visitors keen to contemplate the natural beauty of Rio de Janeiro.

Maritime routes and the city's fame spreads abroad: images associated with the tropical colonial city

> "Brazil and the Brazilian coast, through its diversity of aspects, the almost indescribable beauty of the Atlantic forest, the hills and mountain ranges extending to the sea, the wide and beautiful bays and inlets, attracted these travellers (naval officers) in a special way; whether by obligation or simply from aesthetic pleasure, they have bequeathed us vistas which enchant and move us today."
>
> (Guedes, Max Justo. *Lieutenant Robert Pearce. Watercolours made during the journey to Brazil on HMS Favourite in 1819 and 1820*. Livraria Kosmos Editora, 1991. P.8)

The various ways the landscape has been appropriated serve to demonstrate the development of the city of Rio de Janeiro. Professor of the History of Art, W. Mitchell, affirms that the landscape, far from being a faithful reproduction of nature, is a cultural creation which selects and unifies isolated objects. Interest in Rio de Janeiro resulted in various representations of its landscape, focusing on its architectural, geographical and social aspects in a vision which was at times more utilitarian and at others more contemplative.

As the city of São Sebastião do Rio de Janeiro, as it was originally called, was an obligatory stop for the vessels taking the maritime routes during the era of great navigations, many of their passengers, along with official cartographers and military engineers, contributed to the city's iconography, intent on registering the most striking features of Guanabara Bay.

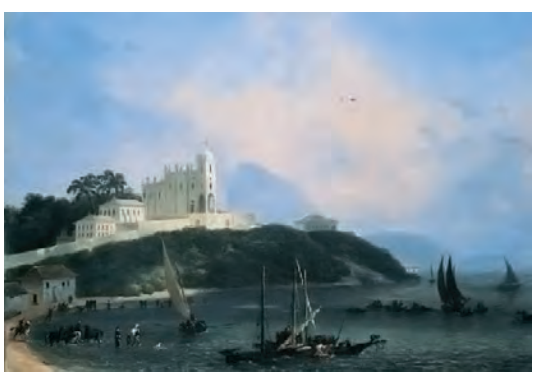
Historian Ronald Raminelli, in an article referring to colonial Rio, emphasises the infinity of vistas, prospects and landscapes which contributed to the knowledge of the city. The first engravings are remarkable for the lack of information they provide, often the result

John Fowler. City and harbour of Rio de Janeiro.. 1804. (FERREZ,2000, 52,II)

of short visits by warships, whose sailors were not allowed to land for defensive reasons. These first witnesses saw Rio as no more than a tiny citadel in the distance, with just a few distinguishable buildings, fortifications and hills.

From the second half of the 19th century, the city started to be depicted in greater detail in paintings, drawings and travel journals, mostly by foreigners, who revealed it to be a picturesque seaside town with distinctively exotic daily activities.

One particular example is one of the greatest monuments of colonial architecture of Rio, which was depicted from various angles: the church of Nossa Senhora da Glória of Outeiro, concluded in 1739 and



Nicolas Antoine Taunay. Gloria Church. c. 1816 -1820. (FERREZ, 2000, 79,II)

recognised to this day as a notable landmark. From the 18th century onwards, the church, its courtyard and the sloping streets of Glória were taken over by the local residents during the parochial festival of Nossa Senhora da Glória.

Rio de Janeiro's urban culture stood out from other tropical cities where the landscape and the city buildings are not in harmony, as its unique form was a direct result of the interaction between the natural environment and cultural expression.

Carlos José de Reis and Gama. Plan of Rodrigo de Freitas Lagoon. 1809. (FERREZ, 2000, 56,II)

II.B.2. Economic Output and Agriculture

Alfred Crosby developed the concept of "ecological imperialism", which can be conveniently applied to the model of colonisation of Portuguese America. He attributed the European success in the colonies to the easy reproduction of their plants, animals and parasites, which colonised the ecosystems they invaded more effectively than the invaders themselves. Colonisation based on fixed and secure occupation of the territory began with the cultivation and rearing of exotic species adapted to the area.

After the foundation of Rio de Janeiro, the Portuguese distributed concessions – the first of which was given to the Jesuits - and they expanded the sugarcane plantations, which began to take over the plains, as well as the felling of timber for firewood and charcoal. The sugar mills and flour mills required a regular supply of running water to run their engines, and they were thus built at the foot of Tijuca massif, where the slopes meet the plain. In 1590 there were already some sugar mills in the city; by 1728, the number had grown to 32; and in 1797 there were already 120. Map H02 shows this expansion.

In the second half of the 18th century coffee farming was introduced to Rio de Janeiro. By 1760 seedlings had already been planted at Barbonos Convent, in the city centre, where exotic plants were acclimatised. With the opening of trade to foreign countries in 1808, many immigrants to the city were landowners attracted by the continued use of slave labour, who brought new techniques for planting and improving the coffee crops and introduced large-scale production.

The slopes of the Tijuca Massif were found to be ideal for the coffee plantations, and it was from this era that the culture of coffee planting played an important role in Brazilian history. In 1816, French artist Nicolas Antoine Taunay arrived in Rio de Janeiro, where he bought a piece of land at the foot of Cascatinha and grew his own small coffee plantation, while spending his time painting the beautiful local scenery

At this time, the norm was to buy the land, strip the forest, sell the wood for charcoal and plant coffee in the cleared land. In 1813, an English traveller, John Luccock, related how swiftly large tracts of forest were converted to charcoal so the land could be used for coffee production. Other travellers told how the midday sun was sometimes obscured by clouds of soot from the slashing and burning of Tijuca Forest.

Valley of. St. Louis coffee plantation of Mr. Lecesne. Watercolour of Emeric Essex Vidal, 1828

Within a short time, coffee plantations covered the whole area that is now Tijuca National Park. Carioca mountain range was also devastated, leaving only the highest peaks, which was partially spared as it contained the sources of the Carioca river, then the main source of Rio de Janeiro's water supply. For this reason Prince Regent Dom João ordered the publication of a decree in 1817 suspending all forest clearance around the springs which supplied the aqueduct.

Ruins of Mocke, in Gávea Pequena. Photograph by Pedro Oswaldo Cruz, 2006.

The slopes of Vista Chinesa were also cleared for agriculture. This was the site of an experiment in growing tea, manned by Chinese workers brought from Macau, in 1812, by the Count of Linhares.

Illustration of the German painter Johann Moritz Rugendas (1802-1858) showing the Chinese tea plantation in the region of the Botanical Gardens.

However from 1860 onwards the coffee industry entered a steep decline. A report presented to Manoel Felizardo de Souza e Mello, Minister and Secretary of State for Agricultural Business, Commerce and Public Works, relates the real causes of the "coffee pest":

> "Almost all the farmers agree that the disease which is affecting our coffee plantations is an old one and the spots on the leaves which no-one investigated as they were not considered important, were known as rust (...) Some sort of disease or weakness of the plants must have contributed to their enormous increase. I imagine that the great numbers of old or badly treated coffee bushes must have nourished this pest, which multiplied and spread to the strong, healthy plants. (...) By the end of 1860 the leaves of the coffee bushes began to suffer. (...) The farmers are resigned, they are struggling against this evil, which they will overcome. The cure is largely in their own hands."[5]

5 Officio do Conselheiro Francisco Freire Allemão sobre o mal dos cafezeiros". In: *Relatório apresentado ao Ilustríssimo e Excelentíssimo Senhor General Pedro de Alcântara Bellegarde do Conselho de S. M. o Imperador Ministro e Secretário de Estado dos Negócios e Secretário de Estado dos Negócios da Agricultura, Comércio e Obras 9. Públicas pelo Diretor da Diretoria da Agricultura, Comércio e Indústria José Agostinho Moreira Guimarães.* Rio de Janeiro: Tipografia Perseverança, 1863. Pp. 3-4

Thus, in 1861, began the new reforestation project, heralded by the decline of the coffee plantations and the amount of forest that had been cleared in the valleys of the main rivers and watersheds in Tijuca massif. The desire to recuperate the ecosystem was the fruit of a desire on the part of the imperial ruling class to introduce the rational exploitation of forest products.

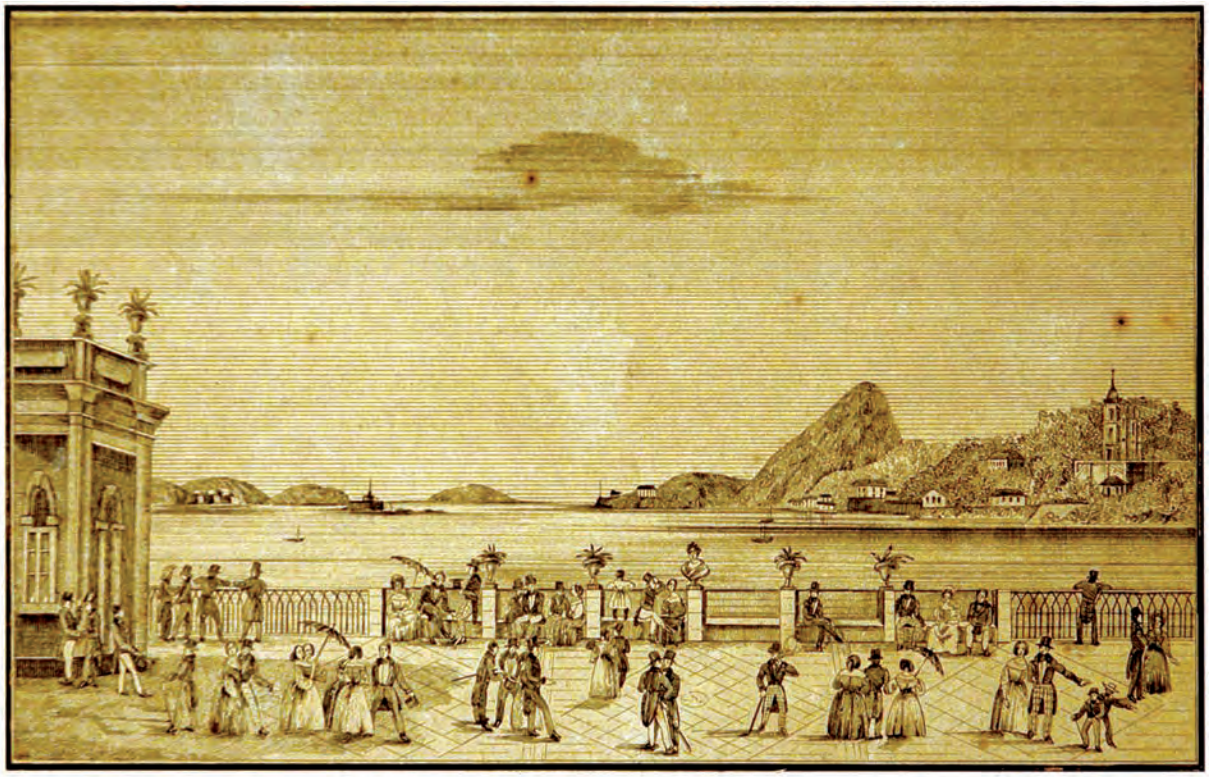
II.B.3 The City and the Gardens

The gardens, which are important public spaces of Rio de Janeiro city, are structural features of a landscape that has taken on various connotations over the passage of time. In Europe, the introduction of vegetation into the urban landscape dates back at least to the 16th century.

There's a rich history that clearly reveals western man's image of the city gardens: the first initiatives were associated with the mystique of paradise lost incorporated allegorically into the heart of the city; later on, the positivist vision of vegetation as a healthy element in 19th century cities predominated; in recent times, there is an ethical and ecological approach to the importance of the preservation of nature. Map H03 indicates the two main historical gardens contained in the site.

Passeio Público: the first garden constructed in Brazil

Passeio Público garden, which stands in the buffer zone of the site, was opened by order of Viceroy Dom Luis de Vasconcelos (1779-1790), in an area which formerly contained Boqueirão da Ajuda lagon. Valentim da Fonseca e Silva, known as Mestre Valentim, was in charge of the project, which consisted of a French style park with elegantly designed avenues decorated with fountains, statues and pavilions. The fine portico, in rococo style wrought iron, is still in place, with its royal suit of arms and effigies of Dona Maria I, Queen of Portugal at the time, and her husband Dom Pedro III. The central avenue led its visitors to the Lovers' Font and to the terrace overlooking the sea, which lapped the garden walls. Concluded in 1783, the garden was a popular vantage point for appreciating the natural beauty of Guanabara Bay, and became a meeting place for the local residents from the 18th century, as the first viewing point of the city.

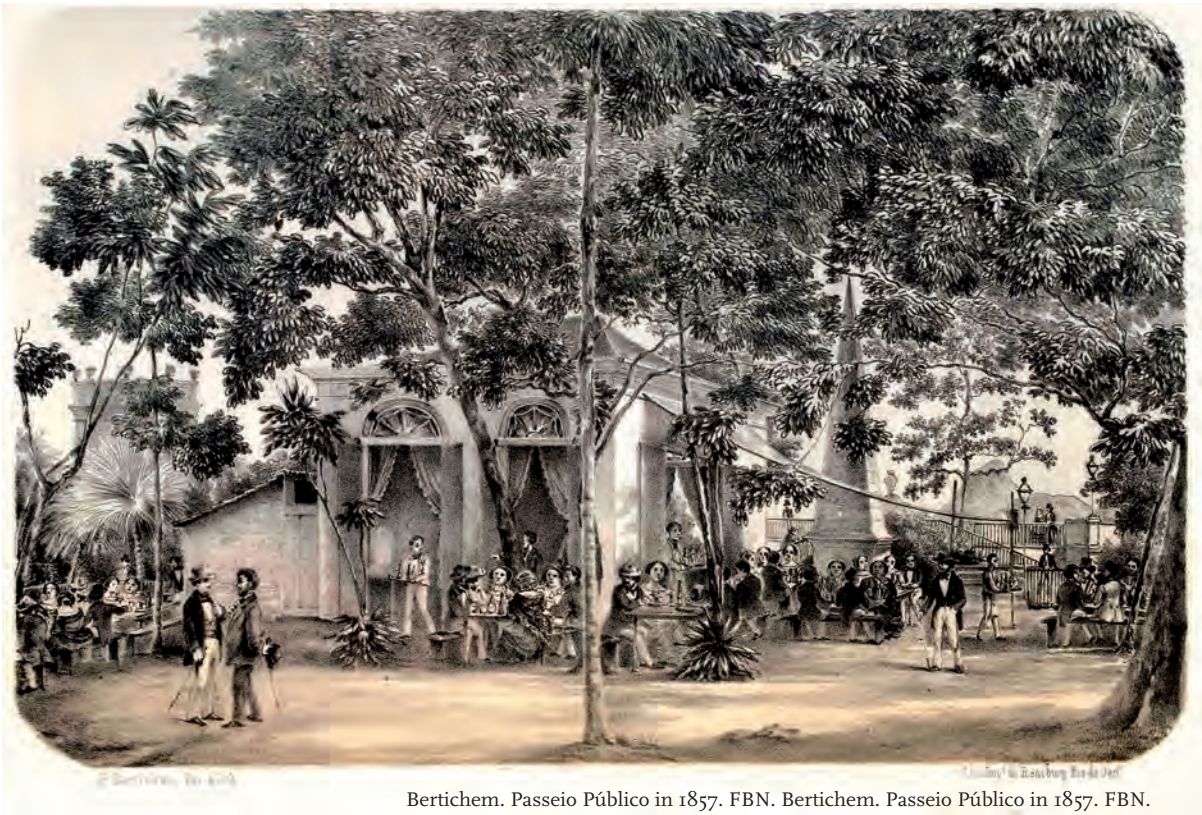


View from Passeio Publico. In: Ostensor Brazileiro Jornal Literário e Pictorial published by Vicente Pereira de Carvalho Guimaraens and João José Moreira. Rio de Janeiro. Volume II. 1846-1847.Lith: Ludwig & Briggs. FBN

In a report presented to Domiciano Leite Ribeiro, Minister and Secretary of State for Agriculture, Trade and Public Works, in 1864, the garden is referred to as the Botanic Gardens of Passeio Público, as besides its purpose as a leisure site, it also acclimatised native species before the Royal Gardens finally took over this task.

> *"This establishment, which is in the hands of a private administrator, offers all the advantages of a public leisure area, even for an imperial capital, if it could be further extended... at the present time it contains 3,000 of the most precious plant species, with regard to their utility, beauty and rarity, thus making it a garden not only for leisure but also for the acclimatisation and reproduction of useful plants."*

At the request of Emperor Dom Pedro II, the design of the park was altered by French landscape artist and botanist Auguste François Marie Glaziou in 1864, when he held the post of Director of Forests and Gardens. Glaziou arrived in Rio de Janeiro in 1858, having gained



Bertichem. Passeio Público in 1857. FBN. Bertichem. Passeio Público in 1857. FBN.

experience in Paris, where he worked with renowned landscaper Adolphe Alphand, one of the principal assistants of Baron George Haussmann in the urban reform of Paris. His role in Brazilian landscaping marks a pragmatic change in garden design, adapting the European model to Brazilian conditions. He also developed scientific studies of native vegetation, identifying innumerable species, and kept in direct contact with European institutions, who kept many of these records.

Although he conserved many of the original architectural and artistic features, Glaziou altered the way the gardens of Passeio Público were distributed, introducing winding walkways, lakes and bridges as favoured by romantic landscaping. The result was an English style garden that imitates natural woodland.

In the 20th century the original functions of Passeio Público were modified, as successive land reclamations made the sea ever more distant and the garden was stranded in the midst of the bustling city.

In 2004 an ample restoration programme coordinated by the Parks and Gardens Foundation (Fundação Parques e Jardins) and IPHAN sought to recuperate Glaziou's original design for the garden. An archaeological study was also undertaken to discover the essential details of its history.

Martinet. Passeio Público in 1850. FBN.

The Royal Gardens – acclimatising garden – Botanical Garden

Founded on 13th June 1808 by Prince Regent Dom João, the Botanical Garden was created with the intention of acclimatising the spices coming from the East Indies. The first plants to arrive came from Mauritius, from a garden known as La Plampemousse, and included the Palma Mater. The most important historical developments in the gardens' history took place in the first century of their existence.

BERTICHEM, Pieter Godfred. Jardim Botânico. In: Rio de Janeiro and its surroundings. Rio de Janeiro: E. Rensburg, 1857. FBN

The vegetation that existed in the area that came to be occupied by the Botanical Garden can be seen in map of Rodrigo de Freitas Lagoon from 1809. It includes one of the avenues incorporated into the garden, which, it must be supposed, was part of an old colonial house with a big garden. At that time the access to this rural property was by the path at the foot of Tijuca massif, corresponding to what is now Rua Pacheco Leão. Rodrigo de Freitas Lagoon was linked to the back of the farm, just as it was throughout the urban developments of the 19th century: Two-storey houses and mansions only began to be built on shores of Guanabara Bay at the beginning of the 20th century, with the construction of Avenida Beira Mar. The Palma Mater .was planted in the first area of pathways opened in the 18th century.

Travellers Johann Spix and Carl von Martius, who visited the botanic gardens in 1817, described the landscape and its outstanding features: *"The gunpowder factory and residence of Mr. João Gomes Abreu (...) director of the factory and the nursery, are surrounded, on the one side, by regular hills, covered with forest, and on the other Rodrigo de Freitas Lagoon(...) The said Botanical Gardens are situated behind the house (...) Various beautiful avenues of bread-fruit trees from the Pacific Ocean (Artocarpus incisa), itus of dense foliage (Guarea trichiliodes) and mango trees are interspersed in the plantation, divided into plots of Chinese tea. So far they have planted ten thousand little bushes, three feet apart, in rows."*[6]

It was Frei Leandro do Sacramento, director of the Botanical Garden from 1824 to 1829, who made the first interventions in the landscape, with the construction of the lake and the Cedar House (Casa dos Cedros), which had the Emperor's Table (Mesa do Imperador), in the middle. He also expanded the cultivated area and ordered the large marshy area reaching up to Macacos river to be drained, in order to install formal avenues in renaissance and baroque style.

In 1842, the director of the Botanical Garden, Serpa Brandão, decided to plant imperial palm trees in the new avenues, thus establishing the main difference that sets the Rio de Janeiro Botanic Gardens apart from other gardens of this era.

The new design included a new entrance, in the recently inaugurated Jardim Botânico Street, which ran between the gardens and Rodrigo de Freitas Lagoon, providing for new interaction between the gardens and the lagoon.

6 Ana Rosa de Oliveira, in A Construção da Paisagem in Jardim Botânico do Rio de Janeiro: 1808-2008

KLUMB, Revert Henrique. Jardim Botânico. Alameda das Paineiras. Fotography. 1869-1870 circa. FBN.

These first interventions in the Botanical Garden resulted in a considerable increase in the area of cultivated land, with a vast collection of indigenous and non-native plants, but also leisure areas that were much appreciated by their visitors. Since 1860 it had been administrated by the Fluminense Imperial Institute of Agriculture - a private organisation directed by the Baron of Bom Retiro, an imperial minister who supported the creation of the Administration of Tijuca Forest and the preservation of the virgin forest along the coast, and was responsible for supplying the seeds of species for the reforestation of Tijuca Forest[7]. The Botanical Garden became the showcase of the imperial state's scientific project. An agricultural school and a model farm functioned there, and it soon became a public garden, combining both scientific and technological vocations.

7 In "Report by Manoel Gomes Archer on the Forestry Service of Tijuca. Annex W". In: *Relatório apresentado à Assembléia Geral Legislativa da 2ffi Sessão da 15ffi Legislatura pelo Ministro e Secretário de Estado dos Negócios da Agricultura, Comércio e Obras Públicas José Fernandes da Costa Pereira Junior*. Rio de Janeiro: Tipografia Comercial, 1873, Major Archer cites the collaboration of the Baron of Bom Retiro on pages.1 and 8.

João Barbosa Rodrigues, a self-taught botanist of international renown, was director of the Botanical Garden for nearly 20 years, at the beginning of the republican period, bringing great innovations and dynamism to the institution. He strongly believed it should have a contemplative function, and attempted to adapt its design to this end, including fountains, statues, new plants and new collections. He introduced winding pathways inspired by Glaziou's gardens. The present design of the Botanical Garden was mostly conceived during his administration.

Aware of the need for a Botanic Museum, Barbosa Rodrigues designed a complete project for this institution, including the following services: herbarium, library, school of botany, area for experiments and incubators, cooling areas, gardens, laboratories and observatories and arboretum. The present day activities were all defined in this project.

Over its two centuries of existence, it has been called Royal Gardens, Royal Botanic Gardens, Botanical Garden of Rio de Janeiro and, more recently, Research Institute of the Botanical Garden of Rio de Janeiro.

Listed by the National Institute of Historical and Artistic Heritage (IPHAN) for its historical, cultural and scientific significance, it has also been internationally recognised as a Living Museum in the realm of botany, as defined by UNESCO, as a Biosphere Reserve.

The opening up of ports and scientific research into flora and fauna: principal expeditions, travellers and naturalists who visited the city

View from the Summit of the Cacavada [sic] Mountains, near Rio, watercolour by Augustus Earle, c. 1822. National Library of Australia. **In it can be seen Gavea, Corcovado and the Sugar Loaf and the fortifications of Lage and Santa Cruz**

The most important event for travellers, artists and naturalists in Rio de Janeiro was the arrival of the Portuguese Court in Brazil in 1808. Alongside some new town planning measures, the city also started being written about and depicted, as a direct outcome of one of the most characteristic phenomena of modern and contemporary western history: sea travel. This was no longer the Renaissance expeditions to conquer new territories, but the modern idea of taking possession of the world by creating an inventory of nature.

The arrival of European artists, scientists and scholars in Rio de Janeiro reinforced Dom João's policy of civilising the tropics and reinventing the physical space of the city and its inhabitants. Some of the most important foreigners to visit the city, leaving a considerable body of information about the Dom João period, were Henry Chamberlain, the Baron of Langsdorf, accompanied by artist Johann Moritz Rugendas, Prince Maximilian I of Bavaria, accompanied by Freyreiss and Sellow, Charles Othon Fréderic Jean Bastide, Count de Clarac and Auguste de Saint-Hilaire.
The visits by naturalists were often of an official nature, as can be seen, for example, by the scientific missions which accompanied Archduchess Leopoldina to Rio de Janeiro, on the occasion of her marriage to the Prince, Dom Pedro, in 1817. Artists, zoologists and botanists travelled to Rio in the company of Dona Leopoldina with the mission of collecting information on its geography, statistics, ethnology and natural history. Among the members of the 1817 scientific expeditions were Thomas Ender, Johann Baptist Von Spix and Karl Friedrich Phillip Von Martius, Pohl, Raddi, Natterer and Mikan, who systematically cast a foreign eye over the great laboratory that was Dom João's Brazil.

The arrival of the French Artistic Mission capped the efforts to reinvent the city of Rio de Janeiro. In 1816 Joaquim Lebreton, accompanied by artists Jean-Baptiste Debret, Nicolas-Antoine Taunay, Grandjean de Montigny and Simon Pradier, disembarked in Rio de Janeiro.

Maria Graham was one of the travellers who discovered Rio in the first decades of the 19th century and became enchanted with the tropical forest which covered the Tijuca massif and with the natural beauty of the city:

> *"Nothing I have seen so far can be compared to the beauty of this bay. Naples, the Forth estuary, Bombay Port and Tricomali, each of which I had deemed perfect in their beauty, must all give way to this bay, which surpasses each of them in their peculiarities. Superb mountains, overlapping columns of cliff, luxuriant vegetation, light, floral islands, green beaches and all this offset by the white houses; each hill crowned by its church or fortress, ships anchored or at sea and numerous boats sailing in the delightful climate together make Rio de Janeiro the most charming scenario that imagination could devise." (1821)* [8]

8 Rio de Janeiro in Prose and Verse, Manoel Bandeira and Carlos Drummond de Andrade, pag. 19 and 20

In this image, the sea, the city, and the mountain are well represented, GEORG HEINRICH VON LÖWENSTERN. Lapa, Passeio Público and Ajuda, circa 1827-1829

II. B.4 The City and the Forest

"Outing to Tijuca Forest

Only there on those slopes and plateaus, covered with copious woodland, safe from the devastation of the axe thanks to the solicitude of the civic authorities, for the good of the maintenance of part of the springs which guarantee the city's water supply: only in those dark recesses can you encounter with unspeakable amazement the harmonious combination, the rhythmic beat of two great and powerful forces – Brazilian nature with all its prestige and invincible poetry – and human intelligence in the development of the highest artistic ideal and the insatiable search for beauty, perfection..."

(Alfredo d'Escragnolle Taunay, Visconde de Taunay. Viagens de Outr'ora. 1885.)

The reconstruction of the natural landscape: environmental conservation in the 19th century

> "Although I lack regular study in public administration and Natural Sciences, observation and experience tell me that the one of the most important tasks for the future prosperity of the Empire lies in the development of the forests. This is the means not only for favourably modifying the climate of various regions, tempering the excessive heat and drought of the summer, and controlling to a certain degree the heaviness of the rains and the violence of the winds, but it is also the simplest and most efficient way of making regions healthy and habitable when they were not so previously (...)"
>
> (Major Manoel Gomes Archer. Report for the Ministry of Agricultural Business, Commerce and Public Works, 24 January 1873)

The valleys of the main rivers and watersheds in the Tijuca massif had been almost completely cleared of forest by 1840, and official reports outlined the progressive degradation of the springs, of vital importance for a rapidly growing city. With each crisis of the water supply, which was practically an annual occurrence from 1840 onwards, the need for protective measures for the springs became more evident. The water sources of the Tijuca mountains were the most critical as the city was expanding towards them.

Frederico Guilherme Briggs. Cascata Grande da Tijuca. 1836.

The key figure in the government decision to recuperate the higher valleys of Tijuca mountain range was Luís Pedreira do Couto Ferraz (1818-1886), Viscount and later Baron of Bom Retiro. A landowner in the massif, he was the inspiration and great enthusiast of the pioneering reforestation programme. It was not only that the remaining forests were preserved, but also initiatives were taken to replant the forest in many areas which had been completely devastated.

In 1844, a year of drought, Dom Pedro II's government was forced to adopt measures to solve the problem: destroy the coffee plantations and replant the forest. Tree planting was initiated on the slopes and around the springs of emptied lands, or in collaboration with more conscientious landowners, and police vigilance was increased to prevent the cutting down of trees near springs.

In 1860 the coffee plantations were struck by a blight that rampaged through the farms. This was the catalyst for the innovatory reforestation project for Tijuca Massif.

Administrator Manoel Gomes Archer was immediately appointed to head the work. An experienced forestry expert, in the first decade alone he had around 60,000 Brazilian hardwood trees planting. Map H04 shows this process.

The origin of the saplings is important for the environmental history of Rio de Janeiro. At first, the principal source of the saplings used by Archer was the neighbouring Paineiras forest, administrated by Tomás Nogueira da Gama. He also requested that seeds and saplings be sent from his Independência Farm, in Guaratiba. Some of them came from nurseries, but others were taken from relatively untouched local forests that were similar to Tijuca. A third source of saplings was the Botanic Gardens of Rio de Janeiro, which had been dedicated to acclimatising exotic plant species from its earliest origins. The replanting of Tijuca Forest was a singular and pioneering experience in the field of forest management, due to the rhythm of the work, the survival rate of the saplings planted, and the utilisation of saplings from many different species of trees, most of them native to Brazil.

Major Archer believed in Brazil's forestry vocation and his project involved the constitution of a network of national forests, coordinated with teaching and research establishments, designed to ensure the sustainable use of the forests covering the country.

The transformation of the forest into a romantic public garden

> "My desire was to show the public that a national park such as Tijuca Forest could be an example in miniature of what could be done all over the country, taking advantage of its natural beauty and defending it form 'civilisation' which comes in with an axe devastating and knocking down the forest and using the earth's humus, only to abandon it shortly afterwards." (Raymundo Ottoni de Castro Maya)[9]

Plant for the Restoration of Tijuca Forest prepared by Raymundo de Castro Maya c. 1949. In: CASTRO MAYA, Raymundo Ottoni. A Floresta da Tijuca. Rio de Janeiro: Edições Bloch, 1967.

In the second half of the 19th century, new personalities began to frequent Tijuca Forest: *young beaus attired with great elegance, who might easily fall in love with a charming maiden, riding a horse*, like the characters of romances such as *Sonhos d'Ouro*, by José de Alencar, written in Gávea Pequena, in the summer of 1872.

The city went through a period of modernisation during the Second Kingdom. Due to the loss of natural fertility and the spread of disease in the areas first given over to coffee plantations, their owners had departed inland, towards the Paraíba do Sul river valley, in search of virgin lands. The heights of Tijuca now embodied other values: a pleasant

9 Castro Maya, Raymindo Ottoni de. A Floresta da Tijuca. Rio de Janeiro: Edições Bloch, 1967, p. 11.

climate, a healthy environment and a good quality of life. The imperial elite acquired smallholdings and farms, turning the former farmland into summer retreats.

This was the beginning of the administration of Gastão Luís Henrique d'Escragnolle, who succeeded Major Archer. A descendant of French nobility and a faithful servant and friend of the Emperor, Dom Pedro II, Gastão d'Escragnolle devoted his energies to embellishing the forest, which he did in collaboration with Glaziou. His contribution was so notable that the old garden was transformed into a charming public walking area. An ardent nature lover, he preserved the beauty of the lush rainforest, maintaining intact its inherent nature. Instead of using cement and laying flowerbeds in the areas designated for people who wished to rest in the shade of the trees, he used round stones, trees and bushes planted as if by accident. Tijuca Forest was thus transformed into a public garden in the best romantic style.

In the 1940s Raimundo Ottoni de Castro Maya took over the administration of Tijuca Forest. A successful Industrialist who had been linked to the forest since his youth, when his father acquired the Sítio do Açude Farm in 1913, Castro Maya set himself out to coordinate the reform and development of the forest park, transforming it into a public park. In three years he reformed buildings, renovated roads and paths, and installed various improvements for visitors.

His administration was noteworthy for the particular attention paid to decorative and landscaping effects, counting on the collaboration of Roberto Burle Marx in the Açude da Solidão Farm. Another mark of his administration was the reconstruction of Mayrink chapel, based on a project by Vladimir Alves de Sousa which included murals by Cândido Portinari. The success of the Castro Maya administration was evident and by 1946 the forest was receiving five thousand visitors a day at weekends.

On 6th July 1961, the federal government created Rio de Janeiro National Park, by Decree nº. 50.923. This confirmed Raymundo Ottoni Castro Maya's project to transform Tijuca Forest into a national park. Its name was only changed in 1967, by Decree 60.183, which redefined its limits. During the 1960s, 11 national parks were created. When it was listed by IPHAN in 1966, it was still called Rio de Janeiro National Park.

The fundamental directives of the Management Plan of Tijuca National Park, published in 1981, divide it into zones, based on the

understanding that the urban park suffers immense pressure from the megalopolis which surrounds it.

Finally, in 1991, UNESCO's Man and the Biosphere programme declared the park to be World Heritage, thus consolidating an environmental programme which had been in operation since the 19th century.

II.B.5. The City and the Sea

The First Coastal Spaces of the City

The creation of Passeio Público at the end of the 18th century marked the beginning of the city's relationship with the sea. Its lookout point was the first of a series heralding the population's new interest in the coastline of the bay, since sea-bathing was now considered an option for the elite who frequented the park. Over the course of the 19th century, various sites in Guanabara Bay began to be used as bathing spots, the most popular being Caju Beach. The ocean beaches were vast expanses of sand, accompanied by dunes which extended up to the hills. The inauguration of Alaor Prata Tunnel in 1892, which took the first tramline to Copacabana, saw the beginning of the occupation of the coastline, with the tram extending to Leme and Ipanema, transforming these neighbourhoods into pleasant seaside resorts.

Map of the City of Rio de Janeiro, 1907, highlighting the public works of the Pereira Passos Government. National Archives

Between 1903 and 1906, Mayor Pereira Passos undertook a great urban reform along the lines of that which had been carried out in Paris by Haussmann. With the decisive support of the federal government,

various projects were carried out in the name of modernity, sanitation and aesthetics. These included the creation of a new port area, with a big embankment resulting from razing Senado Hill, and building new streets, the most significant being Avenida Central, which, as in Paris, implied the demolition of entire blocks of buildings from the colonial city and Avenida Beira-Mar, which extended from the centre to Botafogo, with a central reservation that could be used for leisure.

Copacabana Beach *c.* 1920. Augusto Malta. IMS

With these interventions came the era of Rio's Belle Époque. The populace of Rio took pride in their city, frequenting the new "boulevards" which became the meeting places for the elegant bourgeoisie, wearing the latest French fashions. Avenida Beira-Mar was a favourite for promenading, with its central reservation designed by landscape artists Paul Villon and Louis Rey, who had worked with Glaziou and drew their inspiration from the romantic gardens of the 19th century. Avenida Beira-Mar was used to gain access to the ocean beaches after the construction of a new tunnel linking Botafogo and Copacabana (Túnel Novo). Its extension as far as Vermelha Beach brought rapid urbanisation to the seaside districts, including this last one, which was the site for the International Exhibition of 1908, commemorating the centenary of the opening of the Brazilian ports to friendly nations.

Sea- and sun-bathing became a new custom, and Copacabana was the district that developed most quickly. Avenida Atlântica was built during the Pereira Passos administration, with pavements in mosaics of Portuguese cobblestones reproducing the design of the waves of the sea that surrounded the city. Copacabana Palace Hotel, one of the first high-rise buildings in Rio, was built to receive the guests to the International Exhibition of 1922, and garnered international recognition.

Big waves on Copacabana Beach in 1924. Augusto Malta. AGCRJ

Ipanema and Leblon finally gained basic infrastructure, paving the way for the land developers. Avenida Niemeyer was built from Leblon around the side of Dois Irmãos mountain, boasting stunning views and also granting access to more distant beaches which would later become the district of São Conrado.

Map H05 shows the successive land reclamations and the principal features of the site.

The Modernist movement and its consequences in the public spaces of Rio de Janeiro

The 1920s has become known, in Brazil and around the world, as the period of the greatest intellectual effervescence of the 20th century. Everything was re-discussed and re-evaluated: politics, economics, philosophy, culture and the arts. In Brazil, most of the events took place in Rio de Janeiro, the republican capital. The modernist ideology established its own, more authentic paths, quite different from the urban reforms of the beginning of the century which had relied on imported models. The Modern Art Week of 1922, which took place in São Paulo but caused immediate repercussions in Rio, represented an aesthetic break in the diverse forms of presentation of fine art and music.

In the field of arts and architecture, the influence of Le Corbusier after his passage through Rio in 1929, coming from Buenos Aires, soon made itself felt among the professionals of the avant-garde of the time. A significant indication of his contribution to this new architecture was the invitation to supervise the project which Lúcio Costa and his team, composed of Oscar Niemeyer, Affonso Eduardo Reidy, Jorge Machado, Carlos Leão and Ernani Vasconcelos prepared for the new Ministry of Education and Health building.

This building is considered an icon of the modernist movement. Containing all five basic principles of the Corbusian doctrine – a terrace, an independent structure, an open plan, an independent façade and a terrace-garden – it was a first in the world. Special credit was due to architect Oscar Niemeyer and artist Roberto Burle Marx, who was responsible for its landscape design.

Lauro Cavalcanti, the curator of a recent commemorative exhibition of the centenary of the birth of Burle Marx in the halls of Paço Imperial, compared it to the previous exhibitions dedicated to Lúcio Costa and Oscar Niemeyer, saying: "These three men who have been honoured in these exhibitions gave a specific and original accent to the movement brought to Brazil by Le Corbusier. Lúcio Costa introduced an historical dimension which provided a dialectical depth between the new forms and the local tradition in construction, granting alternatives to the simple European opposition between renovation and revolution, making amnesia the only solution for new paths. Niemeyer introduced formal elegance from a radical investigation of the technology of reinforced concrete. Burle Marx created tropical landscaping and a modern international language of gardens at a single stroke."

From this project on, Burle Marx became a permanent collaborator of the modernist architects, guaranteeing them a key principle of the new architecture through the integration of the internal and the external in their work, while bringing them a new contribution, the tremendous wealth of Brazilian flora. Flamengo Park and the Copacabana beachfront are outstanding among his innumerable projects for the city, and are considered the most pragmatic of his extensive body of work.

Flamengo Park was conceived out of the need for an express highway from the centre to the south of the city, but also became Rio's main area for leisure and recreation. Based on a project by architect and urban designer Affonso Eduardo Reidy, it was created in a prestigious area of the city, creating a strong impact from a natural and cultural landscape perspective. It constitutes a vital transition between Guanabara Bay and the built-up streets. Consisting of some 120 hectares, it extends from Santos Dumont airport to Viúva Hill, including the green area of Botafogo Cove.

Burle Marx Gardens on the terrace of the Ministry of Education and Health building. Photograph Ruy Salaverry

This is one of the most successful achievements of landscape artist Roberto Burle Marx. It introduced a completely new concept for the time, making no provision for any kind of closing or interruption of the visual and functional continuum of the park, open to the public in all its different environments at any time of the day or night.

Flamengo Park also houses the Modern Art Museum (MAM) - a masterpiece designed by Rio architect Affonso Eduardo Reidy – and the Monument to the soldiers who died in the Second World War, an award-winning project of modern architecture in Rio de Janeiro. There are other buildings in the park, with special landscaping features that highlight and embellish their architecture.

Continuing on from his work at Flamengo Park, Burle Marx created a design for the Copacabana promenades using a mosaic of Portuguese cobblestones. It was built in 1971 after the beach and pavements had been widened. This master work enhanced the public area of the neighbourhood, and was offset by a patchwork of vegetation.

Copacabana Beach -Marcel Gautherot, c. 1975, photograph, collection of Instituto Moreira Salles

These two Burle Marx projects, Flamengo Park and the urban-landscaping of the Copacabana sidewalks, were very innovatory for their time and became model landscaping solutions. Through these and other designs, Rio de Janeiro continued to be a pioneer of modernist projects, which became a reference worldwide, reinforcing its universal value.

II.B.6. A City which looks like Nature and Nature which looks like a City [10]

Throughout its history, Rio de Janeiro has always been intimately connected with nature in the development of its urban cultural landscape. Parallel to this, the building styles and ways of life in the city have, over the course of the last centuries, consolidated an intricate union between nature and the urban space. The contours of the landscape indicate the boundaries of an outstanding, paradigmatic site, where the structural elements of the interaction between the city's developments and nature have been depicted in their historical, functional, social and urban aspects.

The most important image associated with this landscape, which has been spread far and wide in the sketches of sailors, chroniclers, travellers, naturalists and artists, is Guanabara Bay, which remained unaltered until the 19th century. By accompanying the development of this landscape, we can observe the expansion of the city over time. Reclaiming land from swamps and lakes began in the 18th century, as was the case of Passeio Público garden, an important viewing point which admirably expressed the interaction and social utility of the city with its gardens.

Ever since their creation in the 19th century, the Botanical Garden has fulfilled the dual roles of leisure and research. They have been central in the promotion of scientific development, helping spread knowledge about Atlantic Forest species and educating the public about the importance of the urban forest.

The green slopes of the forest are at the very heart of the city. Initially, the city's most important output was the fruit of its sugarcane and coffee plantations. The period of reforestation marked a change in the interaction of the city with the forest, when the latter became a

10 The title is based on the phrase "O Rio de Janeiro é uma natureza que se tornou cidade e é uma cidade que dá a impressão de natureza", published in 1941 in the book Brasil, País do Futuro, de Stefan Zweig, Editor Ridendo Castigat Mores, Version for eBook, eBooksBrasil.com, Published online at: www.jahr.org

new option for leisure activities and contemplation, a source of natural resources for both the city's dwellers and its tourists.

People's outings and walks were not limited to the green areas, but extended to the coast, demonstrating the considerable degree interaction between the city and the sea. The first years of the 20th century saw the first land reclamation in the bay, with the transfer of the harbour. Public works for the modernisation of the centre changed the bay's contours, from Caju to Copacabana, with the extension of the docks, Avenida Beira-Mar and, later on, Flamengo Park.

The urbanisation of the coast can clearly be perceived from the broader global context of 20th century urban reform carried out in the spirit of mens sana in corpore sano. In a tropical city, bathed by the sea and surrounded by lush vegetation, the public spaces and facilities provide a wealth of opportunities for sporting activities.

The history and development of the mutual relationship between the sea and Flamengo Park single it out for attention in the habits of inhabitants and tourists alike. The naturally available sunshine and fresh air have been complemented by wide open spaces for sporting activities that are only enhanced by the embellishment and accessibility of the coastline.

Copacabana Beach has attracted bathers since the first decades of the 20th century. The appropriation of the beach as a leisure area began with the diffusion of sea-bathing, introducing a new custom of living by the seaside as a modern city lifestyle. After the Second World War, mass consumption intensified and the beach became the recreation space for different social groups. The beginning of the 1970s saw the emergence of a new area reclaimed from the sea, the Copacabana promenade, which transformed the use of the beachfront. The number of pedestrians increased and new lanes were created for bicycles and cars. Both the physical and the social landscapes were transformed. People were encouraged to take up walking, running and cycling for leisure and health, which made the use of the space even more heterogeneous. More recently, the 1990s saw the building of temporary sports arenas, which are occupied day and night by athletes of different sports, especially beach football and beach volleyball.

Singing the praises of the beaches is literally part of much of the popular music that speaks of Rio's cultural landscape. Musical and festive styles like Samba and Bossa Nova demonstrate the essential symbolic character of the images associated to this site.

Finally, we should not forget that the cultural territories presented here, which influenced the design of the city of Rio de Janeiro and its landscape, are a fruit of the dynamic interaction of its inhabitants with nature.

III. JUSTIFICATION FOR INSCRIPTION

As regards the classification according to paragraph 10 of Annex 3, Guidelines on the Inscription of Specific Types of Properties on the World Heritage List, of the Operational Guidelines for the Implementation of the World Heritage Convention, the site can be included in the following categories (refer to Map D03):

- **Landscape designed and created intentionally by man** represented by the Botanical Garden, Passeio Público, Flamengo Park and the Copacabana beachfront;

- **Organically evolved landscape, subcategory continuous landscape** – represented by the natural elements, especially the reforested Tijuca National Park, which has been regenerated over the years (in the Carioca and Tijuca mountain ranges);

- **Associative Cultural Landscape** – represented by the various features which have been modified by man and whose images have been depicted from the earliest days of colonisation, projecting the city and culture of Rio de Janeiro throughout Brazil and the world. The social imagery of the city landscape consists of literary and pictorial representations created by Brazilians and foreigners that celebrate the interaction between the contours of the mountains, the seashore and the people who have made this their home. Of particular note are the escarpments of Corcovado and Sugar Loaf, the former of which is topped by the statue of Christ the Redeemer, the latter boasting a cable car; the mouth of Guanabara Bay, with its old fortresses built to assure the bay's defence; and, more recently, the outstanding landscape of Flamengo Park and Copacabana Beach, both designed by globally renowned Brazilian landscape artist Roberto Burle Marx.

III.A. CRITERIA ADOPTED

The Cultural Landscape of Rio de Janeiro possesses outstanding universal values that make it eligible for inclusion in three of the criteria established in the Operational Guidelines for the Implementation of the World Heritage Convention (refer to Map D04- Criteria):

(i)To represent a masterpiece of human creative genius.

Rio de Janeiro city is internationally renowned for the quality of its landscape heritage, thanks to the successive interventions carried out by professionals of great artistic skill on a site that itself boasts great natural beauty. The first public park in the city and the country was Passeio Público, created while Brazil was still in a colony and designed by Mestre Valentim da Fonseca, a Brazilian sculptor who bequeathed many works of art to the city. This landscaping intervention had two very significant outcomes for Rio. Firstly, the creation of a beautiful park characterised by dense vegetation which became an oasis for the city in an area very close to the centre; its geometrical lines inspired by the French model seen in so many European palace gardens, ended in a terrace of flowerbeds which link the city with Guanabara Bay, initiating a new custom in the city between the local people and the sea. Secondly, Passeio Público was also responsible for great environmental improvements as it was built on a landfill over Boqueirão Lake that had been a rubbish dump. Thereby a highly polluted area was substituted by dense vegetation reaching as far as the sea.

The arrival of the Frenchman Auguste F. M. Glaziou in 1858 heralded a new, important stage in the development of the landscape and environmental values prevailing in Rio. A botanist, fresh from the experience of working with Adolphe Alphand, who had been responsible for the planning and installation of the green spaces in the urban reform undertaken by Baron Georges Haussmann in Paris, Glaziou brought a new concept of landscaping to Rio. In his main works in the city – the reform of Passeio Público, the design and construction of Campo de Santana, the gardens of Quinta da Boa Vista, seat of the imperial government, and the reforesting of Tijuca Forest – "Glaziou sought to favour the native botanical species which he nonetheless included in an aesthetic process based on the parks and gardens of Paris".[11] Thus, while Glaziou knew how to introduce the latest European concepts for park and garden design to the city, he went against the current trend of acclima-

11 Jean-Yves Mérian, A Atualidade de Auguste Glaziou in Glaziou e os Jardins Sinuosos.

tising non-native plants in Brazil's botanic gardens by brilliantly introducing native flora to Rio de Janeiro's public parks.

To this end, he undertook an in-depth study of the local and regional plant species and even Brazilian species from other areas, researching their adaptation to the urban habitat. During his 35-year stay in Brazil, he undertook hundreds of field trips to collect plant specimens in various regions of Rio de Janeiro province, as well as São Paulo, Espírito Santo, Minas Gerais and Goiás. According to his report to the French Botanical Society in May 1905, written a year before his death, he followed the example of the naturalists who had made an inventory of Brazilian flora in the early 19th century: Saint-Hilaire, Martius, Riedel, Gardner, Sellow, Pohl and others. His collections resulted in the cataloguing of 22,750 specimens which were sent to various European herbariums, including Paris, Kew, St Petersburg, Berlin, Copenhagen, Geneva, Brussels, Stockholm and Montpellier.

In his work as Director of Forests and Gardens and in his projects in Rio and in other cities, Glaziou had a host of followers, and his projects and guidelines became a reference for the landscape design of various other Brazilian and American cities. All his work in Rio de Janeiro and that of his main disciples, notably Paul Villon and Louis Rey, is protected by law and is part of Rio's landscape heritage.

His role in the project to reforest Tijuca Forest was fundamental in ensuring that it its leisure function was not left out alongside environmental concerns. The cutting down of the city's forests, as a consequence of intensive coffee plantations and subsistence agriculture, especially in Tijuca, which was nearer the inhabited area of the city, had serious consequences for Rio de Janeiro, not only with regard to its landscape but also in terms of the city's water supply, because of the destruction water sources, and the environmental balance which the forest guaranteed. The reforestation work, initiated in 1861 by Major Gomes Archer and supported by a strong government project, achieved great success over a very short space of time with the replanting of more than 100 thousand saplings of native species brought in from neighbouring forests, which resulted in the beginning of the rebirth of a forest in a mere 15 years.

To continue the project Baron d'Escragnolle was invited to direct the reforesting work, counting on Glaziou's collaboration.

Part of the forest now received romantic landscaping treatment, which was typical of city parks, transforming it into an agreeable leisure area accessible to the Rio population. Besides the pathways, he is particularly credited with the creation of recreation areas, lakes and viewing points designed to make a feature of the views offered by the mountain top, and diverse artefacts created in Tijuca Forest, like basins in sculptured marble to receive the water from the water sources, and artificial rocks built beside the waterfalls. Today, these interventions have "the effect of making the forest more accessible to a wider public, reviving in the 21st century the unique syncretism between art and ecology which was at the root of its recreation in the 19th century".[12]

Three and a half years after Glaziou's death in France, landscape designer Roberto Burle Marx was born in Brazil. According to Jacques Leenhardt, a great connoisseur of his work and professor at *École des Hautes Etudes* in Paris, "Glaziou's urban design achievements, and especially the convergence therein of exceptional knowledge of botany and an aesthetic of precise but flexible forms, are of the utmost importance for our comprehension of the genesis of Burle Marx's work... With regard to the disposition of open spaces, Glaziou effectively represents an original synthesis of the two great traditions then in vogue in Europe: the picturesque English garden and the formalism of French gardens... From this great heritage, with its diversity of legacies, Burle Marx managed to extract an extremely personal body of work in which art is matched with colour, geometry and botany, all with a sharp eye on the user of the spaces thus created."[13]

His concern with the general public led him to approach the architects and town planners of his day, as his intention was not only to create beautiful gardens for private properties, but above all to work for the city and its public parks. To this end, his contact with Rio's leading architects, first Lúcio Costa, who opened up professional opportunities for him in Rio, then the other architects of the emblematic building of the Ministry for Education and Health, specially Oscar Niemeyer, guaranteed him a close and constant professional exchange which was of enormous importance for Brazilian architecture. In the Ministry of Education and Health building, Burle Marx applied the new principles of modernism to landscaping, giving Rio de Janeiro one of its most significant examples and granting him

12 Isabelle Guillauic, Tijuca, A Floresta, Obra de Arte do Rio de Janeiro, A Atualidade da Obra de Glaziou, in *Glaziou e os Jardins Sinuosos*
13 Jacques Leenhardt, O Jardim: Jogos de Artifícios in Nos Jardins de Burle Marx

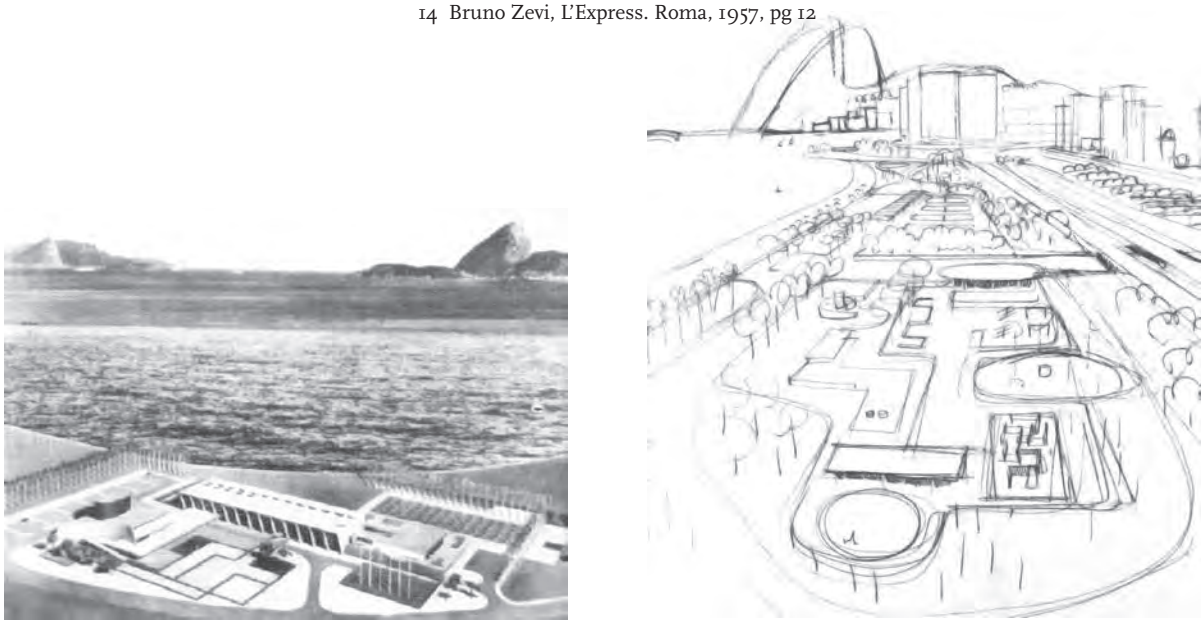
Design of the Garden created by Burle Marx for the MES building (Burle Marx & Cia Collection and photo by Ruy Salaverry)

international renown.

From this time, through his activities as a painter, sculptor and engraver, Burle Marx began to work with an organic and evolutionary language, which was aligned with the artistic avant-garde of abstract art, from concretism to constructivism. Bruno Zevi notes that in 1957 *"architectural rationalism could not last without the mediation of nature and Brazilian history. Burle Marx was precisely the instrument of such mediation."* [14]

Two works of art stand out among his projects: Flamengo Park and the landscaping of the Copacabana beachfront. Both

14 Bruno Zevi, L'Express. Roma, 1957, pg 12



Reidy's model for MAM, with Burle Marx's design and the panorama of Flamengo Park (Burle Marx & Cia Collection)

epitomise Burle Marx's modern Brazilian landscape design, which was to gain admirers around the world for its conceptual innovations. Of the two, Flamengo Park also has the merit of having attained seamless integration between the park, the expressway and the surrounding landscape, combining aesthetic concerns with the function of improving traffic and accessibility for the great number of people living in and visiting the city.

Reidy's design for the Museum of Modern Art, Burle Marx's design, and a panoramic view of Flamengo Park

In the landscaping of the Copacabana beachfront, carried out in 1970, the beautiful design of the Portuguese cobblestones predominates, superbly organised in panels which spread over five kilometres, interspersed with clumps of native tree species capable of withstanding the winds coming off the Atlantic Ocean.

Copacabana seahore after the landfill

The conceptual and ideological precepts of Burle Marx's work are detailed in the text *Roberto Burle Marx, The Science of Perception* by José Tabacow, one of his principal collaborators, included among the annexed documents. Tabacow believes Burle Marx to have been the first Brazilian landscape designer to make systematic collections of Brazilian plant species from different ecosystems, study their potential use as landscaping plants, and use them in his projects. In this way, he achieved integration between landscaping and the natural habitat, as in

the 19th century English parks, which Glaziou had introduced to Rio in the second half of the 19th century. Burle Marx's journeys inland had a far greater significance than the mere collecting of plants; his contact with the landscapes, the local customs and colours, were a continual source of ideas, inspiration and invention. In this way, "it can be said that Burle Marx was the last naturalist of the 19th century, as, for his activities as a travelling collector, he can be compared to Saint-Hilaire, Von Martius or Gardner, among many others."[15] After a fashion he also granted continuity to the work of the botanist Glaziou.

The material results of these reconnaissance trips to discover Brazilian flora always had two destinations: the international universities and research centres which took part in them, and Santo Antônio da Bica estate in Guaratiba, Rio de Janeiro, an ecological sanctuary that Burle Marx created to acclimatise the plant specimens he had collected. It was there that he lived, studied, researched and created hybrids of plants to obtain new varieties for future use in his gardens.

This leads us to two more of Burle Marx's most important achievements:

- in Brazilian landscaping, the introduction to his projects of native species which were as yet unknown to the population or the professionals of the area, who then began to work with a much greater selection of botanical species whose adaptation had already been proven;
- the divulging of Brazilian flora through international institutions.

His activities on behalf of conservation in Brazil should also be recognised. With each new journey, Burle Marx obtained more information about the destruction of Brazilian landscapes and the environmental degradation of its ecosystems. He became a fierce defender of wildlife in Brazil.

On 4th August 2009, when the centenary of the great genius of Brazilian landscaping was to be celebrated, the mayor of Rio de Janeiro signed a decree guaranteeing the legal protection of all Burle Marx's works in the city. Since then, all his other works have been added to the first protection measures for Burle Marx's most significant and grandiose works, like Flamengo Park, the Copacabana promenade, the Santo Antônio

15 José Tabacow, interview with Abílio Guerra, in *Revista Folha*, nº 20, maio 2010

da Bica estate, and other parks, as part of the listed landscape heritage of Rio.

Burle Marx is now considered to be the man who reinvented the parameters of landscaping in the 20th century. His great contribution was not only in defying the straight line, but also in the use of planned patchworks of colour, which replaced the multicoloured flowerbeds and gardens that had been the norm until then. In 1965, the American Institute of Architecture gave him their fine art award, calling him "the true creator of the modern garden". Over the last decade, he has been heralded as a kind of hero for a new generation of landscape designers in the USA. Karen Van Lengen, Director of the School of Architecture of the University of Virginia, confirms this recognition: "Burle Marx is admirable not only for his formidable artistic technique but also for the emphasis he maintained on the scientific aspect of landscaping and the attention he paid to the relationship between plants and the surrounding environment"[16]. The artist was as well known for his botanical work as for his landscaping projects. He was responsible for naming over 50 plant species, and was one of the world's foremost bromeliad specialists. Van Lengen adds that "Marx was a Pioneer for his reverence for plants and his preoccupation with their preservation, as much as for his talent for seeing the garden as an aesthetic experiment as well as an ecological means of expression."

Burle Marx also designed some gardens for temperate climates, such as the gardens for the United Nations buildings in France and Austria. His projects grace not only the public spaces of Brazilian cities, but also the parks and avenues of other countries in the Americas, Europe and Asia.

(ii) To exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design

Rio de Janeiro is an outstanding example of a Latin American city. Colonised by the Portuguese, it is characterised by a highly complex cultural landscapes, produced from the interchange of different cultures, associated to an exceptionally original natural site.

The Rio landscape has been created over the centuries

16 In O domador urbano da flora nativa. Jornal do Brasil, Sunday, 25 January 2009, CADERNO B, Page: 5,

through the intentional employment of nature, initially to further the colonisers' economic interests. Subsequently the imposition of tropical nature and the rugged geographical contours, allied to the cultural characteristics of the men who settled there, have made its natural features the sovereign element of the city landscape, guaranteeing the maintenance of the local biodiversity to a considerable degree.

The settlement encountered by 16th century navigators was characterised by a vision of geographical ruggedness and a wealth of tropical flora and fauna, which defined it as a place of contrasts: jungle-covered mountains framing the shores of a wide, sheltered bay, and plains covered with mangrove swamps.

T. Sydenham e J. Jeakes. Circular panorama of the Bay of Rio de Janeiro. 1812. (GEYER / MUSEU IMPERIAL COLLECTION)

Initially the Portuguese invested in the exploitation of natural resources of economic value and the introduction of certain non-native plant species and domestic animals which had already been acclimatised in Portugal or its Atlantic islands. This accelerated the natural development of new species of terrestrial flora and fauna, thus overcoming the differentiation and endemism that had begun when the continents had moved apart in the distant past[17].

As early as the 18th century, market gardens and botanic gardens were created in Brazil with the intention of providing inputs for scientific and botanic investigation. The study of the local natural history by foreigners gained new impetus when the Portuguese Court moved to Rio de Janeiro and the ports were opened to friendly shipping in 1808, paving the way for some important expeditions to the city and the creation of the Royal Garden (Horto Real), followed by the Acclimatising Garden which is now the Botanic Gardens of Rio de Janeiro.

One of the legacies of these expeditions is *Flora Brasiliensis*, a catalogue which was initiated after the arrival of Carl

17 Warren Dean, in *Botanics and Imperial Politics: Introduction and Adaptation of Plants in Colonial and Imperial Brazil*, p. 2

Friedrich Philipp von Martius in Rio de Janeiro on 15th July 1817, together with a group of naturalists and scientists from the Austrian Mission that was accompanying Archduchess Leopoldina. After embarking on a number of short expeditions in the vicinity of Rio de Janeiro, they began an epic voyage of over 10,000 kilometres. *Flora Brasiliensis* was produced between 1840 and 1906, edited by Von Martius, August Wilhelm Eichler and Ignatz Urban, with the participation of 65 specialists from various countries, including Brazilians. It contains the taxonomy of 22,767 species, mostly Brazilian flowering plants (angiosperms), and consists of 15 volumes divided into 40 parts, with a total of 10,367 pages. It also contains 3,811 very high quality lithographs, many of which are minutely detailed and are of great use in identifying different species. To this day *Flora Brasiliensis* is the only complete work on Brazilian flora. Quite apart from its historic value, it is still an essential reference work for the identification of plants in Brazil and other parts of South America.

In the second half of the 19th century, a series of environmental disasters involving the coffee plantations and the pressure of urban expansion triggered new concerns about environmental preservation. The direct outcome was the reforestation of the huge swathes of land that had been used for agriculture, and the creation of Tijuca National Park. The landscaping model used in the park was pioneering in Latin America, as it catered for an environmental demand which had not as yet matured in the popular consciousness of the

Prints from *Flora Brasiliensis*[18] from the 19th century, (http://florabrasiliensis.cria.org.br/project)

18 Plate XXXI - *Artocarpus integrifolia* (jack-fruit tree), in whose shadow can be seen the bay and city of S. Sebastião of Rio de Janeiro, on the right.

era, offering attractions to visitors that were modelled on the new fashion for parks in Europe. Its guiding principles were soon disseminated in various Brazilian and American cities.

Rio de Janeiro was an exceptional open-air laboratory for the scientific study of nature. Just as it received travellers, naturalists and scholars from different parts of the world, the information and species collected here influenced botanical studies. Most of the different scholars and naturalists who visited South America held Rio de Janeiro as the fundamental base for their studies. Darwin's stay in the city during the famous voyage of the *Beagle*, and the place where he lived in Botafogo, near Sugar Loaf in 1832, left important impressions on the English traveller which contributed to his studies of tropical environments.

> "I can hardly wait for the pleasure of spending some weeks in this incredibly calm and beautiful place. What could be more delightful than to observe nature in its most grandiose forms in the tropical regions?"
>
> Darwin, 1832

The elements of the Rio landscape as a whole had a fundamental role in this exchange of influences about nature and in landscape design: Glaziou's work on Passeio Público, Tijuca Forest and the Botanic Gardens, and Burle Marx's work in the city. The city's Botanical Garden has become established as a hub of botanical studies and has taken part in an important exchange of specimens and information with different botanic gardens around the world, like Kew Gardens in London.

Roberto Burle Marx's modern landscape design and his two most important projects in the city, Flamengo Park and the Copacabana seafront, are unquestionable references which have influenced a series of projects worldwide and a whole school of landscaping whose most important references are Rio de Janeiro and Roberto Burle Marx. His work in Rio de Janeiro influenced his most important international projects, like Del Este Park in Caracas, the Garden of Nations in Austria, Peru Square in Buenos Aires, among others, besides the countless other architectural landscapes he influenced. In this sense, the modernist landscape created for Rio de Janeiro should be regarded as a major influence on international landscaping in the 20th century.

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

Since its founding, Rio de Janeiro has been recognised as one of the most beautiful settings in Brazil and the world. The exuberant natural and cultural landscape which surrounds it has, over five centuries, inspired the creation of a vast legacy of images which is almost unmatched in the world, fruit of professional and amateur artists, Brazilian and foreign alike. To these, we can include other works of exceptional quality and importance that bear witness to the experiences of travellers to the city: music, literature, films and photographs that offer different angles on the city and project the city around the world.

Rio's scenic beauty ant its enchantments

> "We soon reached the peak and contemplated this view, which, with the exception perhaps of those of Europe, is the most famous in the world. If we were to classify a landscape for the amazement it provokes, this view could certainly not be surpassed and would occupy the highest post. If we were to take into account the picturesque effect, however, it would not attain that of many others in the immediate vicinity"
>
> Charles Darwin, 25th May 1832, about Corcovado.

Rio de Janeiro is universally recognised for its unparalleled scenic beauty owing especially to the unique natural site on which the city has grown. Its rare natural beauty arises from a combination of natural features: the forest-covered mountains with their rugged peaks, the sea, the lagoon and the bay, whose mouth is guarded by two rounded peaks. The metropolis, which was for many years the biggest city in the southern hemisphere and the most important of the Portuguese and Brazilian Empire, grew up on this exceptionally beautiful site and came to develop a special relationship with the surrounding environment.

At the mouth of Guanabara Bay stand two mountains that overlook it like sentinels. One of them – Sugar Loaf – has become the city's picture postcard, having gained the admiration of all who entered the bay for its spectacular, unique nature from the very beginning of the city's colonisation in the 16th century. The bay's setting, with its back-

drop of mountains and forests intact to this day, has always impressed travellers, who have left invaluable records of their experiences, whether in manuscripts or in a wealth of iconographic material. Indeed, there are more pictures of Guanabara Bay and its mouth than of almost any other bay in the world.

As can be seen in Maps D05 and D05(A) – Visual Analysis, the exceptional interaction between culture and nature is so striking in Rio de Janeiro that it is juxtaposed in the city's three main attractions, which are known the world over for their symbolic power: Sugar Loaf mountain, with its cable car, Corcovado, with its statue of Christ the Redeemer, and Copacabana Beach. All three manifest outstanding features of unparalleled natural beauty that have been transformed and embellished by the hand of man. In this sense, the image of Rio de Janeiro which has been constructed over the centuries aptly illustrates a cultural landscape in which the interaction between culture and nature lies in the very soul of the city.

Travellers' impressions and images used on objects

From near or far, the contours of Rio de Janeiro have always sparked the imagination of travellers, who have frequently described and depicted them. Between the colonial period and the mid-eighteenth century, the city and nature were mingled in the landscape: now the citadel predominated; now the forest, rocks and salt waters of the bay dominated the scenario. Guanabara Bay surprised those who arrived here for the power and beauty of its landscape, which was confirmed by many travellers who left their testimony at different moments

The exuberance of tropical nature and the beauty of the Rio landscape attracted foreign merchants and naturalists.

Bird's eye Panorama of Rio de Janeiro. Emil Bauch and J. Vogler, c. 1870, colour print. Museus Castro Maia Collection.

Before 1808, however, travel of this kind was extremely restricted and exploring the city was prohibited, which resulted in countless depictions of the landscape made from the middle of the bay or the waters of the Atlantic Ocean. After the opening of the ports to friendly nations in 1808 and during the empire, Rio came to represent a nation in waiting. Visitors were allowed to explore the land and the images produced from then onwards reveal the internal features of the landscape and local society.

Many were the travellers who, by means of the arts or the various documents which they left us, paid witness to the exuberance of nature modelled by man – our landscape – and the different forms of culture which co-exist here, as is highlighted in the annexed text "Vistas e Paisagens" (Views and Landscapes) by Ronald Raminelli of the Universidade Federal Fluminense and that of architect Cláudia Girão on Sugar Loaf. In his conclusion, Raminelli makes a historical comment that Rio de Janeiro's landscapes reinforce the national identity and project the city worldwide.

Girão comments on the passage and impressions of various travellers, who praise the beauty of the landscape they encountered here and confirm its universal value: André Thevet in 1556; Jean de Léry; Father Jacome Monteiro, in 1610; English poet Richard Flecknoe, who came to Rio in 1649; a comment by M. de la Flotte in 1757; Friedrich Ludwig Langstedt, chaplain aboard the English ship Benjamin and Ann, in a fleet of 23 vessels that anchored in the harbour of Guanabara Bay on 29th April 1782; Rugendas, in his *Viagem pitoresca através do Brasil* (1825); Hermann Burmeister revealing his fascination for the city in 1850; Frenchman Charles Ribeyrolles, in the second half of the 19th century. It is also important to reproduce British scientist Charles Darwin's impressions of the city when he visited it in 1832:

> "... and from a height of five or six hundred feet, one of those splendid views was presented, which are so common on every side of Rio. At this elevation the landscape attains its most brilliant tint; and every form, every shade, so completely surpasses in magnificence all that the European has ever beheld in his own country, that he knows not how to express his feelings".

Another notable commentator is Austrian writer Stefan Zweig, who said, in *Brasil, País do Futuro*:

> "Everything here is harmony, the city and the sea, vegetation and the mountains, all this somehow blends harmoniously (...). Rio de Janeiro is nature that has become a city, and is a city that gives the impression of nature. And as it welcomes one grandiosely and magnanimously, it knows how to captivate from the moment of arrival - we already know that our eyes will never tire and the mind will never get enough of this peerless city".

It was also Zweig who, upon reaching Rio in 1941, recorded in his travel journal: "We are in the most beautiful city in the world!"

By the end of the 19th century, the Rio landscape was already being used in commercial objects, which appropriated the images from contemporary paintings, engravings and photographs.

The variety of uses for pictures of the Rio landscape is surprising: in the graphic arts (postcards, souvenir albums, stamps, paper money, posters and advertisements, etc), porcelain and pottery, glass and crystalware, wooden boxes and trays of butterfly wings, as well as the surprisingly frequent appearance of the landscape in murals and glazed tiles as decoration in private houses or public buildings, and on walls in bars and restaurants

Airline Posters with icons of Rio (MARTINS. 2000. 82-97)

With the production in series of new interpretations of Rio's most famous landmarks, it became increasingly well-known, both domestically and abroad. Even to this day, the continued reproduction and consumption of images of the city in various guises bears witness to the national and worldwide recognition of the beauty of its landscape, awakening in people the desire to visit and experience it first hand, which no doubt grants this cultural landscape universal value.

The universality of Rio's artistic manifestations

If on the one hand Rio's culture and landscape are the result of an encounter between different cultures, the result of this encounter has influenced different societies. From the point of view of the living traditions associated with the proposed site, a series of expressions that have emerged in the city have become known worldwide, influencing artistic expression in other countries.

Among the artistic expressions cultivated in this unique urban cultural environment are distinct ways of life and forms of religious, sporting, festive and artistic manifestations. The city is represented in film, it is the home of samba and bossa nova, two important musical genres, it has famous football clubs, street carnival and traditional New Year's celebrations at Copacabana Beach, all projecting the city's unique facets around the world.

The best known international figurative reference to Brazil in foreign feature films is without any doubt a series of images of Rio de Janeiro, as Tunico Amâncio affirms in his article, "Um contraponto imaginário: O Rio dos Estrangeiros"[19]. He reaffirms that the city retains the status of the ultimate Brazilian icon, as the result of its geopolitical roots, combined with the exuberance of a singular choreography composed of varied elements (mountains, beaches and forest), of an extremely varied historical background (capital of the kingdom, the Portuguese Empire and the Republic), and the cultural and political hub of the country. In *Flying Down to Rio* (EUA, Thornton Freeland, 1933) the image of Rio is consolidated in foreign cinema, which defines a precise model for representing it: the elegant seaside resort with a vocation for international tourism, impregnated with music, and a kind, friendly populace. Other works can also be highlighted,

19 in Martins, Carlos, Curator. A Paisagem Carioca., Prefeitura da Cidade do rio de Janeiro: Rio de Janeiro, 2000, pgs 128-133.

like Walt Disney's *Hello Friends* (EUA, 1934) which exports samba, and the erotic and relaxed nature of Rio by means of the Zé Carioca character depicted in colourful tropical drawings; or Orson Welles and his *It's all True*, with its postcard images, exploring the samba of the *favelas* and carnival among other things

Music is one of the expressions of Rio culture that is most frequently highlighted for its influence in the world. Samba and Bossa Nova are rhythms that belong to this city and are intrinsically associated to the Rio environment, landscape and way of life. They have influenced other genres, including jazz, and individual composers worldwide.

In the article "A música e a Visão do Rio"[20], Luiz Paulo Horta points out that Rio's landscape produced both daring *aesthetic musical productions* like Villa Lobos, while also permitting the blossoming of *the popular arts, like the phenomenon of carnival*. Villa Lobos, more than any other Brazilian artist, managed to overturn the barriers between musical styles, impregnating the symphony orchestra with choro and samba. However it was only with *Bossa Nova*, in the 1950s, that Brazilian music achieved the universal nature it had been denied up till then.

Dick Farney is credited with having heralded the Bossa Nova musical genre with his recording of chamber music (arranged by Radamés Gnattali, also a Modernist), the samba song *Copacabana* (by João de Barro and Alberto Ribeiro) in 1946. The formemost proponents of Bossa Nova, led by João Gilberto, were Antônio Carlos Jobim, with his dense harmonies, whose *Sinfonia do Rio de Janeiro* (also an arrangement of Radamés Gnattali) made waves in the 1950s, and who was also behind the provocative *Teresa da Praia* (both in partnership with Billy Blanco), and diplomat Vinicius de Moraes, who lent his poetic genius as of their inaugural partnership in *Orfeu da Conceição* in 1956

In 1956, no one had heard of Bossa Nova, but the apartment where Nara Leão lived, in Palácio Champs Elysée building, in the middle of Copacabana, was already the meeting point of the suntanned boys of Copacabana: Carlos Lyra, Roberto Menescal, Ronaldo Boscoli and others. The aim of Bossa Nova was to renew the rhythm, harmony and melody of

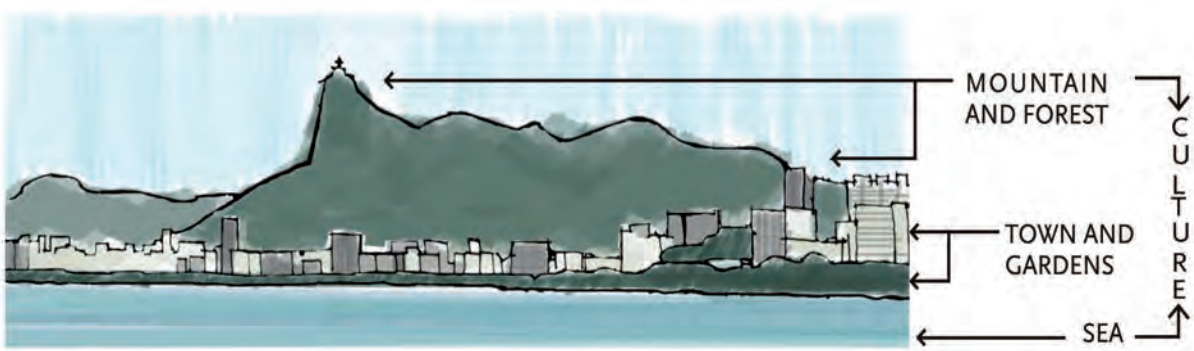
20 in Martins, Carlos, Curator. A Paisagem Carioca., Prefeitura da Cidade do Rio de Janeiro: Rio de Janeiro, 2000, pgs 160-167.

popular music, while also drawing on the influences of jazz and even the landscapes and customs of Rio's beaches. This form of melody, with its syncopation and new harmonic sequences, led to the emergence of bossa nova and a whole series of innovations in Brazilian popular music

When Carnival was imported from Europe by the colonisers, it was changed into something quite different and unique to Rio. It is so much associated with samba and the samba schools that it has become a symbol of carnival all over the world, influencing carnivals in many other places. Today, there are samba associations that organise carnival processions in cities like London, Vienna, Paris, Warsaw, Rome, Berlin, Dublin, Tel Aviv, Ovar, Toronto, Buenos Aires, Montevideo, and Santiago. Tokyo has an association with 20 samba schools (http://aesa-samba.jp). The carnival created in Rio de Janeiro has influenced and transformed the way carnival is celebrated in different parts of the world.

III.B. STATEMENT OF OUTSTANDING UNIVERSAL VALUE

The three criteria described above, alongside the authenticity and integrity of the Carioca landscape, are testament to the outstanding universal value of the proposed site. It is an exceptional example of a natural landscape that has developed over half a millennium from the interactions brought about by human settlements and the development of the city. It epitomises the sharing of human values, having given rise to an extraordinary set of urban public landscapes, composed of gardens, parks and protected natural landmarks whose natural scientific significance and cultural associations grant them unique value worthy of being shared by all humankind from every generation in the present and the future.



Rio Landscapes between the Mountains and the Sea

Following the arrival of the Portuguese Court in Rio de Janeiro and the opening of the ports to friendly shipping in 1808, important scientific expeditions came to Rio that contributed towards building up a body of knowledge about biodiversity in tropical lands. The Botanical Gardens presented an in-situ transformation of the landscape in quite a unique way. Unlike their European counterparts, where the plant collections were kept in glasshouses, the huge collection of plants brought to the Botanical Garden of Rio de Janeiro from around the world were, and still are, grown in the open air.

Scientific knowledge of the native plant life, allied to the romantic ideals prevalent in the second half of the 19th century, brought with them increased concerns about environmental preservation. One direct consequence of this was the expropriation of old farms inside the Tijuca massif in order to make way for reforestation, resulting in an urban forest of unique features.

Old farms in Tijuca Forest

In no other city in the world did the legacy of scientific knowledge acquired from the work at the Botanical Garden or the expeditions to the Tijuca Forest become the basis and inspiration for large-scale urban landscaping projects such as those seen in Rio de Janeiro. In the first centuries of their existence, they supplied travellers and scholars with important data for the study of the tropical environment, which served as a basis for research in Europe and other continents. The Botanic Gardens, which functioned as an acclimatisation garden, were at the heart of the scientific enquiry that accompanied Portugal's colonial enterprise, and were equally important during the Brazilian Empire, serving as a great example of scientific exchange between the temperate world and the tropical world.

The way man has appropriated the exuberant wildlife in the area of the proposed site is itself outstanding. The man-made transformations of the landscape, the mountain and the seafront and the way they have been conceived and occupied have made the city a point of reference the world over. This is especially true of certain landscaping projects, starting with the introduction and adaptation to the tropics of European ideas in the 18th and 19th centuries, as witnessed by the reforestation of the Tijuca massif and its subsequent transformation into an enormous forested park. This was followed by the design of Passeio Público and Paris Square, and then, more recently, the development of a school of modern landscaping which grew up around Roberto Burle Marx and spread throughout the world, the main examples of which are the designs for the Copacabana seafront and Flamengo Park.

The quality of the successive interventions made over the course of time to a site of such great beauty has earned the landscape heritage of Rio de Janeiro city international recognition. As a colonial capital at the end of the 17th century, Rio de Janeiro was endowed with the first public urban space in Brazil, Passeio Público, designed by a leading artist of the day, Mestre Valentim da Fonseca. It served as a model for several Brazilian cities, confirming Rio as a model for development.

In the second half of the 19th century, Rio de Janeiro, now the Imperial capital, had the honour of receiving the notable French botanist and landscape artist A.M.Glaziou, who introduced the prevailing English conceptions of garden design, which were beginning to take on in other parts of Europe, including the parks included in Haussmann's reform of Paris. Thus, once again, Rio was the recipient of foreign influences that were innovative even for European standards. In a very short space of time, the influence of Glaziou's work was felt in other Brazilian and American cities, which confirms the universal value of his work. At the beginning of the Republican period, Rio de Janeiro was the scenario for major modernising projects: the public spaces thus created perpetuated the model introduced by Glaziou.

This legacy influenced Burle Marx, who is acknowledged worldwide for having melded in his work an extraordinary artistic talent with a profound knowledge of Brazilian flora. This knowledge was gained partly from research he undertook in his own "private botanic garden", Santo Antônio da Bica estate, covering 365,000 m2, and partly from field trips to different Brazilian ecosystems to gather species. From the 1930s on, Roberto Burle Marx was constantly engaged in projects that not only earned him international standing, but garnered Rio de Janeiro worldwide recognition for its outstanding cultural landscape.

The cultural landscape of Copacabana

The natural elements of the landscapes, which are reflected throughout the world as symbolic values and associated images, have served as inspiration for artists, architects, town planners and landscape designers throughout the ages. There are countless representations of the escarpments of Sugar Loaf and Corcovado, with its statue of Christ the Redeemer; the mouth of Guanabara Bay, with its old fortresses built to assure the bay's defence; and, more recently, the outstanding landscapes of Flamengo Park and Copacabana Beach, which together make up the Carioca landscape.

The transformations of Copacabana beach – its design, enlargement and planning to accommodate crowds – well reflect the ideal that spread around the world over the course of the 20th century that the beach is the epitome of leisure and pleasure-seeking. They also gave impetus to the incipient beach culture, helping make Copacabana beach itself a world icon.

Rio's unique culture developed within this landscape and is intrinsically linked to it. Certain aspects of its culture have spread throughout the world, especially its music. Bossa Nova was born in Copacabana, while samba is present in the biggest festival in the city, Carnival, which has been a blueprint for other carnival festivities, with samba schools and parades now a fixture in every continent.

The outstanding universal value of Rio de Janeiro's cultural landscape is therefore granted by a whole set of outstanding ways in which man has interacted with the natural environment, all of which can be found in combination today in an urban site which represents one of the world's greatest cities. The values are embedded in the studies of the natural environment and botanical experiments which formed the bedrock of the colonial experiment in establishing a society in the tropics, best represented by the Botanic Gardens and Tijuca Forest. They can also be seen in landscape designs that became an inspiration the world over, as in Glaziou's and then Burle Marx's gardens, and in the development of recreational and leisure activities involving the environment and places for enjoying the scenery, as epitomised by the public parks and, above all, the ideal of the beach whose most compelling icon is Copacabana.

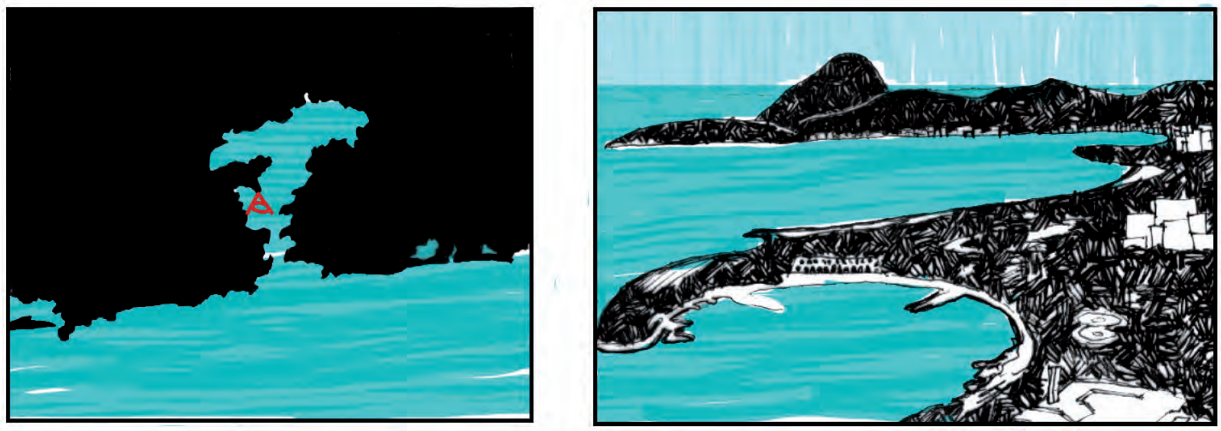
Rio de Janeiro's cultural landscape deserves to be recognised as world heritage as much for the pioneering spirit behind its development as for its great formal qualities, its social, cultural and environmental functionality, and its historical importance.

III.C. COMPARATIVE ANALYSIS

AltAlthough Rio de Janeiro shares some of its features with other urban settings, the way they come together is extraordinarily original. The centre of the city is dominated by a forest, which is probably unique in the world. The differences and the originality of the cultural landscapes of Rio, with its combination of natural and human factors, clearly come to light when we compare it with other cities.

Some places come to mind: Sintra in Portugal; Buenos Aires in Argentina; Cape Town in South Africa; Naples in Italy, São Francisco and New York in the USA, Hong Kong in China. These all have some features in common with the cultural landscape of Rio de Janeiro, having successfully overcome the challenges inherent to human settlement and adaptation, and involving, as they do, people from quite distinct cultural roots in natural sites of great morphological and biological diversity, with impressive experiences of conquest and preservation at the same time.

In the comparison of botanic gardens the Botanic Garden (Orto Botanico) of Padua, The Royal Botanic Gardens, Kew and the Botanic Garden of Rio de Janeiro are described as centres of scientific research. The difference between the two foreign gardens and Rio's is the influence the latter had on the development of the city's cultural landscape.

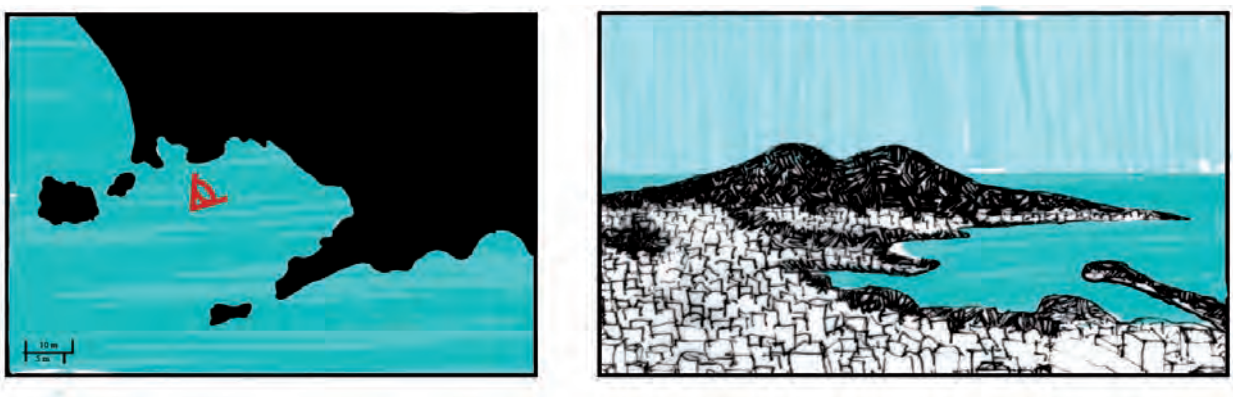


Map And Panorama Of Rio De Janeiro Bay

It is possible to compare Rio de Janeiro with Cape Town or Naples, which also have landscapes featuring bays and mountains. In Rio, there are several outstanding mountainous features, such as Sugar Loaf, Corcovado, Pedra da Gavea and Dois Irmãos. What makes it different is that much of the urban area is covered with tropical forest, right in the heart of the city; a truly unique characteristic.

Map And Panorama of the Bay of Cape Town

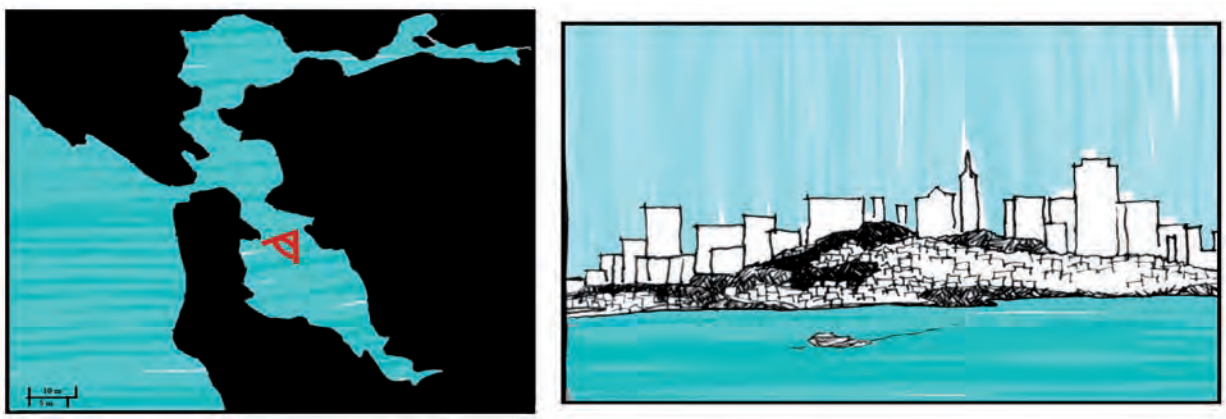
Cape Town's main landmark is Table Mountain, which, like Tijuca Mountain in Rio de Janeiro, reaches over one thousand metres in altitude (1,086m and 1,024m, respectively). Like Rio, Cape Town also has a popular national park with great biological diversity, which has already been listed as world heritage. As regards the site, Cape Town also grew up on a strip of land between the sea and the mountain. It does, however, have very predictable contours, a legacy of the Dutch and then the English colonisers.



Map and Panorama of the bay of Naples

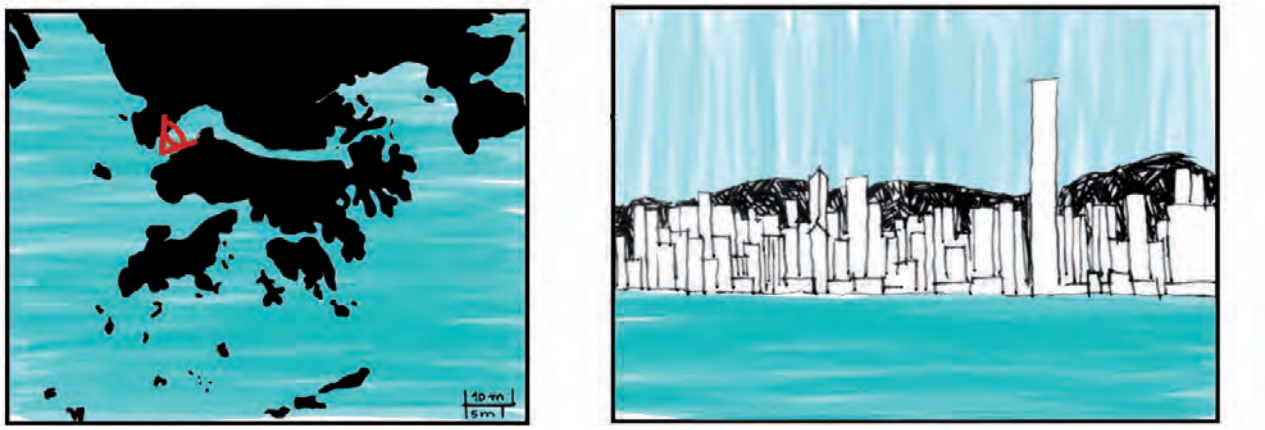
The outstanding characteristic of Naples, Vesuvius, reaching 1,281 metres high, is not included in the site classified as world heritage, which only covers the old town. Its botanic gardens are also hemmed in by buildings, unlike the Rio de Janeiro gardens, which border on Tijuca Forest to the west, making them particularly interesting for scientific research into Atlantic Forest flora.

Hong Kong, San Francisco and Buenos Aires are also examples of bay settlements. The difference is that they developed in fairly regular patterns along a relatively smooth shoreline.



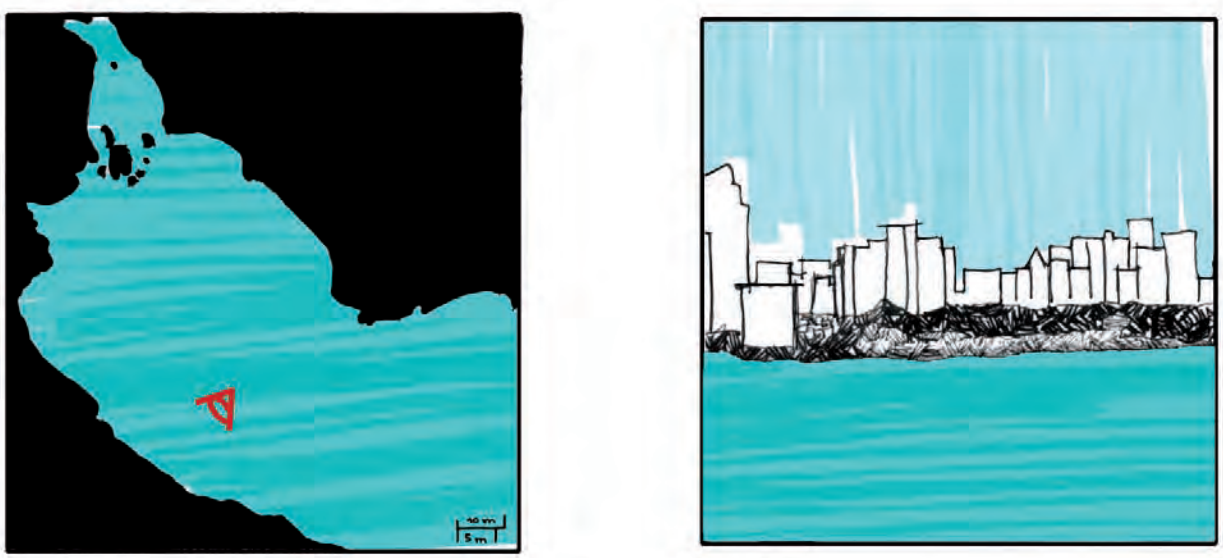
Map and Panorama of the Bay of São Francisco

Hong Kong has parks on its hilltops, but the views are obscured by the skyscrapers around them, as they only go up to 400 metres above sea level.



Map and Panorama of the Bay of Hong Kong

As regards the two South American cities, they have some aspects that are alike when it comes to their social, economic and cultural processes. Both the result of Iberian colonisation, they developed into important ports that exercised control and influence over an enormous hinterland, and became the power centres of the civilising process of the New World. Both underwent European-inspired modernising reforms at the beginning of the 20th century. The Haussmann model of development prevailed in both cities, combined with the pervasive influence of Alphand's landscaping, brought to Brazil by Glaziou and to Buenos Aires by C. Thays.



Map and Panorama of the Bay of Buenos Aires

Today, both cities are poles of cultural diversity, having received the influence of many different peoples since they were first colonised, although in Buenos Aires the influences have been predominantly European, whereas Rio de Janeiro also has a strong African legacy. While the beaches are the focal points for socialising in Rio de Janeiro, it is the parks and cafés that play this role in Buenos Aires. There is little to compare between the physical sites of the two cities: the climate in Rio is tropical, it has a far more varied topography, and boasts a rich exuberance of vegetation and forest. There is greater evidence of interaction between man and the natural environment in Rio de Janeiro than in Buenos Aires, owing to the very characteristics of the site and the popular customs.

Rio de Janeiro and New York have certain similarities, as both cities are seen as cultural melting pots whose distinctive characters are revealed through the vitality of their urban culture. It is possible to draw analogies between Flamengo Park and Riverside Park (since its extension by Robert Moses), where the recreational nature, waterside location and passing expressways are representative of the mobility and velocity that are the hallmarks of modern town-planning.

Riverside Park was originally built on the banks of the Hudson River, between 72nd and 125th street, between 1875 and 1910, based on drawings by Frederick Law Olmsted that were inspired by an English landscape ethos. Only in 1937, under the administration of Robert Moses, were areas developed for recreation activities and for contemplation of the river. In 1980, the park was designated part of the Scenic Heritage of New York City.

Panorama of Riverside Park taken from The Hudson River

Schematic map of riverside park in new york

The design of Riverside Park however, does not share the singularity of the town planning and landscaping of Flamengo Park, whose modernist plan incorporates it harmoniously into the city landscape, with organic lines reflecting the curves and contours of the Rio coastline. Flamengo Park was listed in 1965, before the New York park.

Another point in common between the two parks is the recognition of their creators. While in 2009 Brazil commemorated the centenary of Burle Marx, who was honoured in a series of exhibitions and events in different Brazilian towns and cities, New York is holding an exhibition entitled "Robert Moses and the Modern City – the Transformation of New York" in New York city.

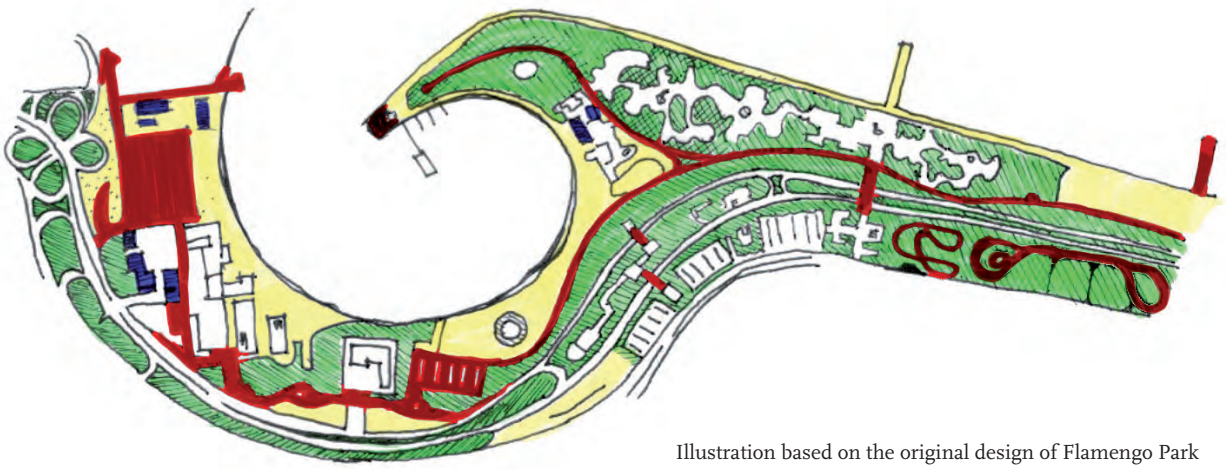
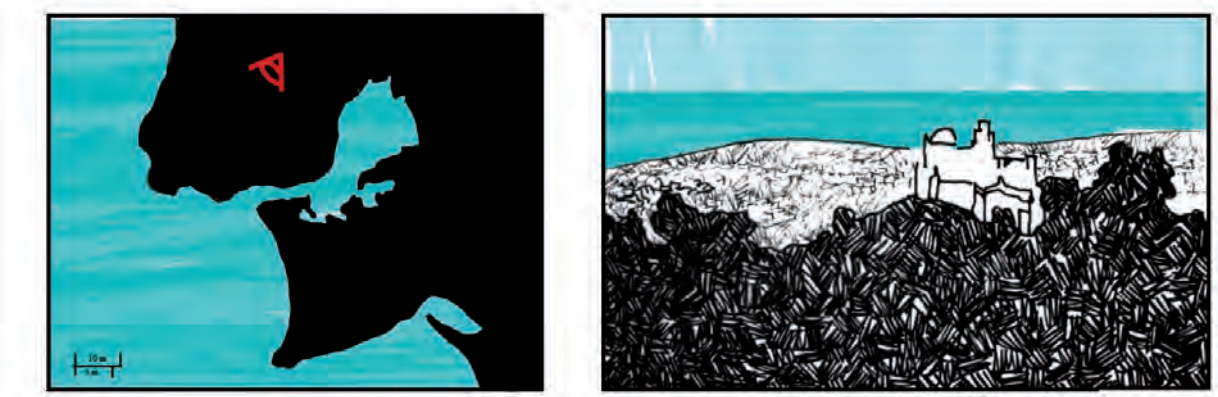


Illustration based on the original design of Flamengo Park

In Rio and Sintra, the social and political environment in Portugal and Brazil during the Second Kingdom favoured the implantation of the same landscaping style inspired by the Romantics, as well as reforestation. The third biggest urban forest in the world, Tijuca Forest, shares some similarities with the cultural landscape of Sintra, west of Lisbon in Portugal, thanks to the reforestation which took place in both locations.



Map of the Coast of Portugal and Panorama of the Sintra mountain range

Reforestation in Rio took place under the orders of Dom Pedro II in 1861, while in Sintra, his brother-in-law, Dom Ferdinand II, transformed the ruins of Nossa Senhora da Pena Convent into Pena Palace, creating the park around it. These days the landscapes of Sintra Park and Tijuca Forest are seen as contemporary works that drew on the same inspirations and forms, which probably influenced the development of landscape architecture throughout Europe.

Comparison of Botanic Gardens

The Botanical Garden of Rio de Janeiro was created in 1808 by Dom João, Prince Regent and later King of Portugal, Brazil and the Algarve. The central idea was to create a scientific research centre, adopting the European concept of the botanic garden. More specifically, the main objective was to acclimatise spices from the East Indies for use in large scale agricultural projects in Brazil.

The world's first botanic garden in Padua, in the Veneto Region of Italy, was created in 1545 as a centre for scientific research. As stated by the World Heritage Committee, which declared this cultural site a World Heritage Site in 1997, "it is the original of all botanical gardens throughout the world, and represents the birth of science, scientific exchanges, and the understanding of the relationship between nature and culture. It has made a profound contribution to the development of many modern scientific disciplines, notably botany, medicine, chemistry, ecology, and pharmacy". (http://whc.unesco.org/en/list/824and ICOMOS Evaluation, September 1997).

The Royal Botanic Gardens, Kew, located in the London borough of Richmond upon Thames, was inscribed in the World Heritage List in 2003 as a cultural landscape. "Since their creation in 1759, the Botanic Gardens of Kew have been closely associated with scientific and economic exchanges established throughout the world in the field of botany, and this is reflected in the richness of its collections," (http://whc.unesco.org/en/list/1084). During the 19th century exchange programmes were set up between the Rio Botanic Gardens and Kew, and collections of Brazilian plants where sent there to be studied.

The distinction between Kew and Padua, both listed as World Heritage, and the Botanical Garden of Rio de Janeiro, goes beyond a simple comparison of proportions. Padua, the smallest, has a well-preserved area of 2.2 hectares, Kew has 132 hectares, while Rio de Janeiro has 137 hectares, divided into 53 hectares of arboretum and 84 hectares of forest reserve. Its universal value derives from the fact that most of its collection of living plants are in-situ, and that a large part of its area is covered with tropical rainforest, which provides a fitting environment for educational programmes focusing on scientific research in biodi-

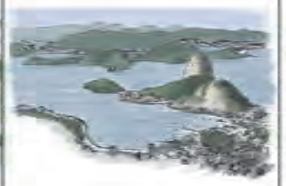
versity. The findings of the scientific research carried out at the Botanic Gardens since their creation in the 19th century can be observed in the city's different landscapes, particularly those encompassed by the proposed site: from the reforested areas and romantic gardens of Tijuca National Park to the modern gardens and landscapes that Burle Marx designed for Flamengo Park and the Copacabana seafront.

A large number of researchers graduate every year from the post-graduate programme in botany offered by the National School of Tropical Botany, the teaching arm of the Rio de Janeiro Botanical Garden Research Institute. The aim of the master's and doctoral programmes is to support the mission of the Rio de Janeiro Botanical Garden Research Institute (JBRJ), a study centre devoted to developing knowledge about botany and the environment through the conservation and study of national flora. The institution also has programmes for environmental education, the husbandry of existing collections, support for the creation of new botanic gardens and the maintenance and enhancement of conservation action in current National System of Conservation Units. Its academic staff, all with doctoral degrees, engage in research, teaching and supervising young scientists. The institute is renowned in the national and international scientific communities for its active involvement with environmental and scientific societies, and its partnerships with public institutions of learning.

III.D. AUTHENTICITY AND INTEGRITY

Divided into four components that contain five key features of the landscape, the proposed area expresses the attributes of authenticity and integrity, as shown by the following table:

TABLE AUTHENTICITY AND INTEGRITY

FEATURES		 1. Tijuca National Park	 2. Botanical Gardens	 3. Flamengo Park	 4. Entrance to the Bay: Historical Fortresses, Shugar Loaf & Botafogo Bay	 5. Copacabana Beach Front
AUTHENTICITY		Utilities and Functions Preserved: environmental, social, leisure, touristic and scientific	Form, Utilities and Functions Preserved: social, leisure and scientific	Form, Conception, Usage and Functions Preserved: social, leisure and touristic	Location, Utilities, Significance and Touristic Functions Preserved	Form, Conception, Usage, Significance and Functions Preserved: leisure and touristic
INTEGRITY	FUNCTIONAL SOCIAL	Public usage guaranteed	Public usage guaranteed	Public usage guaranteed	Public usage guaranteed	Public usage guaranteed
	MATERIAL ESTRUCTURAL	To observe the reorganisation of TV Aerials in the Management Plan	To observe the limits of the capacity for the arboretum in the Management Plan	To observe the organisation of the flow, relationship of the shoreline with the park and restoration of green areas in the Management Plan	To observe the plan for cleaning up Guanabara Bay and renovation of the Forts in the Management Plan	To observe the use control of public spaces and restoration of mosaic works in cobblestones in the Management Plan
	VISUAL AESTHETICS	Forest mass imposes itself on the landscape	Notable original neoclassical features preserved	Urban landscaping plan preserved	Urban evolution has not affected notable natural features	Urban landscaping added values to the beachfront
	SIGNIFICANCE	Presence of the forest in the urban area guaranteed environmental significance	Social and scientific significance preserved over time	Significance of the landscape preserved	Icons of the city preserved over time	Landscaping added iconic values to the city image

The site's authenticity is confirmed by its features. In all of them we can observe the authenticity of their features and the maintenance of their public, social and leisure uses as originally established:

- Areas belonging to the Brazilian Government transformed into parks, like Tijuca National Park, Flamengo Park and Sugar Loaf Natural Monument;
- Areas of public domain under the supervision of the National Institute for Historic and Artistic Heritage (IPHAN), like the forts at the mouth of Guanabara Bay and the Botanic Gardens of Rio de Janeiro, or by the State Institute for Artistic and Cultural Heritage (INEPAC), as in the Portuguese cobblestone mosaic by Burle Marx on Copacabana Beachfront.

The attributes of form and conception can be attributed to the intentionally designed landscapes, which add universal value to the proposed site for their by its outstanding quality and integrity.

- The Botanical Garden has retained their original neoclassical design with its geometrical avenues, and their special characteristic of the imperial palm trees, conferring spaciousness to the setting over the two centuries of their existence. The forest reserve, which is used for research activities, is the other feature that makes this element of the site so outstanding.
- Flamengo Park, which, "as one of the most successful accomplishments of modern urbanism and landscaping, frames the great blue seascape of Guanabara Bay in green, for those who race by on its high-speed auto-routes, as well as offering charming recesses for those who walk around it.[21]"
- At the mouth of Guanabara Bay, the military engineers' plans for the historical forts are proof that they still preserve the original defensive features in their architecture, today serving as tourist and cultural attractions.
- Copacabana beachfront, in the landscaping of Burle Marx's panels, was constructed by means of the traditional Portuguese technique of mosaic work in cobblestones, giving the impression of a painting peopled by bathers and pedestrians. The pattern of the wavy beach mosaic was maintained in the new landscape, given a 90° turn and further broadened to prolong the sensation of the waves which break on the beach beyond.

21 Cavalcanti, Lauro & El-Dahdah, Farès, ed. *Roberto Burle Marx 100 anos: A Permanência do Instável,* Rio de Janeiro: Rocco Editora, 2009, p.57

The attribute of significance, expressed in the authenticity of the features below confirm criterion vi:

- The mouth of the bay, with Sugar Loaf and the other observation points, landmarks associated with the representation of Rio de Janeiro city ever since the first colonisation.
- Copacabana Beachfront – the pattern Portuguese cobblestone mosaics mimicking the waves of the sea is an internationally known hallmark of Rio de Janeiro as a model seaside resort in the tropics. The beach culture which has developed there since the 1920s, when the first hotel was opened, has been the main driving force behind the occupation of the district, establishing a pattern of behaviour which has been copied in the rest of the country.

The authenticity of the site is evident from its social, cultural, creative and scientific attributes, which, in combination, make up the unique mosaic that is the Carioca landscape.

Social, scientific and archaeological authenticity

One of the main drivers behind the creation of the features in the site and their continued maintenance by successive governments has been the public and social use of the land:

- The maintenance of the Botanical Garden over the centuries, where the preservation of the scientific research activities has gone beyond merely maintaining the original remit of the gardens, which was fundamentally the acclimatisation of exotic species for use in the Portuguese colonies, to make it an internationally recognised institute for the teaching and research of botany, training researchers and professionals for work in Rio de Janeiro and other cities in the preservation of tropical biodiversity;
- Upon expropriating the lands on the Tijuca and Carioca massifs, the imperial government transformed private properties, which had been used as farms for the production of coffee and other crops, into an enormous park open to the general public. It also brought the environmental and social benefits that resulted from the re-establishment of the dense forest that had originally been one of the main geographical features of this tropical city. The archaeological authenticity of the site is witnessed by the archaeological remains of the old farms have been preserved in the midst of the reforestation. - The preservation of the natural characteristics of the mouth of Guanabara Bay and the first constructed landscape, dating from the 16th century, at the water's edge, with

its historic forts built for the defence of the Brazilian coast. These constructions keep the memory of the past alive and preserve the Portuguese colonial images of a tropical and idyllic nature which became known around the world thanks to the work of artists of different nationalities on board the ships taking the southern and northern shipping routes that stopped at Rio;

- Following successive reclamations of land from Guanabara Bay in the 20th century, the land bordering the bay was transformed into a great public park with gardens and modernist architectural features. The result was that what could have been an environmental disaster actually enhanced the city's landscape. After the rubble was cleared away, 11,600 trees from 190 different species, both indigenous and exotic, were planted. The 4,400 palm trees from 50 different species include rarities like the talipot (Corypha umbraculifera), which only flowers once and then dies. The park is also tremendously beneficial from a social point of view, with hundreds of people making daily use of it for walks, outings, leisure and sports. Even before its inauguration in 1965, it was declared part of Brazil's national heritage by the Institution for Historical and Artistic National Heritage of the time (Serviço do Patrimônio Histórico e Artístico Nacional, or SPHAN), thus guaranteeing the perpetuity of the original project with its public access and social dimension.

Creative and cultural authenticity

Creativity is a hallmark of the Rio culture. At different times in its history, the people who have settled here have managed to translate external values and influences into cultural patterns, adapting them to the tropical city. This is how Rio's landscapes have emerged, as in the work of Burle Marx, who used his creativity and artistic perception in his projects for urban parks and gardens. They are marked by his masterful experiments with colour, texture and light, the shapes and shadows of the tropical city and the use of stonework and kinds of flora never before employed in traditional landscape gardening. The consistency of his creative vision can be seen in the transposition of the designs in his paintings from the canvas to the garden, as in the Portuguese cobblestone mosaics on the pavements of the Copacabana beachfront. Here, geometric figures are formed on the pavement like designs on a tablecloth, painting or modern composition, or the panels of coloured tiles at his estate, Santo Antônio da Bica. This feature is also part of the gardens around the Museum of Modern Art, which stands inside Flamengo Park, where the Portuguese cobblestone mosaics mimick-

ing the waves of the sea seen on the pavements in Copacabana become waves in the lawn, produced by using two different coloured grasses.

The integrity of the property can be observed in the importance and functionality it holds in the life of the city. Various environmental and cultural heritage protection measures have been taken since the 19th century, as in the reforestation of Carioca and Tijuca mountain ranges, which brought environmental benefits to the city and transformed the people's relationship with many of the features of the landscape within the site.

Tijuca National Park, the Botanic Gardens and Flamengo Park play a crucial role in maintaining an environmental equilibrium in the city. They were conceived by the exchange of values and ideas between foreigners and local professionals and researchers, who successfully translated the imported influences to the local environment and setting. The natural regeneration of the forest is of particular note, as it is considered one of the most successful projects of its kind in the world, making Tijuca National Park the only Brazilian park which stands entirely within an urban area.

Part of the prestige and infrastructure boasted by the Botanic Gardens of Rio de Janeiro comes from the fact that its forest reserve is directly linked to the forest, providing a propitious environment for studies into the preservation of local biodiversity. It establishes the model of urban design where nature remains present in the heart of the city, creating an interface between nature, the city and man, which only enhances the quality of life. The designs for Flamengo Park are another example of this model, in which the integration between the newly created landscape, the existing cityscape and public utility was the central pillar of the modernist project.

The transformations which occurred were based on maintaining the essential factors for their conservation, their functional, material or aesthetic vision, or the significance attributed to them. Some areas need some conservation work, or would benefit from renovating their original characteristics or even adjusting the protective legislation, but they maintain the general state of integrity necessary to characterise the property as World Heritage. The aforementioned procedures are included in the Management Plan for the site.

IV. CONSERVATION AND FACTORS AFFECTING THE PROPERTY

IV.A. PRESENT STATE OF CONSERVATION

IV.A.1. Component 1, 2 and 3 – The Mountain, the Forest and the Garden

This sector is represented by Tijuca National Park, including Lage Park, and the Botanical Garden of Rio de Janeiro.

Tijuca National Park

The reforestation of Tijuca massif in the nineteenth century after the original forest had been cut down for coffee plantations is considered a successful example of natural forest regeneration. It formed the basis for the creation of Tijuca National Park on July 6th 1961. In 1991 it was included in the area of Brazilian land declared to be a Biosphere Reserve, in recognition of its importance to the equilibrium of the global ecosystem.

This is the only national park in Brazil which is entirely within urban confines. The forestland in the park and adjacent areas is important for reducing air pollution and making the climate in the city less harsh, while also playing the crucial role of sustaining the hillsides of Tijuca massif.

All the roads within the park are surfaced and in a good state of repair. There are signposts pointing out the main facilities and places of interest.

The rules for the use of the National Park and activities within it vary according to the area in question:

- Tijuca Forest: as landscape designers Glaziou and Burle Marx were involved in its planning, there are many well-equipped areas suitable for picnics, children's recreation, resting and contemplating the scenery. Walks can be taken along existing trails, most of which date back to the 19th century, when they were used by farm dwellers and members of the ruling class. The mountaintops that attract the most rock climbers are Papagaio (989 m), Tijuca (1,021 m) and Conde (821 m), all of which provide bird's-eye views of the city. The area contains the park's main natural resources: caves, waterfalls, lakes and viewing points, as well as three restaurants: *Cascatinha, A Floresta and Esquilos*. This is the area that most visitors come to, which also makes it the area that absorbs the most investments for its conservation.

- Carioca mountain range: with roads in a good state of repair, this mountain can be visited on foot or by bicycle. The most popular road for such activities is Estrada das Paineiras, especially on Sundays and bank holidays, when it is closed off to motor vehicles and has reinforced policing. There are several waterfalls along the road which are popular with visitors. A number of tracks cut through the area, giving access to different parts of the park and linking them up to different points in the city. The greatest number of viewing points are here, the best known being Corcovado, Vista Chinesa – marked by its pagoda in tribute to the Chinese who once grew tea there – Paineiras and Dona Marta. The last of these has a heliport where tourists can take sightseeing flights. Corcovado has the greatest concentration of facilities: a train station, shops, a restaurant and snack bar. At Paineiras, a handsome building dating back to 1884 was once a top-end hotel. Now, plans are underway to restore it, while also redesigning the parking area and exit from the Corcovado transport system, organised by the National Park administration in partnership with IAB-RJ;
- Bonita and Gávea peaks (Pedra Bonita and Pedra da Gávea): Facilities have been installed here for the main group of visitors: hang-gliders. Trained guides can also be hired to accompany people on walks and climbs to the top of both peaks.

Lage Park (Parque Lage) was formerly the home of Henrique Lage. The grounds were given a romantic design in the 1840s by Briton John Tyndale, and their original features remain to this day. The family home was rebuilt in the 1920s in an eclectic style and is kept in a good state of repair. For 34 years it has housed the School of Visual Arts (Escola de Artes Visuais), which is run by the state government and has spawned some artists of international standing from among the many students who have passed through its doors. It currently has some 650 students. As Parque Lage contains a significant area of vegetation contiguous to Tijuca National Park, it and all its buildings were expropriated in 1976 by the federal government and annexed to the park. It is one of the most visited attractions in the city.

The Botanical Garden of Rio de Janeiro

The Botanical Garden (Jardim Botânico) was created to house a gunpowder factory and for an acclimatisation garden, where Brazil's first ever scientific research was undertaken. Initially, it was only used for studies into the adaptation of exotic species, but these were

followed by experiments on native species in a research tradition which now boasts international recognition.

The gardens occupy 137 hectares, nestled in Jardim Botânico district between Tijuca massif and Rodrigo de Freitas lagoon. Only the arboretum, occupying 53 hectares of the total area, is open to the public. The rest joins on to Tijuca National Park and is used exclusively for preservation and research activities. The garden's administrators focus their efforts on maintaining and conserving the arboretum, as it is the only part which can be visited, and contains living collections with some 8,000 species from different parts of the world. The arboretum also has some areas devoted to particular kinds of vegetation that are also open to the public: a bromeliad house, an orchid house, a medicinal plant garden, a sensory garden, an insectivore house and a cactus garden.

In order to ensure that the arboretum is maintained in the best possible conditions, there are two conservation departments: one for conserving the greenery and the other for the living collections. As a result of the dynamics of the institution, whose permanent collections are already an attraction and which also actively promotes new features for the visiting public, one long-standing concern is how to control the garden's capacity when large-scale events are held, for the high numbers of visitors to some areas of the arboretum could have a negative impact.

The arboretum's infrastructure is flexible and large enough to meet the needs of visitors and researchers alike, offering environmental education for the public and employees as part of a broader thrust to raise awareness about environmental issues, and to foster the acquisition of new knowledge, values, skills and experience in solving environmental problems.

The Botanical Garden also offers other services, including the cultivation of saplings in the nursery, giving precedence to species endemic to the Atlantic Rainforest and other threatened species. Its main functions are to propagate and represent plant species, provide on- and off-site conservation services, and to divulge the use of new technologies. The area in question is adjacent to the arboretum and its working priorities are set in compliance with national standards:

- public demand for the purchase of saplings and provision of guidelines for planting, urban tree-planting and recovery of degraded areas, always ensuring that the selected species are from the ecosystem that is to be regenerated;
- introduction and replacement of species in the arboretum;
- scientific exchange with sister institutions;

- donations;
- agreements with other institutions.

IV.A.2. Component 4 - Mouth of Guanabara Bay and Manmade Shorelines

This sector includes Flamengo Park, the area including the forts at the mouth of Guanabara Bay, reaching to Copacabana beach and its rounded rocks (Leme hill, Copacabana fort and Arpoador spit).

Flamengo Park (Parque do Flamengo)

As is the case of Passeio Público and the seafront in Copacabana, Flamengo Park is administrated by the Rio de Janeiro city council. The park stretches from Santos Dumont airport as far as Viúva hill, alongside the new beach that was created when the land the park is on was reclaimed. It is the largest and best equipped leisure area in the city. Mounds on which stand clusters of tree species of different sizes and textures provide colourful blossom the whole year round, offering the perfect backdrop for different activities.

Forming a harmonious transition between the city and the seafront, Flamengo Park provides views of the spectacular natural landscape framed by the hills and Guanabara Bay, as well as of the varied architecture in Flamengo district, with its apartment buildings from different periods in different styles, topped at one end by Our Lady of Gloria church (Igreja de Nossa Senhora da Glória). The gently curving design of the footbridges over the expressway melds in with the overall visual experience.

The urban and landscape design of the park was predefined to a certain extent by the planned route of the expressway and the water's edge. Between the beach and the lanes leading from the south zone to the centre are most of the leisure and cultural facilities, including a promenade, a cycle path, multi-sport courts, playgrounds, the Museum of Modern Art and the monument to the soldiers who died in the Second World War. The football pitches are in the inner section of the park. Comprehensive signposting informs visitors about the facilities and services on offer.

The park's biodiversity, with its extensive birdlife attracted by the blossoming trees, is enriched by seasonal visits by other species from more distant green areas. Most of the plant species originally planted have adapted well to the local conditions, despite the problems inherent to reclaimed land and the strong, salty inshore winds. The adaptations and additions made to the park include Glória Marina,

which the local authority opened as a venue for nautical activities, sporting events and even international level exhibitions.

The Museum of Modern Art was built prior to the park. Its grounds were specially landscaped to offset its award-winning architecture, designed by Affonso Eduardo Reidy, and ensure the perfect integration of the manmade structure with the natural beauty outside.

Protected Fortified Landscape at the Mouth of Guanabara Bay

Alongside Corcovado with its statue of Christ the Redeemer, Rio de Janeiro's main picture postcard is Sugar Loaf (Pão de Açúcar) and the adjoining Urca hill. Their listing by the federal heritage agency in 1973 provided institutional recognition of their cultural value and importance to the landscape.

Their main attractions are: cable cars to the top of the hills, with organised viewing areas, Cláudio Coutinho promenade (1,250 m), which is an easily accessible walk around the base of Sugar Loaf, several paths to hike up the hills, and rock-climbing.

Since 1913 there have been two cable cars in use: one from Praia Vermelha beach to Urca and the other from Urca to Sugar Loaf. In the 1960s, the system was updated and the tops of the hills were redesigned. New recreation and leisure facilities were added, including bars, restaurants and souvenir shops. The panoramic view from the top of Sugar Loaf (Pão de Açúcar)also overlooks the mouth of the bay.

In the 1980s, the Rio de Janeiro state authority introduced a comprehensive reforestation programme for both hills, which has been continued with the help of community groups, which created the Sugar Loaf (Pão de Açúcar) and Urca Municipal Park. Both hills boast rich biodiversity, with plant life that is well adapted to the strong winds and sunshine and high levels of salinity. There is a proliferation of rare and threatened bromeliads and orchids which are well suited to the steep hillsides.

São João fort was built on the top of Cara de Cão hill, at the same place where Rio de Janeiro was founded in 1565. Aside from three small forts, the complex includes São José fort, the third oldest in Brazil, founded in 1578. Scheduled visits can be made to the fort.

The set of hills on the east side, the chief of which is Pico, with its four forts – Santa Cruz da Barra, São Luiz, Pico, Rio Branco and Imbuí – was used in coordination with the forts on the west side to defend the city. With more than 450 years' history, Santa Cruz fort is

a fine example of Portuguese-Brazilian colonial architecture, listed by IPHAN in 1938. Guided tours can be taken around this and the other forts.

Leme and Copacabana beaches, round-topped rocks

Leme hill is an integral part of the coastal spurs of Tijuca massif. From the top, where there still stand the remains of Duque de Caxias fort, formerly Vigia fort, one can appreciate the neighbouring hills, including Sugar Loaf, from an unusual viewpoint, and have a panoramic view of Leme and Copacabana beaches. The hill and Cotunduba island jointly form the Leme Hill Environmental Protection Area.

The last remnants of Atlantic Rainforest, fringed by the secondary vegetation prevailing in the area, now in a process of regeneration, provide an important habitat for local wildlife.

At the base of Leme hill stands the army training centre, which is responsible for administrating the area. They carry out conservation work and organise sporting and cultural activities for the community, such as walks to the top of the hill. At the base, just above sea level, fishermen's walk, a favourite for anglers, offers a splendid view of the beach.

Leme and Copacabana seafronts have been given the same landscaping design. The beaches were extended and the landscape for the seafront was designed by Burle Marx in a project of international acclaim. The area was conceived as a horizontal frieze, giving pedestrians the opportunity to enjoy a wealth of forms and compositions. Making mosaic pavements out of Portuguese cobblestone, Burle Marx drew on the formal abstract elements typical of his later work, offset by clusters of tree species well suited to local conditions. Near the sea the promenade is designed with a mosaic of waves in deference to the design originally conceived for it at the beginning of the 20th century.

Over the years the seafront has undergone some alterations: parking spaces were added, as well as a cycle path, lifeguard stations, refreshment stands and petrol stations. But the biggest change to the design has been the incursion onto the pavement of the restaurants overlooking the sea, some of which detract from the pavement design. Such instances have been analysed on a case-by-case basis and addressed appropriately by the local authority and the State Institute for Cultural Heritage (INEPAC), which are responsible for safeguarding the area.

Copacabana fort was built in 1914 to house the Rio de Janeiro

coastguard, occupying land where a small chapel had stood that housed an image of Our Lady of Copacabana, which attracted pilgrims from many parts. In the 1980s, the Army History Museum (Museu Histórico do Exército) was created, taking over an area used by the former Coastal Artillery.

Until the 18th century, it was commonplace for people to harpoon whales coming north from the cold southern seas from the spit of land at Arpoador. Diabo beach, which nestles between the two spits of land, has been used for surfing in recent years. Arpoador spit is an important rock formation in Rio's city landscape, not only for its unique shape but also for the view westward that can be enjoyed from it. Since declaring both spits of land conservation areas, the local authority has invested in their preservation.

IV.A.3. The Urban Landscape in the Buffer Zone

This sector is demarcated by lines drawn from the two main peaks inside the site: Corcovado and Pico hill in Niterói. It serves to connect and protect the elements of value within the other sectors and includes Babilônia, São João, Catacumba, Cabritos and Saudade hills, which mark the boundaries of Copacabana, Botafogo and Lagoa districts, as well as Viúva hill in Flamengo, Cosme Velho and Laranjeiras valley, and the southern slopes of Santa Teresa hill until the borders of Flamengo park in the centre of the city. Rodrigo de Freitas lagoon and Jardim Botânico district are included in the sector as a buffer zone for Tijuca National Park and the Botanical Garden of Rio de Janeiro, much as the green areas adjacent to Flamengo Park (Marechal Deodoro, Russel square and the gardens of Palácio da República) are instrumental in its protection. The sector also includes Urca district, which is a buffer zone for Sugar Loaf.

As the site's buffer zone, this sector has the function of ensuring the protection and integrity of the elements of exceptional universal value contained within it. It encompasses several Environmental Protection Areas: Costme Velho and Laranjeiras, São José, Babilônia hill, São João hill, Cabritos hill and Saudade hill (see the Map of Municipal Conservation Areas). It also contains some municipal parks: Pasmado, Garota de Ipanema, Tom Jobim and Catacumba, as well as the state-run Chacrinha park. The main Cultural Environment Protection Areas (APACs) are Jardim Botânico, Humaitá, Botafogo, Bairro Peixoto, Lido, Cosme Velho, Laranjeiras, Santa Teresa and Glória.

At its northernmost end, Flamengo Park is linked to several other green areas in the buffer zone, which all come under its legal protection. These are, Outeiro da Glória and the gardens of Catete

Palace (Palácio do Catete), which, until the late 19th century, stood at the sea's edge but now, after successive land reclamations, overlook the roads that link Flamengo to the centre. Their greenery melds in with the green of Flamengo Park thanks to the trees along the roads, broken only by the heavy traffic.

Passeio Público's original designed by Glaziou has been kept over the years, even in its most recent restoration by the local authority in 2004, and still includes the viewing point-cum-terrace protected by the gratings bordering the greensward. Russel square is the area that provides a connection to Outeiro da Glória. The gardens of Museum of the Republic / Catete Palace, which were formerly the grounds of the 19th century mansion owned by the Baron of Nova Friburgo, are open to the public.

IV.A.4. Environment and Biodiversity within the property

Conservation of natural and semi-natural systems, and of wild species of fauna and flora

The urban-industrial region of the state of Rio de Janeiro comprises 20 municipalities of the metropolitan area surrounding the municipality of Rio de Janeiro, where the proposed site for World Heritage is located. This urban-industrial region comprises more than 200,000 hectares of Conservation Units, which altogether consist of a significant green belt to the city of Rio. Therefore, it is hardly surprising that the biodiversity within the municipality of Rio de Janeiro has been recently classified as having "low vunerability to anthropic pressure" (Costa et al. 2009). This becomes highly significant when one considers that the municipality of Rio de Janeiro has the highest index of conservation value (i.e., highest joint occurrence of threatened and/or endemic species) among all municipalities of the State of Rio de Janeiro (Rocha et al. 2009). A large proportion of this biodiversity richness is found within areas such as the Tijuca National Park and the contiguous natural forests within the domain of the Botanical Garden of Rio de Janeiro, on rocky outcrops such as the Sugar Loaf, Morro da Urca and Corcovado, and last but not least on marine habitats of the Guanabara Bay and beaches of the southern zone of the city.

The Floresta da Tijuca National Park is the world's largest conservation unit (3,200 ha) inside a big city. It has a myriad of endemic and/or threatened species, including amphibians (e.g. *Hylodes nasus, Zachaenus parvulus*), birds (e.g. . *Leucopternis lacernulata*), mammals (11 threatened species in regional lists and 4 in the IUCN worldwide redlist), and many plant species including trees (e.g., *Euterpe*

oleracea, the palm-heart, *Ocotea odorifera*, the *canela* tree), orchids and bromeliads (Freitas et al. 2006, Rocha et al. 2009). It merges with the natural forests of the Botanical Garden of Rio, expanding the protected areas for these species. In order to understand the relevance of the latter, a recent survey for birds found 138 species belonging to 34 families.

The Sugar Loaf (Pão de Açúcar) and Urca Mountain comprise one of the main postcards of the the city of Rio and are also the habitat for a large number of plant species growing on the exposed rocky surfaces. Eighty-six vascular plants species belonging to 30 plant families are found there and include a large proportion of endemic and threatened species, including *bromeliads* and *Velloziaceae* (Meirelles et al. 1999).

The marine habitats also excel in terms of their biodiversity. At least four marine turtles threatened by extinction can be found in the coast of the city of Rio (*Chelonia mydas*, *Caretta caretta*, *Dermochellys coriacea* and *Erytmochelys imbricate*) and the dolphin *Sotalia fluviatilis*, also threatened by extinction, is easily seen in the Guanabara Bay (Costa et al. 2009). Ongoing efforts to reduce pollution levels in the Bay are likely to favor recovery of such threatened species. Remaining mangroves of the Guanabara Bay, with their high structural diversity, also play a key role in the ecological integrity of the bay. For instance, a recent study assessing the degree of connectivity of marine ecosystems to the Atlantic forest in the state of Rio indicates that around the Guanabara Bay, the connectivity ranges from low to medium, and that coastal lagoons and mangroves are of major relevance to this connectivity (Marone et al. 2009).

Lagoa Rodrigo de Freitas is one of such biodiversity stepping stones. Although surrounded by roads, buildings and upper class habitations, this lagoon has at least 40 species of aquatic and terrestrial birds, either inhabiting or visiting, including rare species (Lagos 2004). This is evidence that the habitats of Tijuca Forest and Botanical Garden have the lagoon as a connection to the beaches of the Southern Zone of Rio.

Conservation of biodiversity within farming systems

Tijuca Forest, currently protected by the Tijuca National Park, was originally the first forest restoration enterprise in Brazil, fostered by D. Pedro II, Brazilian Emperor. Forest restoration then aimed at protecting fresh water springs on the city hills then used for coffee and sugar cane plantation. Reforestation used both exotic fruit trees and native species. Some 72,000 seedlings were planted from 1862 to 1874 (Freitas et al., 2006). Present-day visitors to the Tijuca Forest

National Park can hardly tell that the lush and exuberant rain forest is the product of restoration practice. Hailed by some as one of the most successful restoration enterprises in history (Leão, 2000; Freitas et al.,2006), it is currently subjected to research on the effect of invasive tree species, some of which were introduced as fruit source for animals at the onset of the project. In particular, *Artocarpus heterophyllus Lamk*. (*Moraceae*), the jackfruit, appears to have strong invasive potential (Cunha et al., 2006). Nevertheless, it is estimated today that the Tijuca National Park houses up to astonishing 900 plant species and 300 animal species, which is more biodiversity than the total found in many countries in the world.

Sustainable Land Use

"Cities are ecosystems and, as such, are potential pools of resources. Most such resources are latent, poorly, or underexploited: urban soil prone to cultivation, recyclable residues, and the potential for saving energy, finance and water through a better maintenance of equipments, infrastructure and habitations". Ignacy Sachs (1993) in this statement reveals a concern with the sustainable use of urban areas. The city of Rio is perhaps the world's best expression of sustainable land use in a metropolis. From early 19th century with the construction of the Botanical Garden of Rio, through to mid 19th century and the reforestation efforts in Tijuca Forest, and then to the construction of the Aterro do Flamengo Park in mid-20th century on debris of mountains that were brought down to allow the horizontal expansion of the city towards Guanabara Bay, the city has intensely and successfully experienced with land rehabilitation targeted at safeguarding ecosystem services, biodiversity or, more simply, scenic beauty.

In addition to these landmarks, Rio has a privileged collection of urban parks. Specialists classify urban parks as belonging to one of three types (Mantovani 2006): technological parks (leisure areas with seats, few vegetation elements, playground for children), garden parks (where biological elements are key assets, constantly managed and monitored, and displayed in a way to express beauty and provoke feelings of relaxation in the public), and ecological parks (concerned with preservation of natural elements of the ecosystem and its function). Under this scheme, one could perhaps recognize the Botanical Garden and Parque Lage as garden parks, and the Tijuca Forest as an ecological park, and Parque da Catacumba at Lagoa Rodrigo de Freitas as a technological park. Interestingly, however, many parks in Rio defy these academic pigeonholes. Tijuca is an ecological park, but not exactly natural, since it was introduced by man. Catacumba is not ecological per se, but rare species of bird, in transit,

can be found there observing human beings exercising, reading books or playing. Likewise, the Botanical Garden, Parque Lage and Aterro do Flamengo Park are garden parks, which no doubt play major ecological function as biodiversity corridors linking the Tijuca forest and the sea, but are also unique scientific collection of plants while harbouring historical monuments of the city.

Therefore urban parks in Rio provide scenic beauty, leisure areas, scientific collections, biodiversity corridors, safeguard important ecosystem services such as water and climate and, more importantly, all that is to the service of literally millions of people from Rio, Brazil and elsewhere who are either frequent of eventual visitors. For instance, the Botanical Garden of Rio has 450,000 visitors per month, the statue of Christ the Redeemer, at the Tijuca Forest National Park, receives one million visitors per year; and the Sugar Loaf (Pão de Açúcar)mountain has 60,000 visitors per month going up the mountain by cable car.

Enhancement of scenic beauty

A typical "carioca" (person born in Rio) will proudly say that from whichever angle one looks, the city of Rio reveals beauty. The geography of the city, with no human intervention, would suffice to earn it the adjective of "marvelous city". However, it is precisely the human interventions that add a hint of charm to the dramatic beauty of Rio's natural geography. The Corcovado mountain, seen from anywhere in the city, is majestic by itself, but today it is hardly imaginable without the statue of Christ the Redeemer, there introduced in 1931. The Sugar Loaf (Pão de Açúcar) Mountains would lose stature without the cable car that connects them since 1912.

Up in Tijuca Forest one can have some of the best sights of the city of Rio, favored by belvederes built in way that they are often indistinguishable from the forest surrounding it. The Emperor's Table, a rocky table with a gorgeous view of the southern beaches of Rio, where supposedly the royals would have weekend picnics, and the Vista Chinesa (The Chinese View), a Chinese pagoda made with artificial bamboo, are two such places.

The artist who devised the Chinese pagoda deserves a specific chapter in the history of the enhancement of the scenic beauty in Rio. His name is Auguste François Marie Glaziou, a French engineer, who was also a landscape artist and botanist. He came over to Rio in 1858, invited by Emperor D. Pedro II to run the Division of Parks and Gardens. He was notable for introducing native elements of the Brazilian flora to urban parks and gardens in Rio. Praça XV, Passeio Público, Quinta da Boa Vista and Campo de Santana were all

inspirational from Glaziou and add much to scenic beauty of the city. He also discovered and named countless new plant species to science, many of which found in the natural habitats in the city of Rio.

Later, in the 20th century, Brazilian landscape artist Roberto Burle Marx, was responsible for furthering with style the tradition of developing parks and urban spaces in harmony and composed by natural elements, both with native and exotic plants. Flamengo Park is arguably its main artistic monument.

Ex-situ collections

In addition to recreation and leisure provided by the arboretum of the Botanical Garden of Rio de Janeiro, this is actually one of the main ex-situ scientific collections of tropical plants in the world. The cultivated area had 54 ha and there are still further 83 ha of native forests. Within the arboretum, some 3,200 plant species are identified to a total of 9,000 specimens from various parts of the world, particularly from the tropics. As mentioned earlier, the arboretum is part of the biodiversity continuum that goes from the top of the Tijuca Mountains to the sea. Greenhouses display rich collections of bromeliads, orchids and insectivores, in additional to open air collections of medicinal plants and cacti. Moreover, the Gardens are the institute for research of flora biodiversity of the Brazilian Ministry of Environment. Within the research buildings, which are also prone to visitation, one finds the best preserved herbarium of the country, with ca. 500,000 exsicates, and also scientific collections of wood, seeds and DNA.

Historically significant discoveries

Perhaps one of the most impressive indicators of the natural richness of this big city is that from the days of the great naturalists such as Carl Friedrich von Martius and Auguste Glaziou, to name but a few, until current days, new species to science are found on a regular basis. For instance, Brazilwood (*Caesalpinia echinata*, a legume tree that lend its name to the country) was abundant in Tijuca forest at the time of discovery of the country. These days even new genera can be found in the Tijuca forest, such as in the case of a new genus of *Collembola* (a group that composes soil fauna) found in 2005, and significantly baptized as *Tijucameria* (Mendonça & Fernandes 2005). If a *Collembola* seems to the eyes of non-specialists, bamboos are a lot more visible. Two new species of bamboos from Tijuca forest have been described in 2004 (Clark 2004).

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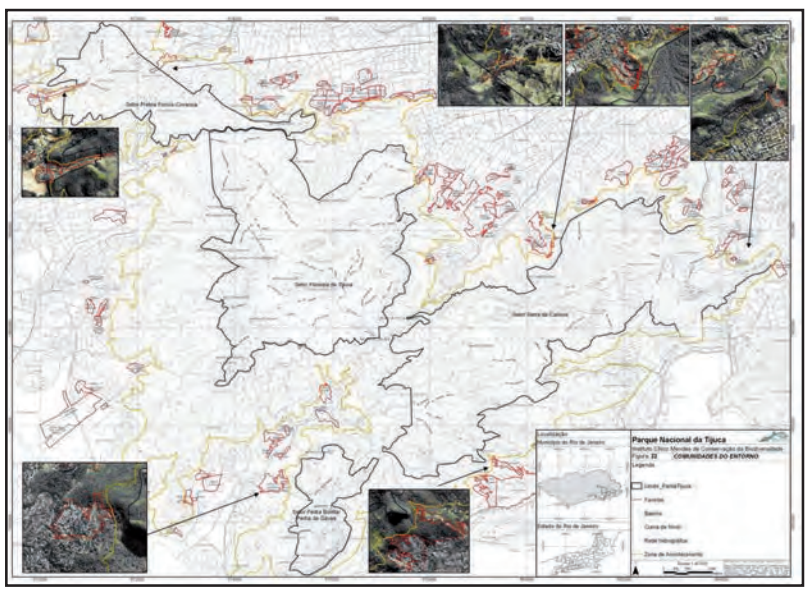
IV.B. FACTORS AFFECTING THE PROPERTY

IV.B.1. Development Pressures

From the late 1800s onwards, Rio's hills started to be occupied by the poorest strata of society. Throughout the 20th century, as housing became scarce, the hillsides were increasingly stripped of their trees to make way for unplanned housing. This affected the urban landscape, while also having a serious impact on the environment, depleting the city's water courses and contributing to the erosion of the hillsides.

Tijuca massif and the other hills in the site's buffer zone – especially those that encircle Copacabana, separating it from Botafogo and Lagoa – were the object of major occupations during this period, subsequently becoming favelas. In the 1990s, Rio de Janeiro city council introduced a favela urbanisation programme (Programa Favela Bairro), whose aim is to integrate the favelas into the urban fabric, equipping them with new leisure areas, infrastructure and community services.

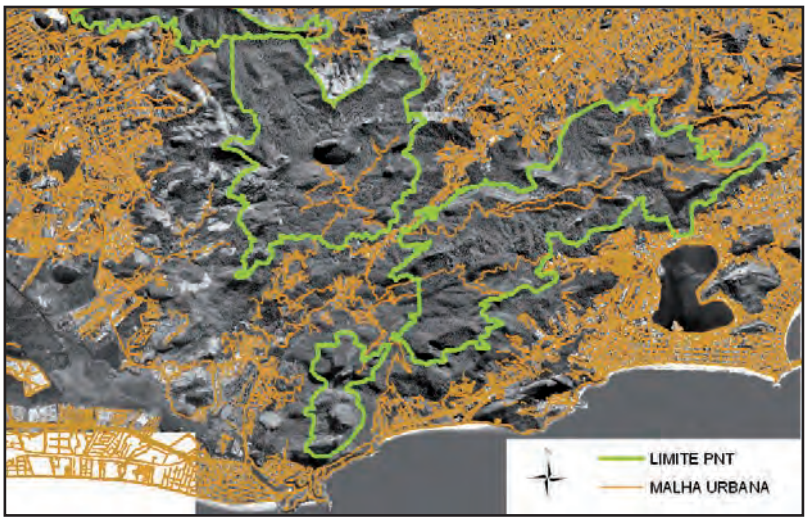


Maps of the Management Plan of Tijuca National Park with squatters on the hillsides.

The maps above show where the hillsides of Tijuca massif have been occupied, some almost to the borders of Tijuca National Forest. One of the key tasks of the park's administration is to curb trespassing by means of strict inspections along its borders, supported by the local authority's work to monitor the urban expansion of these critical areas.

As a precautionary measure, Tijuca National Park carries out constant inspections of its buffer zone.

The park suffers from a border effect, not just because of these illegal



encroachments, but also because of its excessive fragmentation, the causes of which are: its scale, the fact that it is inside a city, and the busy roads that cut across the different segments of the park. The efficient, ongoing inspection of the park perimeter has been essential for preventing squatters and any other actions that could damage the park.

There are now few illegally occupied areas inside the conservation area, most of which are long-standing problems where the residents have gained squatter's rights. The present administration plans to resolve all these issues, but the legal processes are sluggish and frequently hampered by the fact that the occupants do not have the right paperwork, which makes any resolution of the situation more convoluted. In order to evict these people, the administration has proposed out-of-court settlements in partnership with the local authority.

Another problem that affects Tijuca National Park is the number of antennae, which detract from the scenery and are also the cause of the destruction of vegetation. The measures being taken by the park administration, aside from those included in the Management Plan are:

- Re-registration of all the companies responsible for the antennae;
- Talks with radio broadcasters for the creation of a Cooperation Agreement which would set criteria and standards for the authorisation of their activities, as well as establishing compensatory and mitigating actions;

- Cooperation agreement with public service radio and television utilities to keep their antennae in Sumaré and remove the equipment of those that do not provide public services;
- Introduction of guard posts and systematic inspections;
- Charging of an environmental fee according to the area occupied and the height reached, which will encourage the companies to reduce the size of their equipment and form groups to make use of the same antennae.

IV.B.2. Environmental Pressures

The city's sea front is affected by water pollution. The area most seriously affected is Guanabara Bay, into which the sewage of much of the metropolitan district flows. The Guanabara Bay Cleanup Programme has a mid-term strategy to rid the bay of all pollution. There is already less untreated sewage being discharged into the bay. As for the ocean beaches, the bathing quality of the waters is assured most of the year by the underwater sewage pipes that channel the waste far offshore. However, the illegal disposal of sewage in rainwater drains does cause black slicks on the beaches after heavy rains.

IV.B.3. Natural Disasters and risk preparedness

Rio de Janeiro is subject to extremely heavy rainfall, especially during the summer, which causes flooding in certain parts of the city and even landslides. There is a Heavy Rainfall and Landslide Alert System, which collect information in real time from 32 automatic rainfall measurement stations, meteorological radar images, lightning detectors, climatic data from two weather stations, satellite images and information from the Internet. The data are analysed by geologists and meteorologists at a computerised central station 24 hours a day. At some favelas in high-risk areas, deforestation and piles of refuse can cause landslides. A monitoring and evacuation system for communities at risk is set into action whenever a problem is detected.

There have been no landslides down the city's rocky outcrops, since those of potential risk are protected by slope stabilisation systems. However, during 2010 summer rains there were earth and forest slides in different parts of Tijuca National Park, with no accidents related to dwellings situated within the proposed property and its buffer zone. Initiatives from the City Government and from the Park administration were taken place to restore the sites affected and to construct slurry walls to contain the earth.

Tijuca forest, especially its north side, which is drier and has patches of guinea grass, is subject to forest fires. There is a monitoring system in Tijuca National Park which dispatches volunteer fire brigades to any fires. Another problem faced in the park is poaching, which is being addressed by inspection activities and environmental education. The abandoning of pets, especially kittens, puts added pressure on the forest, as does the illegal removal of plants.

IV.B.4. Visitor / Tourism and Social Pressures

The impacts identified in this item refer to the social problems encountered in the relationship between the users of the site and its administration, which is often hampered by a lack of coordination between the different entities involved.

Because of their size, Tijuca National Park and Flamengo Park must be inspected constantly to ensure that their facilities are being used for their intended purposes. The restrictions on the usage of Tijuca Park in particular are quite strict. Some minor violations have been identified that pose some risk to safety, such as the practice of religious offerings using lighted candles and foodstuffs left in the open air. This problem is being addressed by the ongoing environmental education programme and the creation of a special place of worship for different religious groups.

In Flamengo Park, the use of barbecues and presence of vendors hawking their wares is a constant challenge to its conservation. In the park's master plan, new regulations will be drawn up to prevent activities of this nature.

Along the seafront in Copacabana, cars park on the pavements, which damages the Portuguese cobblestones and blocks the way for pedestrians, as does the illegal use of public spaces by street hawkers, markets, bars and restaurants.

Municipal decree 30.542 of 18th March 2009 established a committee to monitor the environment along the sea front. They are already working towards ensuring the quality of the environment and the urban area, setting environmental quality indicators, supervising monitoring activities and organising and controlling all economic, sporting, tourism and leisure activities.

The solution to the administrative issues identified is to share the management of the site by drawing up a management plan, to be run by a committee with representatives from all levels of government and civil society and a permanent advisory board.

IV.B.5. Number of inhabitants within the property and the buffer zone

Component Parts nº 1, 2 and 3:

The occupied area of the Tijuca National Park is very small: there are 68 dwellings inhabited by 340 people, mostly employees, ex-employees, old residents and relatives, who date from far earlier administrations. According to the Park manager, a program is underway to remove and resettle these families in areas near the Park. As to the commercial installations (shops, restaurants and snack bars), only one family lives in the Cascatinha restaurant, and they will also be removed together with the other families mentioned above. Part of these buildings belongs to the historical holdings, one of them being used as the head offices for the administration of the Park and Visitors Center and another three as restaurants. Still others are the homes of former municipal employees or retirees of the defunct Forest Service; the administration is planning to use them to install the Cultural Complex of the Tijuca National Park;

The Rio de Janeiro Botanical Garden Research Institute has a small street of 10 terrace houses that are mostly occupied by 30 employees of the Institution. Within the forest reserve a narrow land along its limits has been occupied by 584 low income families. The Botanical Garden administration with the cooperation of the Municipal Secretariat of Urbanism are developing measures do resettle this families in new dwellings, which will be constructed nearby, outside the landmark limits.

Component Part nº 4

There are no invasions or similar problems in the complex comprising Sugar Loaf, Urca and Cara de Cão Hills. The Protected Area of Historic Forts of Niterói city is occupied by a Military Base, as well as the Forts areas in the neighborhood of Urca, in the botton of the Sugar Loaf (Pão de Açúcar)Mountain and in the Copacabana and Leme Beaches.

There is no inhabitants within the protected area of Flamengo Park and its surroundings, as Passeio Público Square and Praça Paris, and the area of Copacabana Beach classified as proposed property.

Buffer Zone

There are no specific statistics on the total number of inhabitants in the buffer zone, which includes parts of neighborhoods, sub-neighborhoods, communities and shantytowns (favelas). The number of inhabitants estimated from IBGE (Brazilian Institute of Gegraphy and Statistics) database of 2010 is around 899.577 people living within the buffer zone.

The chart bellow shows the location of inhabitants by component parts and districts and their buffer zones:

Component Part	Districts	Number of inhabitants (based on IBGE database 2010)
Component 1 - Pretos Forros e Covanca		
Property	Jacarepaguá	240
	Alto da Boa Vista	52
	SUBTOTAL	**252**
Buffer Zone	**SUBTOTAL**	**0**
Component 2 - Pedra Bonita / Pedra da Gávea - Tijuca Forest		
Property	**SUBTOTAL**	**0**
Buffer Zone	**SUBTOTAL**	**0**
Component 3 - Serra da Carioca / Sumaré / Jardim Botânico		
Property	Alto da Boa VIsta	48
	Jardim Botânico	1.782
	SUBTOTAL	**1.830**
Buffer Zone	Alto da Boa VIsta	3.850
	Rio Comprido	37.139
	Santa Teresa	3.281
	Cosme Velho	4.981
	São Conrado	8.877
	Rocinha	50.907
	Gávea	13.658
	Jardim Botânico	14.752
	Lagoa	18.057
	Copacabana	125.436
	Botafogo	75.172
	Flamengo	46.823
	Catete	17.600
	Laranjeiras	42.842
	SUBTOTAL	**885.375**
Component 4 - Mouth of Guanabara Bay and Manmade Shorelines		
Property	**SUBTOTAL**	**0**
Buffer Zone	Niterói - Jurujuba	8.321
	Urca	5.881
	SUBTOTAL	**14.202**
TOTAL OF INHABITANTS WITHIN THE PROPERTY		**2.122**
TOTAL OF INHABITANTS WITHIN THE BUFFER ZONE		**899.577**

V. PROTECTION AND MANAGEMENT OF THE PROPERTY

V.A. OWNERSHIP

The whole area encompassed by the Rio Cultural Landscape site is owned by the Federal Republic of Brazil:

- Tijuca National Park, including Lage park, based on the regime of land expropriation;
- Research Institute of the Botanical Garden of Rio de Janeiro (Instituto de Pesquisa Jardim Botânico do Rio de Janeiro), as this was acquired by the imperial government in 1808 for a gunpowder factory and to serve as an acclimatisation garden;
- the areas bordering any bodies of water, as these are navy-owned or extended navy-owned land [15]. This includes Flamengo park and Glória marina, Botafogo cove, going as far as Cara de Cão hill, Sugar Loaf and Urca hill, to the west of the mouth of Guanabara Bay, going round until Vermelha beach, Leme hill and Copacabana beach from the Leme end until the spit of land at Pedra do Arpoador. On the east side of the mouth of Guanabara Bay parts of Pico, Ourives and Morcego hills are also covered.

V.B. PROTECTIVE DESIGNATION

The use of most of the elements in the property is under the responsibility of federal entities, which administrate them directly or via government contract.

Tijuca National Park was created by Federal Decree 50.923 of 6th July 1961 under the name of National Park of Rio de Janeiro (Parque Nacional do Rio de Janeiro). Its current name was granted by Federal Decree 60.183 of 8th February 1967. It is administrated by Chico Mendes Institute for the Biodiversity Conservation (ICMBio), under the auspices of the Ministry of the Environment.

In compliance with the guidelines in the National System of Conservation Areas, Tijuca National Park's management is participative, with members of the public sitting on its Advisory Board,

15 Navy-owned land is a stretch of land 33 metres wide along the entire coast of Brazil, measured at average high tide, whose reference is the tides in 1831, which was when this strip of land was created. Extended navy-owned land is all land, whether natural or artificially created, beside the sea, rivers or lagoons that is contiguous to navy-owned land.

which also has a tourism committee and a protection committee. The Advisory Board is has 26 members – half from government and half from civil society – and is chaired by the CEO of Tijuca National Park, who represents ICMBio on the board.

An Agreement has already been signed by the three levels of government for the shared management of Tijuca National Park, which will be made effective by the creation of a Management Board.

The Corcovado railway is operated by Serviço de Patrimônio da União (SPU) by means of a public contract.

At Lage Park, the main facility is the former mansion of the Lage family, which now houses the School of Visual Arts (Escola de Artes Visuais). On 23rd June 2009 (document D.O. RIO 64 of 23rd June 2009, p.39) an Assignment of Use Agreement was signed, by which ICMBio transferred the running of the site to the state government, putting an end to a long-standing legal dispute. This arrangement gives equal precedence to cultural and environmental aspects so as to assure their sustainability.

The Research Institute of the Botanical Garden of Rio de Janeiro was created as a federal autarchy under the auspices of the Ministry of the Environment by Law 10.316 of 6th December 2001 (document D.O.U 233 of 7th December 2001), which establishes its legal status, purpose, powers and administrative structure.

Most of the areas of land bordering on bodies of water are administrated by the local authority. There are plans to set up a working group to coordinate the administration of Flamengo Park and the entities that operate at Urca beach and along Copacabana seafront to provide the technical and administrative infrastructure needed to ensure optimal efficiency in all conservation and restoration measures.

The Rio de Janeiro city council holds public tenders for the contracts to operate the Sugar Loaf (Pão de Açúcar)cable car, for Glória marina, Rio's Restaurant in Flamengo Park, and all the refreshment stands in the city's parks and seafronts. The contracts for running the Museum of Modern Art and Carmem Miranda Museum are also granted via tender.

The forts at the mouth of the bay are run by the 1st Division of the Brazilian Army. On the west side, standing on the same site at which the city was founded in 1565, is São João fort. On the east side, Santa Cruz da Barra fort forms a defensive complex along with Pico, Imbuí and São Luiz, all of which were once important for defending the bay.

V.C. MEANS OF IMPLEMENTING PROTECTIVE MEASURES

Measures to protect Rio's cultural landscape have been taken since the 19th century, when the lands that contained the city's water courses and their sources were expropriated (Law 1.114 of 27th September 1860) and Tijuca and Paineiras forests were created (Decision 577, Directive of 11th December 1861) by the State Department for Agriculture, Trade and Public Works. In 1866, the land where Tijuca and Paineiras forests now stand was expropriated.

The national policy for the protection and preservation of Brazilian heritage is encapsulated in two chapters of the Brazilian constitution: one on culture and the other on the environment. The chapter on culture states: "Brazilian cultural heritage is understood as being all assets, be they material or immaterial, taken individually or collectively, which bear reference to the identity, action or memory of the different groups that have formed Brazilian society." The chapter on the environment addresses nature conservation from a biological viewpoint, framing the legal and administrative responsibility for the preservation and restoration of essential ecological processes, biodiversity, the integrity of genetic heritage, and conservation areas.

The measures to preserve Brazil's cultural and biological diversity are, then, complementary, especially in a city like Rio de Janeiro, where man's appropriation of a rich, diversified natural environment, with its characteristic geological and geomorphological features, has resulted in an exceptional cultural landscape.

Rio de Janeiro is a city that stands out in Brazil for the number of protected areas of cultural and environmental interest, which underlines the significance of its cultural landscape. The site undoubtedly contains the most representative of these, many of which are protected by heritage or environmental agencies.

Listed Sites and Federal Directives for Cultural Protection

The movement to develop the nation's culture supported by Minister of Health and Education, Gustavo Capanema, in the 1930s, provided the impetus for the creation of the National Service for Historical and Artistic Heritage (SPHAN) in January 1937. In the same year, Decree 25 was passed, providing for the protection of cultural heritage by having it listed.

Grounded in the international conceptions on preservation of its day and written by the nation's intellectual vanguard, this decree has withstood the test of time; it is a complete, consistent, relevant

document which fully addresses all aspects of Brazilian cultural heritage. It is still the master document for all the work undertaken by the federal cultural heritage agency (today's IPHAN), and has served as a blueprint for other institutions. The Rio de Janeiro State Institute for Cultural Heritage (INEPAC) was created in 1965, while its municipal equivalent was founded in 1984.

Map P01 indicates the elements in the site that are listed by federal agencies:

- Tijuca National Park, by process 76-T-65, included in the list of archaeological, ethnographical and landscape heritage on 27th April 1967;
- Botanical Garden of Rio de Janeiro, by process 101-T-38, included in the list of archaeological, ethnographical and landscape heritage on 30th June 1938;
- Parque Lage mansion and grounds, by process 537-T-57, included in the list of historical heritage on 14th June 1957;
- Flamengo Park, by process 748-T-64, included in the list of archaeological, ethnographical and landscape heritage on 28th July 1965;
- Cara de Cão, Babilônia, Urca, Sugar Loaf, Dois Irmãos and Pedra da Gávea hills, by process 869-T-73, included in the list of archaeological, ethnographical and landscape heritage on 8th August 1973;
- São João fort, by processes 101-T-38 and 155-T-38, included in the lists of historical and fine arts heritage on 24th May 1938;
- Santa Cruz fort, by process 207-T-39, included in the lists of historical and fine arts heritage on 4th October 1939.

In view of the importance of assuring the visibility of this heritage and in compliance with the provisions of Article 18 of Decree 25, IPHAN has established some areas around the listed assets by means of specific directives with a view to providing for their protection. Federal directives 08/80, 02/86 and 104/00 also include elements within the site.

There are several listed heritage elements in the buffer zone. Below is a list of the largest of these, in coherence with the scale of the study

- Laranjeiras Palace
- Guinle park
- Catete Palace
- Guanabara Palace
- Passeio Público.

Map P02 indicates the state-listed heritage in the site:

- Copacabana fort and the spits of land at Copacabana and Arpoador, by SEC Resolution 47 of 6th September 1990;
- Urban landscape of Leme, Copacabana, Ipanema and Leblon beaches, as listed on 25th January 1991;
- Dois Irmãos hill, by State Decree E 5456 of 26th May 1972.

In the buffer zone there are also several heritage sites listed by the state heritage agency. As in the previous case, we are only highlighting the largest of these:

- Chacrinha state park
- Gávea park
- Copacabana Palace Hotel
- Senador Salgado Filho square
- Santos Dumont airport building
- Largo and Beco do Boticário architectural complex

Map P03 indicates the state-listed heritage elements in the site:

- Botafogo cove water surface, by Decree 7.444 of 1st March 1988;
- Duque de Caxias fort (Leme), by Decree 6.933 of 8th September 1987;
- Arpoador spit, by Law 1.433 of 3rd September 1989.

In the buffer zone, there area also several heritage sites listed by the municipality:

- Rodrigo de Freitas lagoon
- Paris and Marechal Deodoro squares
- Cinelândia architectural comples.

Aside from listing heritage sites, the local authority of Rio de Janeiro has created another instrument, known as the Cultural Environment Protection Area (APAC), which protects buildings that are representative of different periods of history and are instrumental in keeping alive historical memory and shaping the city's identity. The APACs created by the Undersecretary for Culture in the buffer zone are included in Map P03, with their borders: banks of Rodrigo de Freitas lagoon / Jardim Botânico / Humaitá / Botafogo / Bairro Peixoto / Lido / Cosme Velho / Laranjeiras / SantaTeresa / Glória.

All these maps were produced with information collected from the following heritage entities: IPHAN (federal), INEPAC (State Institute for Cultural Heritage) and the Undersecretariat for Cultural Heritage (municipal).

Environmental Conservation Areas

The National System of Natural Conservation Areas (SNUC) was created by Law 9.985/2000 in compliance with the National Environmental Policy (Law 6.938/1981). It establishes the criteria and standards for the creation, introduction and management of conservation areas in Brazil, the main aim of which is to assure the biodiversity and genetic resources of the nation.

A conservation area is defined as "an area of land and its environmental resources, including bodies of water, which has special natural features and is legally instituted by Public Authority for the purposes of conservation, with demarcated borders and provided with special administration to ensure its full protection." The law establishes different categories for full conservation areas and areas of sustainable use.

MAP P04 indicates the extent of the federal conservation area for Tijuca National Park and its buffer zone created by Federal Decree 50.923 of 6th July 1961, with a review of its denomination and boundaries in Decree 0.183 of 8th February 1967.

The site's buffer zone includes Chacrinha state park, which is a state conservation area.

MAP P05 shows the municipal conservation areas which correspond fully or partially to elements in the site:

- Flamengo park
- Sugar Loaf and Urca Hill Natural Monument
- Dois Irmãos Municipal Park
- Seafront Environmental Protection Area
- Leme Hills and Cotunduva Island Environmental Protection Area
- Copacabana and Arpoador Spits Environmental Protection Area

The buffer zone includes several municipal conservation areas, as well as some parks administrated by the local authority:

- Alto da Boa Vista Environmental Protection and Urban Recuperation Area
- Cidade Municipal Park
- Fonte da Saudade Municipal Park
- Catacumba Municipal Park
- José Guilherme Merchior Municipal Park

- São José Environmental Protection Area
- Saudade Hill Environmental Protection Area
- Babilônia and São João Hills Environmental Protection Area
- Viúva Hill Environmental Protection Area
- Cabritos Hill Environmental Protection Area
- Sacopã Environmental Protection Area
- Passeio Público.

The maps listed above were produced from data provided by Tijuca National Park and Rio de Janeiro city council.

Map P06 indicates how the protected areas within the site overlap, such that around 85% of the area is protected by some legal instrument.

Protection of the Landscape by Town Planning Legislation

The protection provided by the legislation pertaining to cultural heritage and the environment is supplemented by town planning legislation, which is of an especially preservationist nature in Rio and is crucially important for conserving the buffer zone.

In the 20th century, when the first high-rises were built, one of the main instruments to control this was the requirement that they could be no more than 12 storeys high, and be in keeping with the nature of each district or sub-district. Only in 1967 was this restriction lifted, which allowed for the construction of some higher-rise buildings, although the area that could be built on in these cases should then be smaller.

This modification to the town planning legislation led to the great change that can now be seen in the appearance of certain districts: Copacabana, with its 12-storey-high wall of buildings along the sea front, broken by a few more recent buildings; Ipanema and Leblon, with a broader variety of styles.

With a commitment to respect the city's landscape, ensuring a balance between the city and its natural features, the latest town planning has sought to correct certain errors of recent years, including the lifting of the 12-storey limit in certain areas.

Diversity of buildings in Copacabana and Ipanema

It was in the 1970s that the first town planning instruments were passed that addressed the issue of the occupation of hillsides, focusing on protecting the city's forests. Decree E 3800 of 1970, which provided for Special Zones, was sanctioned in 1976 by Decree 322, giving the code of ZE1 to the forest zone and ZE10 to favelas. This was the first time that Rio's city planning legislation placed any restriction on housing on hillsides. It established that no building should reach higher than 60 metres above sea level around Sugar Loaf (Pão de Açúcar)and Urca, while 100 metres was the limit for the city's other hills. The perceived importance of the city's landscape today only goes to confirm how important this restriction has been, contributing as it has to protecting the plant cover on the hillsides.

Enforcement of Protective Measures

The two core documents for Rio de Janeiro's city planning are the Municipal Development Law (5th April 1990) and the Ten-Year

Master Plan for Rio de Janeiro City (Supplementary Law 16 of 4th June 1992). Both incorporate all the federal guidelines on the protection and preservation of culture and the environment, as well as all the conservation areas and listed assets thus far mentioned.

The Master Plan is currently under review with a view to adding new technical data, which will be prepared by different departments of the local authority and will subsequently be submitted for approval by the city council. Below are the main proposed amendments, which incorporate the concept of landscape

Principals of urban policy:

- "to value and protect the environment, the landscape and the natural and cultural heritage in the city's process of development;"

Citizens' rights:

- "to provide citizens with the right to enjoy the landscape;"
- "to ensure the harmonious coexistence of the different elements that compose the landscape;"
- "to propose and execute activities for the conservation, monitoring and maintenance of the significant or characteristic features of the landscape;"
- "to establish procedures for the participation of society and representatives of public entities, institutions and bodies from different levels of government to draw up and introduce landscape protection policies;"
- "to include landscape preservation in the organisation of the land and the sector policies that may have a direct or indirect impact on it;"
- "to promote the quality of the environment in public spaces;"
- "to start negotiations to mediate the diverse interests and values of the social groups that live in and shape the landscape;"
- "to raise the awareness of the population as to the value of the landscape in improving the quality of life by means of environmental and cultural education programmes."

Town planning:

- "a landscape is understood as being the interaction between the natural and cultural environments, expressed in the organisation of the space arising from the relationship between natural, social and cultural elements and in the marks of human actions, manifestations and forms of expression;"

- "Rio de Janeiro city's landscape is its most precious economic asset, responsible for its iconic position in the world and its importance to tourism in Brazil with the associated creation of jobs and income;"
- "Rio's landscape heritage is made up of landscapes with exceptional features as well as landscapes shaped by the action and expression of the local people;"
- "Visual access to Rio de Janeiro's landscape is an inalienable right of this and future generations."

To ensure that this legal protection is truly provided, all the areas protected after the original Master Plan was drawn up, either by being listed or by being included in a conservation area, are being added to it.

V.D. EXISTING PLANS RELATED TO MUNICIPALITY AND REGION IN WHICH THE PROPOSED PROPERTY IS LOCATED

V.D.1. Component Part nº 1, 2 and 3 – The Tijuca National Park and Botanical Garden

V.D.1.1. Tijuca National Park Management Plan

The management plan for Tijuca National Park was prepared in 2008 by ICMBio with the assistance of IBAMA. In view of the importance of including the park in the Biosphere Reserve and other international declarations, the plan was built up around the concept of zoning. It allows for planning according to thematic programmes (of protection, research, public usage, external integration and operationalisation) and according to strategic areas; establishes directives, actions and norms which should be applied. Protection and management actions allow for an increase of the Primitive Zone Area, those areas considered to be in recuperation and which are transformed into dense vegetation of great significance for the arboretum.

As a result of its diagnosis, the Management Plan establishes Park division into zones. All activities and actions are proposed in accordance to the use of the zones:

- Primitive Zone - where human intervention has been tiny or minimal, containing species of flora and fauna of great scientific value. Owing to the characteristics of the Park, this is the zone which includes most of the preserved areas and so, is the zone with the most restrictive access. "to ensure the harmonious coexistence of the different elements that compose the landscape;"
- Extensive Use Zone – mostly constituted of natural areas, but may include some human modifications; can be

considered as a transition between the primitive zone and the intensive use zone.

- Intensive Use Zone - includes natural areas and those altered by man. It is maintained as close as possible to the natural, containing services provided for public use, as visitors' centres, cafés, restaurants, toilets and other facilities.
- Historico-Cultural Zone - includes all the sites of historical relevance open to the public. "to promote the quality of the environment in public spaces;"
- Recuperation Zone - contains areas which have suffered considerable human intervention. It is a temporary zone, because as soon as it is restored, it will be incorporated into one of the permanent zones of the Conservation Unit.
- Special Use Zone - contains areas used for the administrative functions, maintenance and service of the Conservation Unit. It should be controlled in such a way as not to interfere with the natural character of the Conservation Unit and should, if possible, be placed on the periphery.
- Conflicting Uses Zone - consists of spaces localized within a Conservation Unit, whose pre-established uses and objectives are in conflict with the conservationist goals of the protected area. They are areas occupied by public utility enterprises, like transmission networks, aerials, water catchment, and dams.
- Temporary Occupation Zone - areas within a Conservation Unit, where exist resident human concentrations and their respective areas of use. It is a provisional zone that, once the population has been relocated, will be incorporated into one of the permanent zones..

The comparative framework of the zones established by the management plans of 1981 and 2008 reveal the effort undertaken in its protection and conservation, resulting in a significant improvement in the quality and thickness of the forest. The buffer zone was strictly defined according to the non-existence of irregular occupations and the presence of a significant area of vegetation.

The rules for buffer zone management are:

- it should stimulate the creation of Natural Reserves of Private Property;
- it should not permit any activity or intervention which may result in the destruction of any primitive vegetation, from the secondary initial stage of successional development;

- the primary or secondary vegetation, in any stage of regeneration, will not lose this classification in the event of forest fires, deforestation or any other kind of unauthorised or unlicensed intervention;
- it should not permit the implantation of enterprises which may result in the destruction of vegetation of the arboretum, even if it is not indigenous, except in the case of single family residence, in conformity with the technical analysis;
- any urbanization of areas within this buffer zone, should be strictly prohibited.

The administration of Tijuca National Park awaits recognition and legal declaration of protection for the buffer zone from Rio de Janeiro Municipal Government.

V.D.1.2. Botanical Garden Master Plan

The Master Plan for the Botanical Garden Research Institute was drawn up soon after the Institute was created in 2001 and is the pillar of all its management, conservation, cultural and administrative works. It was reviewed to add new technical proposals in 2009. The aim is to introduce strategic management for the Botanical Garden, which is being developed in partnership with a consultant firm, Intelligere and the Brazilian Institute of Municipal Administration – IBAM.

The Master Plan updated in 2009 is structured into three main groups of information. The first presents the principles adopted and the update general guidelines, which aimed the integratration of the urban mobility and accessibility systems; the preservation of historical, cultural and environmental aspects; cultural integration and enhancement of public visitation.

In the second group are the main strategic lines that highlight the location and urban integration of the Botanical Garden in the city, as well as the initiatives that strengthen their character of sociocultural reference. The territory of the Botanical Garden is seen from its singularities, considering the buildings used by the research and maintenance units, as well as by agencies and entities that are maintained as special grants, the housing and other urban uses. In this perspective, the specially protected heritage is understood from a multidimensional approach that seeks to reconcile the interests of preserving the vitality of the Botanical Garden in the social and urban context.

The third group concludes the document with general propositions, indicating a summary of actions taken (2002-2009), ongoing and planned projects, a description of special projects and complementary

plans, the efficient management of energy and environmental sanitation and integrated solid waste management, towards a sustainable management of the landmark.

V.D. 2. Component Part 4 – Mouth of Guanabara Bay and Manmade Shorelines

V.D.2.1. Flamengo Park Master Plan

Flamengo Park was designed in the 1960s by a team from the State Government of Guanabara under the leadership of architect Affonso Eduardo Reidy and Maria Carlota de Macedo Soares, and with the special input of landscape designer Roberto Burle Marx. The aim was to provide a rapid transit route between the centre and the south zones, as those which existed were badly congested. Meanwhile, the city's people would also gain a large leisure area. One of the facilities that would make up the park was a public marina. Glória Marina was designed by the city council in the late 1970s but remains incomplete and unfit to meet current needs.

A new project for the marina is being negotiated between the different public stakeholders, including IPHAN, by which it is listed, as well as the private sector who aquired the rights to manage and develop the marina.

A master plan for Flamengo Park is under discussion between the representatives of The City, State and Federal Government, composing a technical group, with the member also been participatihg in the Technical Committee for the Nomination of the City of Rio de Janeiro as World Heritage, designated by IPHAN in 2009. The objetives for the future master plan was delineated by the technical group as follow:

- Identify, through survey and diagnosis of physical conditions, environmental, socio and cultural landmarks of the park, its uses, the landscape features and critical problems and potentials;
- Set guidelines for regulating the use of space and equipment of the park, to be subsequently submitted to the municipal executive and legislative levels, in charge of its management;
- Establish the actions for maintenance, restoration and conservation needs;
- Contribute to public agencies directly involved in the management and preservation of Flamengo Park, to establish a management model, with of legal status, to reinforce a more efficient and sustainable administration over time. This management model will take into account

the implementation of the Master Plan and monitoring of their directives.

V.D.2.2. Revitalisation and Conservation Plan for the Historic Forts at the Mouth of Guanabara Bay

The Plan to revitalise and promote tourism and the cultural use of the historic forts at Guanabara Bay mouth, was prepared by the Brazilian Army – Cultural Heritage 1º Division, with the supervision of IPHAN. The objective was to criate five programs:

- Cultural Heritage Conservation Programme for São João, Duque de Caxias, Santa Cruz, Copacabana, N S da Conceição, Laje, Pico, São Luiz, Imbuhy and Gragoatá forts and for the monument to the soldiers who died in WWII,
- Cultural History Programme - including historical and archaeological research, collection of testimonials and creation of a database
- Tourism and Social Use Programme - with the recuperation and/or construction of four mooring points for tourism vessels, tourism infrastructure for receiving visitors, and social projects in partnership with local communities
- Environmental Education Programme drawn up, with infrastructure provided for nature trails, security system, environmental tour guides and conservation of remnants of Atlantic Rainforest.

V.D.3. City of Rio de Janeiro Master Plan

The first Master Plan for the City was approved in 1992. It is a municipal law which establishes guidelines for the occupation of the city. It identifies and analyzes the physical characteristics, the predominant activities and vocations of the city, the problems and potentials.

The current Master Plan was discussed and approved by the City Council and endorsed by the mayor by December, 2010. The result, formalized as the Municipal Law for the next ten years, is the expression of the pact between the community, the executive and legislative municipal government.

Amendments to Municipal Executive government were proposed in 2009 to include the concept and underline the importance of the landscape among the guiding principles and application of town-planning policies in the City

Modification Amendment nº 1

Paragraph I do Art. 2 becomes law in the following terms:

"I. Conservation and protection of the environment, the landscapes and the natural and cultural heritage in the process of the City's development;"

Additional Amendment nº 2

Art. 2 becomes law including paragraphs §1, §2, §3 e §4, in the following terms:

"§ 1. Landscape is here taken to signify the interaction between culture and the natural environment, expressed in the spatial arrangement which results from the juxtaposition of natural, social and cultural elements, and the physical traces of actions, demonstrations and forms of human expression.

§ 2. The landscape of the City of Rio de Janeiro represents the most valuable economic property of the city, responsible for its recognitIon as a universal icon and its inclusion in the country's touristic economy, generating employment and income.

§ 3. The landscape heritage of the City of Rio de Janeiro includes not only the landscapes with excepcional features, but also the landscapes resulting from popular expression and action.

§ 4. The visual access to the landscape of the City of Rio de Janeiro is an unalienable right of this and future generations."

These amendments were sent to the City Council for approval.

V.D.2.3. Guanabara Bay Cleanup Programme

Launched on 28th January 2007, the Programme for Accelerated Growth is a federal government programme that encompasses a set of economic policies to be implemented over a period of four years with the aim of boosting economic growth across Brazil. With total investments summing 503 billion Reais by 2010, the programme is split into five areas, the main one addressing infrastructure, housing, sanitation and public transport. In Rio de Janeiro, several low-cost housing projects, including favelas, are being developed in partnership with the state and local governments, some of which are in the buffer zone of the site.

The Guanabara Bay Cleanup Programme is a set of basic sanitation works that have been undertaken over the last 20 years in Rio de Janeiro State to try and reduce pollution levels in Guanabara Bay. The programme includes not only sanitation works, but works to ensure a more reliable water supply, improved refuse collection, flood control, digital mapping of the area, and several environmental projects. In 1994, a budget of US$ 793 million was provided for the project, US$ 350 million of which was financed by the Inter-American Development Bank (IDB), US$ 237 million by the Japan Bank for International Cooperation and US$ 206 million by the state government. The loan agreement was signed by the state government and the IDB on 9th March 1994, with a term of five years. However, in view of the complexity of the programme, with investments that involve independent projects by state and municipal entities, the term was extended. The Alegria sewage treatment plant, opened in January 2009, was a major step towards improving the quality of the waters discharged into the bay.

V.E. MANAGEMENT PLAN FOR THE PROPERTY

A shared management plan for the site should be based on strategies to ensure the continued cultural and environmental sustainability of the landscape:

- raising the awareness of the general public as to the importance of conserving this heritage as a memory of the city's culture and identity;
- improving the planning and management of the different elements in the site; and
- applying these planning and management instruments to the integrated management of the site, involving all three levels of government, the private sector and civil society.

The shared management initiatives should be structured along four dimensions: institutional, normative, operational/technical and economic/financial. It should be decided which unit of land will include the elements proposed and a structure for the shared management should be established, including an Advisory Board and Technical Committee that can provide support for the tasks of the Management Committee.

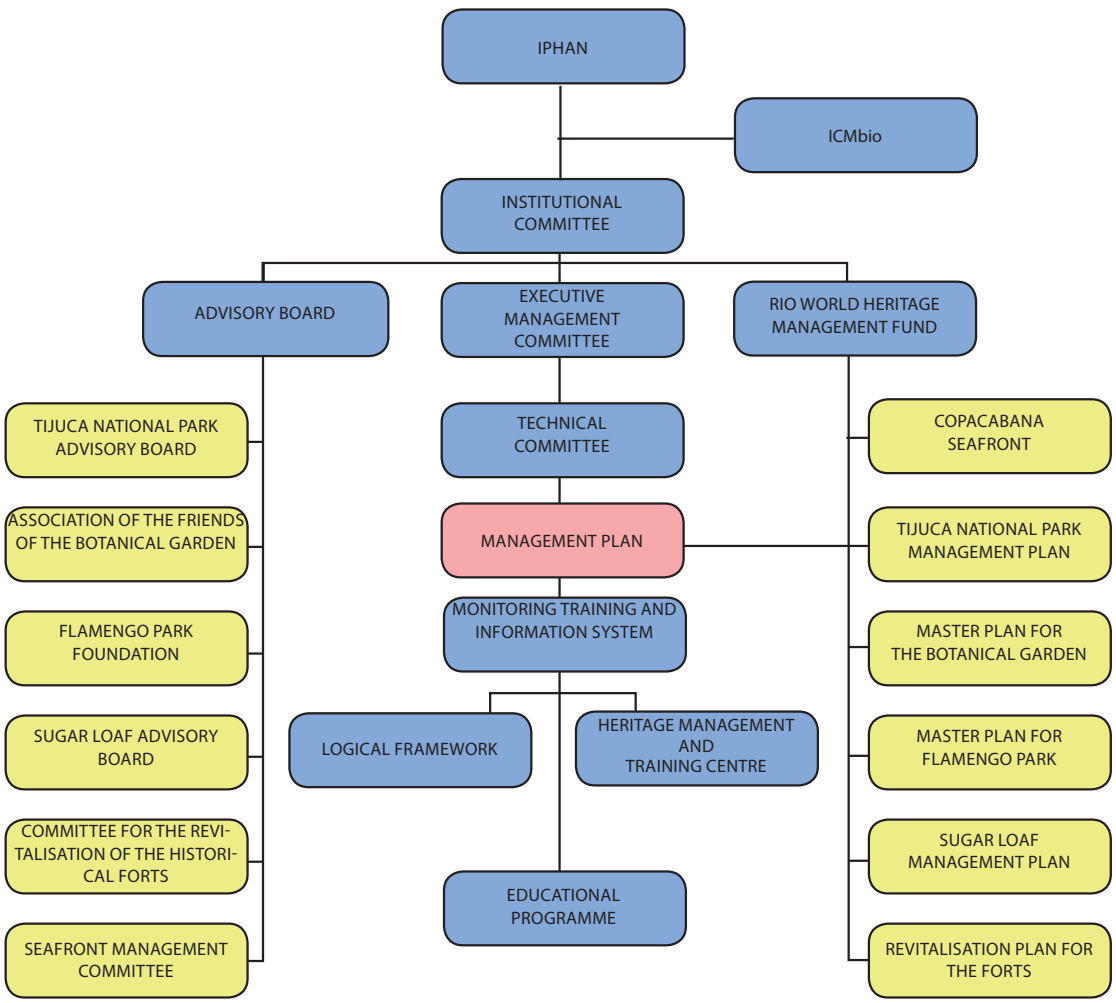
In its normative and technical/operational dimensions, the shared management should introduce new rules and regulations for protecting and managing the site, ensuring they are in line with existing legislation. For the financial/economic aspect, a fund is planned, to be called the Conservation Fund for the Rio World Heritage Site.

The planned organisational diagram shown below reflects the concept of the Plan which will be based on the sharing of responsibilities and

decisions making among all three levels of government, the private sector and civil society.

The coordination will be made by the national heritage and environment agencies: the Federal Agency for Cultural Heritage (IPHAN) and the Chico Mendes Institute for the Conservation of Biodiversity (ICMBio), under the auspices of the Ministry of Culture and Ministry of Environment.

The property Management Plan is currently under discussion and negotiations by the Institutional and Technical Committee for the Nomination of Rio as World Heritage. The Logical Framework shown as follow was the result of the Commitee's agreements.



LOGICAL FRAMEWORK FOR THE RIO WORLD HERITAGE SITE

OBJETIVES	INDICATORS	CHECKPOINTS	ASSUMPTIONS
General Objectives **Cultural Landscapes** recuperated, conserved in a sustainable manner and kept under joint management	1. Cultural landscapes that are well conserved and/ or recuperated between the 1st and 5th year of the Management Plan, which are used for cultural, social and retail activities, identified with signs that explain their historical, cultural and environmental significance in two languages, so that the local public and visitors can have access to this information. 2. Local people with a good degree of knowledge about and positive attitude towards World Heritage by 2012 3. Increased flow of visitors to the five elements in the site as of its nomination to be inscribed on the List of World Heritage. 4. Management Committee to be created by January 2012 with representatives from federal, state and local government, the current administrators of the elements in the site, and the private sector. 5. Community involvement through partnerships between the community / public administrators / private sector by January 2012. 6. World Heritage Management Fund with a surplus by five years after its creation, receiving funds from donations, public monies, revenues from financial investments, etc.	1. Annual progress report on conservation, educational and promotional activities, to be drawn up by the Management Committee and included in the Management Plan. Photographic record. 2. Survey of the local population's degree of awareness regarding the Rio World Heritage Site by the Management Committee in 2011-2012. 3. Visitor figures to the museums and other places open to the public in the five sectors. 4. Agreements signed with private partners and Education Project report. 5. Balance sheets, trial balances and income statements for the World Heritage Management Fund.	1. Educational and awareness-raising campaign by the Rio World Heritage Management Committee's partners. 2. Execution of the Management Plan and interest of the private sector in the plan's proposals. 3. Conservation of the area surrounding the site's five elements to prevent any undue interference.

RESULTS	INDICATORS	CHECKPOINTS	ASSUMPTIONS
R1) **TIJUCA NATIONAL PARK revitalised and conserved as per the Management Plan for the next five years**	a) Public services adopted and in line with international tourism standards	Annual Report Document showing approval of projects and works by competent entities Count of visitor numbers using figures from the Visitor Centre Count of the number of tickets sold at the visitor centres	a) To continue to be a protected area b) To continue to be a federal autarchy, with funds being allocated to different entities as required c) To continue to be a listed site of environmental and cultural heritage, with adequate coordination between the different federal entities involved to protect its historic, cultural and environmental heritage d) Interest and involvement of the private sector in the conservation of its environmental and cultural heritage
	b) Correction of any land ownership issues and provision of suitable infrastructure for the needs and aims of the conservation area		
	c) Code of conduct for users of the national park		
	d) More robust administration with priority action plans to improve its performance and functions		
	e) System to organise visiting to the park and control of revenues		
	f) Recognition of Tijuca National Park for its natural, historical and cultural value on a local, regional, national and international scale		
	g) Strategies to control and protect the natural resources in the conservation area		
	h) Recuperation of natural ecosystems		
	i) Systematic actions to prevent forest fires		
	j) Mechanisms for outreach from the conservation area to the local community and institutions established to prevent squatting		
	k) Institutional functions and powers established in technical cooperation processes		
	l) Adjustment of areas for public use in line with technical and operational criteria		
	m) Economic self-sustainability and qualification in all activities undertaken within the conservation area		
	n) Management activities inside and outside the protected areas, with management, research, monitoring, visiting and environmental education implemented according to the management plan for the next five years counting from its approval		

RESULTS	INDICATORS	CHECKPOINTS	ASSUMPTIONS
R2) BOTANICAL GARDEN OF RIO DE JANEIRO conserved and managed in compliance with its Master Plan in four main areas: **1 – Arboretum;** **2 – Cultural Corridor and Administration Area;** **3 – Teaching and Research Facilities;** **4 – Integration and Future Expansion.**	a) Conservation of the Arboretum landscape environment, including its monuments and artworks, allowing the greatest possible visitor numbers by means of the following measures: • Conservation of the heritage and enhanced importance of the visiting public; restoration of the Mestre Valentim greenhouse, viewing spot from the Atlantic Rainforest walk, turrets on the main gate (snack bar and first aid unit) • Improvement of infrastructure and support services; electricity cables to be laid underground	Annual Report Approval of projects and works by IPHAN	a) To continue to be a protected area; b) To continue to be a federal autarchy, with funds being allocated to different entities as required; c) To continue to be a listed site, with adequate coordination between the different federal entities involved to protect its historic, cultural and environmental heritage, especially IPHAN. d) Mutual interest of the stakeholders in its shared management in the future
	b) Visits by the public to be enhanced by improving the services and facilities in the Cultural Corridor by means of the following measures: • Integration of the whole area with improved road infrastructure • Expanded Cultural Corridor – Visitors Centre	Annual Report Approval of projects and works by IPHAN Count of visitor numbers using figures from the Visitor Centre Count of the number of tickets sold	
	c) Research and Education Units integrated with the other activities undertaken at the Botanical Garden, allied to heritage protection activities by means of the following measures: • Restoration of the National School of Tropical Botany (Escola de Botânica Tropical) • Surfacing of the service route to integrate the Arboretum with the National School of Tropical Botany • Integration between teaching and research activities and expanded visitor areas; Vegetation House (to be opened to the public).	Annual Report Approval of projects and works by IPHAN Count of number of visitors to the Vegetation House	

RESULTS	INDICATORS	CHECKPOINTS	ASSUMPTIONS
R2) BOTANICAL GARDEN OF RIO DE JANEIRO conserved and managed in compliance with its Master Plan in four main areas: **1 – Arboretum;** **2 – Cultural Corridor and Administration Area;** **3 – Teaching and Research Facilities;** **4 – Integration and Future Expansion.**	d)) Improved methods for controlling the use and occupation of the land by means of the following measures: • Improved infrastructure and support services; composting facility; • Provision of support services brought in line with their use and expansion of visiting areas; new composting facility and garage for own vehicles.		a) Annual Report; b) Approval of projects and works by IPHAN.
	e) Special projects and supplementary plans: • Efficient energy management; • Environmental sanitation and integrated solid waste management; • Improved water supply and sewage systems; • Rainwater drainage system; • Irrigation and water system for lakes; • Management Plan for Living Collections; • Visitor profile study; • Plan for improved accessibility to the Botanical Garden of Rio de Janeiro.		a) Progress report;s; b) Official appproval of projects and works by IPHAN

RESULTS	INDICATORS	CHECKPOINTS	ASSUMPTIONS
R3) Flamengo park with a Master Plan drawn up and conservation provided as per its original plan	a) Master Plan drawn up and approved by January 2012	Approval document by the competent agencies	a) To continue to be an environmentally protected area; b) To continue to be run by the local authority, with funds being allocated as required; c) To continue to be a listed environmental and cultural site, with adequate coordination between the different federal entities involved to protect its historic, cultural and environmental heritage; d) Interest and involvement of the private sector in the conservation of the environmental and cultural heritage e) Mutual interest of the stakeholders in its shared management in the future
	b) Project drawn up for the restoration of the original architectural and landscape elements in the park, to be put into practice as of July 2012	Document showing approval of projects and works by competent entities	
	c) Resumption of the restoration of the monument to Estácio de Sá in October 2009 and start of visits by the public in March 2012.	Report on works	
	d) Project to revitalise Glória Marina to be drawn up by December 2009 with works to begin by July 2012	Document showing approval of projects and works by competent entities	
	e) Improved management practices through the creation of the Flamengo Park Foundation by July 2012		
	f) Increased visitor numbers and improved tourist services and infrastructure by July 2012	Count of visitor numbers from figures collected at the monument to the soldiers who died in WWII, Glória Marina, the Museum of Modern Art and others	

RESULTS	INDICATORS	CHECKPOINTS	ASSUMPTIONS
R4) Mouth of Guanabara Bay and Sugar Loaf (Pão de Açúcar) Natural Monument with a Master Plan drawn up; Fort Landscape with a revitalisation programme drawn up; both areas duly conserved	a) Sugar Loaf Natural Monument: • Management Plan drawn up by July 2010 • • Environmental management, conservation, maintenance, recuperation, administration and environmental control in place as required for it to function smoothly and be enjoyed by visitors and the local people alike; • green areas conserved and of easy access for leisure activities; • Remnants of Atlantic Rainforest and landscape heritage in the area duly conserved, protected and recuperated; • Preservation of listed natural heritage assets assured.	Annual Report Approval of projects and works by IPHAN and the local authority Visitor count using visitor lists Count of number of tickets sold	a) To continue to be environmentally and culturally protected areas b) To continue to be run by the public sector, with funds being allocated as required c) To continue to be listed environmental and cultural sites, with adequate coordination between the different federal entities involved to protect their historic, cultural and environmental heritage d) Interest and involvement of the private sector in the conservation of the environmental and cultural heritage e) Mutual interest of the stakeholders in its shared management in the future
	b) Plan to Revitalise and Promote Tourism and the Cultural Use of the Historic Forts at Guanabara Bay, to be drawn up by July 2012: • Cultural Heritage Preservation Programme drawn up for São João, Duque de Caxias, Santa Cruz, Copacabana, N S da Conceição, Laje, Pico, São Luiz, Imbuhy and Gragoatá forts and for the monument to the soldiers who died in WWII, • Cultural History Programme prepared, including historical and archaeological research, collection of testimonials and creation of a database • Tourism and Social Use Programme drawn up, with the recuperation and/or construction of four mooring points for tourism vessels, tourism infrastructure for receiving visitors, and social projects in partnership with local communities • Environmental Education Programme drawn up, with infrastructure provided for nature trails, security system, environmental tour guides and conservation of remnants of Atlantic Rainforest	Report by the plan coordinators Approval of projects and works by IPHAN and the other entities concerned Visitor count using forts' visitor lists Count of number of tickets sold	

RESULTS	INDICATORS	CHECKPOINTS	ASSUMPTIONS
R5) Copacabana beach, Leme and Arpoador spits, with a Conservation and Revitalisation Plan drawn up and the areas duly conserved.	a) Plan for the Recuperation and Revitalisation of Copacabana Beach drawn up by January 2012, including: • Recuperation of all the elements in the original plan by Burle Marx, especially the Portuguese cobblestone mosaics, using internationally-used conservation techniques • Reorganisation of the use of public spaces so as not to impede or disrupt the use of the listed heritage • Removal of elements out of keeping with the original plan, such as urban facilities, awnings, iron railings, etc. • Revitalisation of the use of public spaces, encouraging different social and cultural activities in keeping with the listed heritage	Report on the activities by the Recuperation Plan coordinators Approval of projects and works by IPHAN and the other entities concerned Visitor count using visitor lists from Duque de Caxias and Copacabana forts	a) To continue to be environmentally and culturally protected; b) To continue to be run by the local authority, with funds being allocated as required; c) To continue to be a listed environmental and cultural site, with adequate coordination between the different federal entities involved to protect its historic, cultural and environmental heritage; d) Interest and involvement of the private sector in the conservation of the cultural heritage e) Mutual interest of the stakeholders in the shared management of the seafront
	b) Programme for the Tourism and the Social Use of the spits of land at Leme and Arpoador: • recuperation and/or construction of mooring points for tourism vessels at Copacabana fort, • tourism infrastructure to receive visitors; • social projects in partnership with local communities		

RESULTS	INDICATORS	CHECKPOINTS	ASSUMPTIONS
R6) Management of the Rio World Heritage Site to be shared between the three levels of government in partnership with the private sector	a) Creation of the Rio World Heritage Management Fund as of July 2012	a) Management report by the fund	a) Mutual interest of the stakeholders in the future shared management of the site
	b) Training of the members of the fund's board of curators as of October 2012	b) Report on activities undertaken at the Heritage Management and Training Centre	b) Interest and involvement of the private sector in the conservation of the environmental and cultural heritage
	c) Management of the site shared between municipal, state and federal entities	c) Management report by the IPHAN Information System	
	d) Compliance with preservation-related local, state and federal legislation		
	e) Development of a Heritage Management and Training Centre by IPHAN in partnership with Unesco		
	f) Inclusion of the Rio World Heritage Site in the IPHAN Information System		

V.F. SOURCES OF FUNDING

The two elements of the site with links to the Ministry of the Environment – Tijuca National Park and the Botanical Garden – formulate their budgets around the funds they receive from the federal government, international research institutions and direct funding from service contracts, entrance fees and outsourced services.

Local government money as well as money from contracts is used for the maintenance of the areas under the management of the local authority: Copacabana seafront, Flamengo Park, Sugar Loaf (Pão de Açúcar)and its cable car service, and Garota de Ipanema park in Arpoador.

The area of aesthetic interest at the mouth of Guanabara Bay, comprising Duque de Caxias and Copacabana forts, is maintained by the Brazilian Ministry of Defence / the Brazilian Army, and by private funds from entrance fees and rental for events.

V.G. TRAINING AND DEVELOPMENT

Heritage management and training centre

A partnership was set up between IPHAN and UNESCO to create the Heritage Management and Training Centre (Centro de Formação e Gestão em Patrimônio), initiating its activities by September 2010, based at Palácio Gustavo Capanema, IPHAN's office in Rio de Janeiro.

Professional Training and Environmental Education Programme at the Botanical Garden

The Research Institute of the Botanical Garden of Rio de Janeiro has highly qualified staff and has invested in its researchers by giving them grants for masters and doctoral courses in Brazil and abroad in different areas of knowledge. In 2002 when a public examination was held for new employees, the number of qualified researchers on the payroll increased, as did the number of research areas.

One part of the institute's environmental education programme is geared towards the less skilled employees, providing them with the knowledge they need to carry out their work at the gardens and meet the needs of the visiting public.

Post-Graduate Programme at the National School of Botany

The Post-Graduate Programme at the National School of Botany, with its masters and doctoral courses, is an integral part of the philosophy at the Research Institute of the Botanical Garden of Rio de Janeiro

to foment the study of botany and the environment. The institution also has environmental education and special courses designed to support the implementation and management of collections and new Botanical Garden. The teaching staff comprises researchers with doctoral degrees who also lecture in the post-graduate programme and supervise the work of young scientists. Their scientific output is of the highest national and international level. The technical staff is included in the Science and Technology Career Plan.

Environmental Education Unit at the Botanical Garden of Rio de Janeiro

The Environmental Education Unit (Núcleo de Educação Ambiental) is a long-term initiative to raise environmental awareness and share knowledge, values, skills and experience. It was created in July 1992 with the mission of undertaking projects and activities to encourage a change in behaviours and attitudes towards the environment. Its activities make use of elements of the arboretum, putting emphasis on conservation and the promotion of a better quality of life. The sensory garden and medicinal plants garden are helpful for spreading knowledge about the sustainable use of plants, their scientific use and their role in society.

Educational Programmes at Tijuca National Park

- Park Education and Integration Programme (Environmental Educators): work with environmental educators with a view to broadening the park's outreach to the local community by means of guided visits and recreation for children.
- Park Education and Integration Project (part of the Christ the Redeemer Project): including one coordinator and five teachers working at the eleven municipal schools around Tijuca Forest, alongside the Park Environmental Education Centre. The aim is to raise awareness as to the importance of preserving the cultural, historical and environmental heritage in the park, using it as an educational resource, holding workshops with fun activities and guided visits.

V.H. TOURISM INFRASTRUCTURE – VISITS BY THE PUBLIC

At the site, infrastructure and tourism jointly help to ensure the more respectful use of parkland, the sea front and beaches, and the appreciation of the landscape as key factors for environmental and social education, as well as leisure.

Tijuca Forest, with its springs, waterfalls and nature trails created by a romantic-inspired landscape design, provides attractions for tourists,

families, students and residents. According to data from the Ministry of Education, of all the parks in the country, Tijuca National Park receives most visits by tourists: some 1.2 million a year. This provides a living for around 30% of the residents from the communities around the forest, according to the report on activities between 2000 and 2008 published by RIOTUR, the Rio de Janeiro municipal tourism company.

At the entrance to Guanabara Bay, the forts provide unique points from which to appreciate the view of the city and the ocean. These forts reflect the different stages in the city's history, which can be learnt about on guided tours.

The city's two main picture postcards – Sugar Loaf (Pão de Açúcar) and Corcovado – are emblematic of the splendour of the landscape. In 2006, 434,047 people visited Corcovado by train, while Sugar Loaf, which provides an unrivalled panorama of the bay, receives some 35,000 visitors a month, according to data provided by Caminho Aéreo Pão de Açúcar.

The Botanical Garden are important for their research into tropical plant life. As part of their mission to promote science and foster a better quality of life, grants are provided for students of different levels. Any visit to the gardens brings people in contact with their collections of plants, some of which grouped together, such as in the bromeliad house, the orchid house, the medicinal plant garden, the sensory garden, the insectivore house and the cactus garden. In a bid to convey an idea of the breadth of its collections, the Botanical Garden also offer environmental courses with a view to awakening interest and ecological awareness.

Another attraction for its historical and artistic value and its landscape design is Flamengo park. In a survey done in 2008 by the Rio de Janeiro Department of Tourism, it was found to receive 7,860 visitors a month. The monument to Estácio de Sá was visited by 12,077 people in 2008. Other features of the park are the Museum of Modern Art and Glória Marina. There is also a project to promote socio-cultural tourism which involves children from private schools and visits in electric open-topped vehicles and tricycles to understand the importance of its preservation.

Copacabana beach has become a traditional venue for open-air events. If on the international circuit it is commonplace for shows to be held in sports stadiums, in Rio they are often held in public spaces. Copacabana beach often attracts in huge crowds for such events, as was the case in 2005 for the Rolling Stones show, and in 2007 for Life Earth. Another highpoint of the cultural calendar is New Year's Eve,

estimated to be the largest open-air festivity on the planet. With shows by local and international bands and a firework display, around one million people are attracted to the beach and seafront, and also to other neighbouring beaches.

V.I. POLICIES AND PROGRAMMES FOR THE PRESENTATION AND PROMOTION OF THE PROPERTY

Educational Project for the Rio World Heritage Nomination

The aim of the education project devised for this nomination is:

- to foster the local people's participation in the nomination;
- to set up partnerships between city- and state-run schools and IPHAN to promote the nomination and raise awareness amongst pupils and teachers;
- to train teachers about the topics covered in the nomination;
- to hold an exhibition at Palácio Gustavo Capanema and organise visits by groups of school children.

The following activities to divulge Rio's World Heritage nomination will be undertaken via the following partnerships:

IPHAN - DEPAM - IPHAN OFFICES IN RIO DE JANEIRO

- Publication of Oficinas de Estudos da Preservação – Coletânea II (Preservation Study Workshops – Collection II), to be distributed to public and private libraries and universities;
- Royal Family in Brazil crossword magazine (reprint);
- Rio Cultural Landscape crossword magazine;
- Rio Cultural Landscape sticker album.
- Cycle of lectures on preservation for university students discussing different aspects of heritage;
- Extended visiting hours to forts;
- Extended visiting hours to churches;
- Palácio Gustavo Capanema: exhibition, sale of cultural products, tourist/cultural information desk, bookshop and cafe;
- Link to the IPHAN portal from Rio Cultural Heritage

RIO DE JANEIRO STATE DEPARTMENTS OF CULTURE AND EDUCATION

- Culture Units in Schools

The aim of this project is to foster, democratise, expand and improve the access of teachers and pupils from state-run schools to different forms of culture. The idea is to introduce 40 Culture Units to state-

run schools by December 2009 and a further 40 in 2010, which will provide a forum for promoting local art and culture, citizenship, youth action, entrepreneurialism, and the enhancement and preservation of local culture.

Courses, workshops and projects will be held inside and outside the school, as well as co-operatives for production, experimentation and learning with a view to consolidating the schools' identity as focal points for culture and citizenship in their communities. As part of these activities, actions will be taken to support Rio's nomination as Cultural Heritage.

- Teachers' Portal

This will be supplied with information for the teachers from the state schools and can also be used to post news about events and other activities related to Rio Cultural Landscape.

- Young Tourists

This project aims to encompass all the 1,380,000 pupils currently studying at the state-run schools in Rio. A study done as part of the planning stage revealed that most of the school children wanted to get to know Rio de Janeiro. Two internet portals now exist, one with information for teachers and the other for students, as well as a networking facility involving IT laboratories which hosts some 500 blogs from different schools. The pilot stage of the project will be for eight pupils from Japeri and eight from Rio de Janeiro.

STATE DEPARTMENT OF EDUCATION AND ROBERTO MARINHO FOUNDATION

- Independent Project

This consists of an educational programme that focuses on the needs of primary and secondary school pupils who have fallen behind in their schooling. There are currently around 18,000 students enrolled in the project, but the aim is for this figure to rise to 70,000 by the end. Rio as World Heritage will be the topic of a complementary, multidisciplinary project to make up part of the overall project. A teacher's book will be prepared that will provide theoretical, conceptual and methodological support for teachers. The aim is to awaken students' curiosity, encouraging them to find out more about the history of Rio de Janeiro, the importance of preserving and conserving its heritage and, above all, the recognition of this cultural landscape as world heritage.

RIO DE JANEIRO CITY COUNCIL – MUNICIPAL DEPARTMENT OF EDUCATION

Opportunities for spreading news about the bid: local authority portal

and the Department of Education intranet

Educational Initiatives:

- To produce material in line with the educational projects and proposals already being promoted by the Department of Education
- To create opportunities to present and discuss the topic amongst different sectors of society, so it is divulged and appropriated by the educational community: regional coordinators, administrators, teachers and boards of representatives (head teachers, teachers, pupils, employees and parents/guardians).

MULTIRIO CHANNEL

At the MultiRio portal: publication of a game about the topic. A team from MultiRio will work with a team from IPHAN to design a game, which will be published on the portal for anyone to play. Teachers working in municipally-run schools are the priority target audience, the idea being that they play the game with their pupils in the classroom.

On television: information about a video inspired by a text by Dr. Ivo Pitanguy praising the qualities of the city, and launch of a campaign for the general public and schools about Rio Cultural Landscape, which will also be broadcast by BandRio at times to be agreed with the city council.

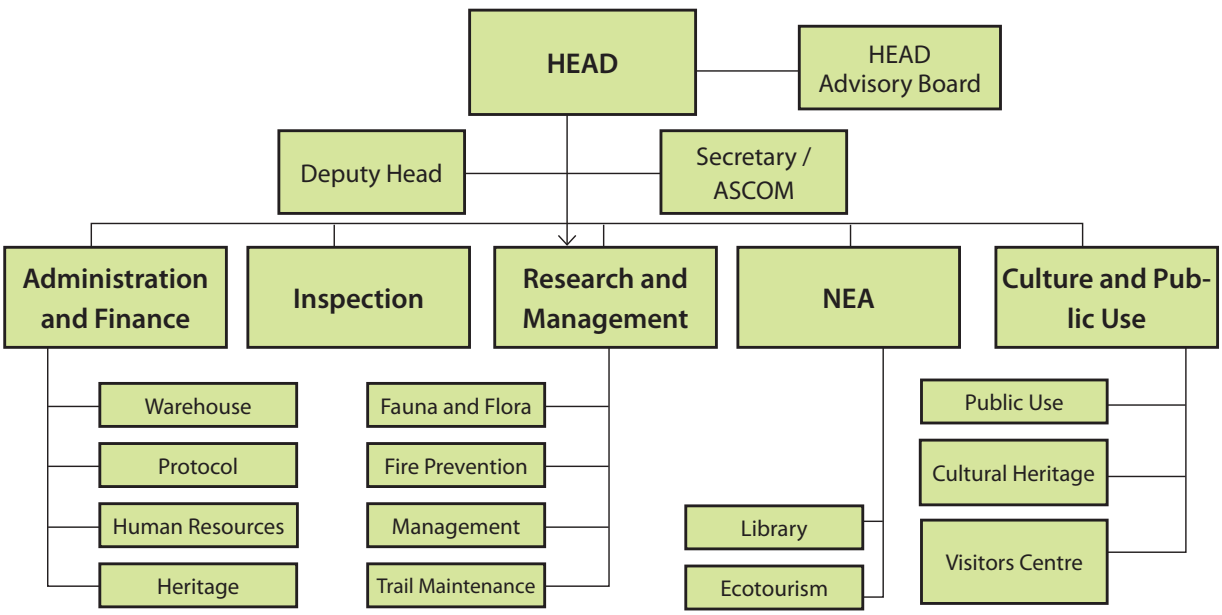
At school: competition amongst students attending schools run by the local authority to write the best sentences about Rio. The winning sentences will be used in an advertising campaign produced by MultiRio and broadcast on television and on the portal, with credit being given to the authors and their schools. This will be done in partnership with the municipal Department of Education.

EXECUTIVE COMMITTEE OF THE RIO CULTURAL LANDSCAPE NOMINATION

On order to build the groundwork from which to reach out to the private sector and the general public, an exhibition will be devised and held on the mezzanine floor of Palácio Gustavo Capanema, a listed building which currently houses the technical offices of the Rio de Janeiro nomination. Several monitors will be hired for the exhibition to provide assistance for teachers and the general public, as well as workshops. Additionally, there are plans to produce educational material to be given to teachers, students and the general public at the exhibition.

V.J. STAFFING LEVELS

1. TIJUCA NATIONAL PARK / ICMBIO



Organisational Chart of Tijuca National Park in 2007, Rio de Janeiro State

EMPLOYEES AND CIVIL SERVANTS							
ICMBIO				MUNICIPAL CENTRE			
AREAS	UNIVERSITY GRADUATES	HIGH SCHOOL GRADUATES	UNSKILLED	AREAS	UNIVERSITY GRADUATES	HIGH SCHOOL GRADUATES	UNSKILLED
Head	01			Coordinator	01		
Management and Protection	04	05		Advisor	01		
Research	02			Environmental Education	04		
Culture	02			Administration		01	
Environmental Education	04			Municipal Guard		30	
Ecotourism	01			Conservation and Roads			15
Administration	04	04		Street Cleaning			14
IT		02					
Administration		03					
Reception		06					
Trails Maintenance	02	12					
Building Maintenance			04				
Building Safety		50					
Communication	01						
Public Use	02	01					
Legal	01						
Supervisor of General Services		02					
Transport		03					
Building Cleaning			20				
Assistant		16					
Lift Maintenance		04					
SUB-TOTAL	24	108	24		06	31	15
TOTAL	156	64					
GRAND TOTAL	222						

N.B. It should be noted that some members of staff at ICMBio have more than one function, including environmental and historic research, and also undertake activities in their specific areas.

2. RESEARCH INSTITUTE OF THE BOTANICAL GARDEN OF RIO DE JANEIRO

President

Liszt Vieira

Managing Director

Renato Cader da Silva

Director of Scientific Research

Fabio Rubio Scarano

Director of Environment and Technology

Guido Gelli

Director of the National School of Tropical Botany

Gilberto Amado

Working Group to Review the Botanic Garden Master Plan

Guido Gelli (Chairman of the Working Group)

ADMINISTRATION OF THE BOTANICAL GARDEN

SECTOR	NUMBER OF EMPLOYEES
Administrative staff	60
Operational staff	40
Research area	80
Conservation	40
Others (security, etc)	30
Total	**250**

3. FLAMENGO PARK ADMINISTRATION

SECTOR	Nº OF EMPLOYEES	ENTITY	OBSERVATIONS
ADMINISTRATION	2	4th Administrative Region of the Rio de Janeiro Local Authority	Administrator: Hilton Faria Assistant: Ana Leite
CONSERVATION (administrative and operational staff)	168	Rio de Janeiro City Refuse Collection Company (COMLURB)	Refuse and litter is collected by three shifts of workers
SECURITY	76	Municipal Guard	The employees work in four shifts
	4	Military Police of the State of Rio de Janeiro	There are two police booths with two policemen each, one at the Museum of Modern Art and the other opposite Rua Tucumâ; police cars also circulate round the park
LIGHTING	3	Rio de Janeiro City Lighting Company (RIOLUZ)	The employees have weekly work schedules
LANDSCAPING	Five contracted workers provide this service	PARKS & GARDENS FOUNDATION – Rio City Council	The Parks & Gardens staff are responsible for planning and conserving the park
TOTAL EMPLOYEES (permanent and temporary)	258	249 employed by the local authority employees 4 employed by the state	5 workers contracted by the local authority to work in the park

VI. MONITORING

VI.A. KEY INDICATORS FOR MEASURING THE STATE OF CONSERVATION

As the site has has four component parts containing five landscape elements with specific features, it will be monitored against several indicators, which were presented in the Logical Framework before, signed by the entities responsible for the nomination and the Management Plan.

The indicators are the same as those already set forth in the Management Plan for Tijuca National Park, the Master Plan for the Botanical Garden, and the Revitalisation and Conservation Plan for the Historic Forts at the Mouth of Guanabara Bay. Some new indicators have been set for the plans being drawn up for Sugar Loaf Natural Monument, Flamengo Park and Copacabana beach, as well as those needed for monitoring the management and promotion of the Rio World Heritage property.

VI.B. ADMINISTRATIVE ARRANGEMENTS FOR MONITORING PROPERTY

The names and contact information of the agencies responsible for the monitoring are:

VI.B.1. Component Part 1, 2 and 3

VI.B.1.1. Tijuca National Park:

The park management has a special facility which is responsible for the monitoring, located within the park, in the address below. The director name is Bernardo Issa. The management office is under the Ministry of Environment / Instituto Chico Mendes de Conservação da Biodiversidade, located at the following addresses.

Instituto Chico Mendes de Conservação da Biodiversidade

EQSW 103/104, Complexo Administrativo, Bloco C, 10 Subsolo, Setor Sudoeste, CEP 70.670-350, Brasília-DF

Tel.: (61) 3341-9280 a 3341-9294

Website: www.icmbio.gov.br

President: Romulo José Fernandes Barreto Mello

Tijuca National Park Management Facility

Estrada da Cascatinha 850, Alto da Boa Vista

Rio de Janeiro/RJ - Brasil - CEP 20531-590

Telephones (55-21)2492-2252, 2492-2253 e 2401-1700

Website: www.sapnt.org.br

Director: Bernardo Issa

The Park, as well as the Botanical Garden, is under legal protection by IPHAN, and the office in charge of monitoring is the Rio de Janeiro Superintendence of IPHAN, located at the address:

RIO DE JANEIRO SUPERINTENDENCE OF IPHAN

Avenida Rio Branco n° 46, Centro

Rio de Janeiro/RJ - Brasil - CEP 20090-002

Telephones: (55 -21) 22030-3113 Fax (55-21) 2516-1075

Website: www.iphan.gov.br

Regional superintendent: Carlos Fernando de Souza Leão Andrade

The monitoring of some aspects is also shared with the City of Rio de Janeiro – Secretariat of Environment, as it is done by the Environmental Patrol – controlling forest fires; air pollution; illegal trade in wild fauna and flora, hunting and trapping of animals, water pollution, soil pollution, removal of vegetation, mineral extraction; irregular landfill; irregular invasion of areas of conservation and marginal strips; among others. The address of the City Hall and the Secretariat of Environment is:

CITY GOVERNMENT OF RIO DE JANEIRO

Rua Afonso Cavalcanti 455/13° andar, Cidade Nova

Rio de Janeiro/RJ - Brasil - CEP 20211-110

Telephones (55-21) 2273-3897/ 25032812 Fax: (55-21) 2273-9977

Website: www.rio.rj.gov.br

Mayor: Eduardo Paes

MUNICIPAL SECRETARIAT OF ENVIRONMENT

Rua Afonso Cavalcanti 455/12° andar, Cidade Nova

Rio de Janeiro/RJ - Brasil - CEP 20211-110

Telephones (55-21) 2976-3183

Website: www.rio.rj.gov.br/smac

Secretary: Carlos Alberto Muniz

VI.B.1.2. Rio de Janeiro Botanical Garden

The Botanical Garden has its administrative structure under the Ministry of Environment. It was criated an Institute for the management, which office is located in the address bellow. The monitoring is made by the Institute with the supervision of the Rio de Janeiro Superintendence of IPHAN:

RIO DE JANEIRO SUPERINTENDENCE OF IPHAN

Avenida Rio Branco n° 46, Centro

Rio de Janeiro/RJ - Brasil - CEP 20090-002

Telephones: (55 -21)22030-3113

Fax (55-21) 2516-1075

Site www.iphan.gov.br

Regional superintendent: Carlos Fernando de Souza Leão Andrade

THE RIO DE JANEIRO BOTANICAL GARDEN RESEARCH INSTITUTE

Rua Jardim Botânico 1008, Jardim Botânico

Rio de Janeiro/RJ - Brasil - CEP 22460-030

Telephones (55-21) 38741200

Fax (55-021-21) 38741201

Site www.jbrj.gov.br

President: Lizst Vieira

VI.B.2. Component Part 4

VI.B.2.1. Flamengo Park

The Flamengo Park is under the management / monitoring of the City Government – Municipal Secretariat of Environment - Parques e Jardins Foundation.

MUNICIPAL SECRETARIAT OF ENVIRONMENT - SMAC

Rua Afonso Cavalcanti 455/12° andar, Cidade Nova

Rio de Janeiro/RJ - Brasil - CEP 20211-110

Telephones (55-21) 2976-3183

Site www.rio.rj.gov.br/smac

Secretary: Carlos Alberto Muniz

PARQUES E JARDINS FOUNDATION

Rua República do Líbano, nº 54, Campo de Santana, Centro

Rio de Janeiro, RJ – Brazil – CEP: 20211-110

Tel: (55-21) 2223-3228

Website: wwwo.rio.rj.gov.br/fpj/

Director: Ino Francisco de Gama Menezes

Flamengo Park, the Sugar Loaf (Pão de Açúcar) and the Historic Forts are under legal protection by IPHAN, and the office in charge of monitoring is the Rio de Janeiro Superintendence of IPHAN, located at the address:

Avenida Rio Branco n° 46, Centro

Rio de Janeiro/RJ - Brasil - CEP 20090-002

Telephones: (55 -21)22030-3113 Fax (55-21) 2516-1075

Site www.iphan.gov.br

Regional superintendent: Carlos Fernando de Souza Leão Andrade

VI.B.2.2. Copacabana Seashore

The monitoring of Copacabana Beach is made by the City Government – Secretariat of Envinoment. The sidewalk designed by Burle Marx is under the State legal protection, which agency in charge of monitoring is the State Agency for Cultural and Artistic Heritage – INEPAC:

STATE AGENCY FOR CULTURAL AND ARTISTIC HERITAGE – INEPAC

Rua da Ajuda nº 05, 13º andar, Centro,

Rio de Janeiro, RJ, Brazil, CEP: 20.031-145

Tel: (55-21) 233311389

Director: Regina Pontin de Mattos

MUNICIPAL SECRETARIAT OF ENVIRONMENT - SMAC

Rua Afonso Cavalcanti 455/12° andar, Cidade Nova

Rio de Janeiro/RJ - Brasil - CEP 20211-110

Telephones (55-21) 2976-3183

Site www.rio.rj.gov.br/smac

Secretary: Carlos Alberto Muniz

VI.B.2.3. Sugar Loaf (Pão de Açúcar)Natural Monument

The Sugar Loaf Natural Monument is under the monitoring of the City Government – Secretariat of Environment and the Rio de Janeiro Superintendence of IPHAN, located at the addresses:

MUNICIPAL SECRETARIAT OF ENVIRONMENT - SMAC

Rua Afonso Cavalcanti 455/12° andar, Cidade Nova

Rio de Janeiro/RJ - Brasil - CEP 20211-110

Telephones (55-21) 2976-3183

Site www.rio.rj.gov.br/smac

Secretary: Carlos Alberto Muniz

RIO DE JANEIRO SUPERINTENDENCE OF IPHAN:

Avenida Rio Branco n° 46, Centro

Rio de Janeiro/RJ - Brasil - CEP 20090-002

Telephones: (55 -21)22030-3113 Fax (55-21) 2516-1075

Site www.iphan.gov.br

Regional Superintendent: Carlos Fernando de Souza Leão Andrade

VI.B.2.4. HISTORIC FORTS OF NITEROI AND RIO DE JANEIRO

The Historic Forts are under legal protection by IPHAN, and the office in charge of monitoring is the Rio de Janeiro Superintendence of IPHAN, located at the address:

RIO DE JANEIRO SUPERINTENDENCE OF IPHAN

Avenida Rio Branco n° 46, Centro

Rio de Janeiro/RJ - Brasil - CEP 20090-002

Telephones: (55 -21)22030-3113 Fax (55-21) 2516-1075

Site www.iphan.gov.br

Regional superintendent: Carlos Fernando de Souza Leão Andrade

The management of the Historic Forts is under the BRAZILIAN ARMY:

BRAZILIAN ARMY – CULTURAL HERITAGE DIVISION

Praça Duque de Caxias, 25, 13º andar, Centro, CEP: 20.221-260

Tel: (55-21) 2519-5094

E-mail: af.sobrinho@hotmail.com

Responsible: Cel Antônio Ferreira Sobrinho

VI.C. PREVIOUS MONITORING AND REPORTING

Previous reports are found for Tijuca National Park and Botanical Garden made by the time the Management and Master Plans were renewed, respectively in 2008 and 2009.

The Tijuca National Park 2008 Report

In the Tijuca National Park Management Plan 2008 report, it is identified that among the programs of Environmental Management, Public Use and Operation, the latter had the lowest number of actions implemented.

In the Environmental Management Program, various monitoring actions have been implemented, especially those related to scientific studies of geology, hydrology and ecology that evaluated the slopes and rock masses. Among the studies recommended before, only the search for the reintroduction of wildlife species was not performed.

Most proposals for the Public Use Program were implemented, except the actions of environmental interpretation, which were minimally developed.

Given the importance of the Operation Program, it was highlighted some actions planned but not executed. To date the park has few landmarks to identify their limits, even in areas susceptible to invasion, which are not fenced. Remain residents within the area and concessions of existing services in that period have not been revised or updated. There was loss of personnel for different reasons: retirement, change of work place etc.. Among the reasons for the low efficiency of the implementation of administrative actions the most obvious are the discontinuity of financial resources and often their lack; the discontinuity of managers over time; lack of political will; and insufficient number of personnel, especially specialists.

The Botanical Garden 2009 Evaluation

The 2009 Master Plan review concluded that the Botanical Garden Research Institute - JBRJ was consolidated as a center for botanical research, inaugurating since 2009 a new phase in which the dialogue between science and culture was prioritized. Thus the values that make up the heritage of the Botanical Garden defined the three dimensions that made up your own identity as a locus of protection of historical, cultural and environmental aspects of teaching and research institute, and urban park.

The actions taken within the Garden limits since 2002 and ongoing projects were reviewed and incorporated with the prospect to identify

strategies to bring together the interests of the preservation of historical, cultural and environmental activities with the renovation that have been consolidating in recent years.

Flamengo Park, Historic Forts, Sugar Loaf and Copacabana

For the other landscape elements - Flamengo Park, Historic Forts and Sugar Loaf (Pão de Açucar) – there have been executed sistematic monitoring by the Rio de Janeiro Superintendence of IPHAN, evaluating mainly the state of conservation of the built environment within the protected areas.

Since the sidewalks of Copacabana are protected by the State of Rio de Janeiro, the monitoring is made by the State Agency for Cultural Heritage- INEPAC. In one of the last reports it was pointted the necessity of restoration for the cooble stone pavings; the removal of interferences as new fences insttalled by the buildings private owners; non legal occupation of the side walk by restaurants, caffes; ilegal parking over the sidewalks, among others.

The Municipal Operation Center

Starting on December 31, 2010, the Municipality of Rio de Janeiro set up an Operation Center, which works in an intelligent building, equipped with cameras and information systems. The goal is to increase control over natural disasters, urban problems and facilitate quick decision-making in emergency situations in the city. There are 400 people who work in shifts of 70 operators, with 24-hour surveillance on 80 monitors. It operates through images of Rio, offering a range of services, from monitoring the traffic, fire and weather forecasts, to the control of illegal occupation, allowing the city to inform 72 hours in advance where it will rain heavy or where will have flooding.

Other Monitoring Actions

The Municipal Secretariat of Environment – SMAC is responsible for the water, soil, and air pollution monitoring. Other monitoring systems are found for diverse aspects of the components, as it is listed bellow:

INDICATOR	PERIODICITY	INSTITUTION - LOCATION OF RECORDS
Quality of the water – TIJUCA National Park	Monthly	PARNA TIJUCA/ LaDA - IQ/UFRJ – Federal University of Rio de Janeiro
Forest fires – Tijuca National Park and Botanical Garden	Monitor and predict forest fire occurrence within 48 hours	Park administration UFRJ - http://www.incendios.ufrj.br State Fire Department Light Transmission Lines Fire Monitoring Project
Air quality / pollution	Daily	FEEMA – INEA – ESTATE INSTITUTE FOR THE ENVIRONMENT - 13 sampling stations.
Quality of water and economic, sporting, tourist and leisure activities - beaches	Weekly	SMAC – Municipal Secretary of Environment - Committee for environmental Control of the Maritime Coast
Environmental Patrol – controlling forest fires; Air pollution; Illegal trade in wild fauna and flora, hunting and trapping of animals, water pollution, soil pollution, removal of vegetation, mineral extraction; irregular landfill; irregular invasion of areas of conservation areas and marginal strips; Protection and riparian areas; Overfishing; Uninstalling the park in areas of public squares and seizure; of domestic animals that are found loose in the areas of reforestation; Seizure materials; unauthorized activities in beach areas and units of Environmental Conservation;	24 hours Service	SMAC – Municipal Secretary of Environment - Environmental Patrol Program
Mapping and control of City vegetation - 11 classes: • Forest and Forest Amended • Restinga • Mangroves and Apicuns • Urban Area and Urban Area Non Consolidated • Field Anthropic • Wetland vegetation • Bare Soil and Mining • Crops and Pastures	Reports of 1984, 1988, 1992, 1996 and 1999	SMAC – Municipal Secretary of Environment - Project Land Cover Characterization of Rio de Janeiro-based classification of satellite imagery and the use of geographic information systems
"Clean Air Initiative in Cities of Latin America" Program	Starting December 1998	World Bank (WB) and Municipal Government - SMAC – Municipal Secretary of Environment - Consortium RENAULT-ARIA-INGEROP-CITEPA

INDICATOR	PERIODICITY	INSTITUTION - LOCATION OF RECORDS
Control of Noise Pollution in: • Bars and restaurants with music • Schools and associations samba • Temples of any religious worship • Signaler warning • Clubs, workshops and academies • Concert halls • Commercial breeding of animals • Works and industries • Noise from mechanical equipment (cooling towers, mechanical exhaust system and engine rooms).	Daily – survey by request	SMAC – Municipal Secretary of Environment
Climate Changes - Campaign Cities in Climate Protection- CCP - reduce the current warming trend of planet and improve their quality of life. The inventory of Greenhouse Gas Generated by Urban Activities in Rio de Janeiro	Report	ICLEI – City of Rio de Janeiro International Virtual Institute of Global Change and the Interdisciplinary Laboratory of Environment Energy Planning Program of COPPE / UFRJ.
Water quality – conditions of bathing - beaches	Daily – online search available	INEA – ESTATE INSTITUTE FOR THE ENVIRONMENT – available in http://www.inea.rj.gov.br/fma/balneabilidade-praias.asp?cat=75
Development Pressures control	Monthly Report	Satellite Monitoring System - INEA – ESTATE INSTITUTE FOR THE ENVIRONMENT
Favelas Development Control Regular control of illegal construction and mapping	Regular basis	IPP – Pereira Passos Institute - Satellite Monitoring and Mapping System Municipal Secretary of Urbanism – Favelas's Local Offices

VII. DOCUMENTATION

VII.A. IMAGE INVENTORY, PHOTHOGRAPS AND SLIDES

VII.A.1. Slide Inventory

IMAGE INVENTORY AND PHOTOGRAPH AND AUDIOVISUAL AUTHORIZATION FORM							
Id. No	Format (slide, print, video)	Caption	Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner if different than Photographer/ Director of the video)	Contact details of copyright owner (name, address, tell/ fax and email)	Non exclusive cession of rights exclusive cession of rights
001	slide	TIJUCA NATIONAL PARK – AERIAL OVERALL VIEW	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
002	slide	TIJUCA NATIONAL PARK – GÁVEA SECTOR IN THE FOREGROUND	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
003	slide	TIJUCA NATIONAL PARK – GÁVEA SECTOR AND SÃO CONRADO BEACH IN THE BOTTON	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
004	slide	TIJUCA NATIONAL PARK FROM SÃO CONRADO BEACH	August, 2009	Ruy Salaverry	-	Ruy Salaverry Ad dress: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
005	slide	CORCOVADO CHRIST REDEEMER (CRISTO REDENTOR) FRONT AND TIJUCA NATIONAL PARK WEST VIEW	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES

IMAGE INVENTORY AND PHOTOGRAPH AND AUDIOVISUAL AUTHORIZATION FORM (Cont.)							
006	slide	CORCOVADO CHRIST THE REDEEMER (CRISTO REDENTOR) BACK VIEW AND SUGAR LOAF (PÃO DE AÇÚCAR) VIEW	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
007	slide	CHRIST THE REDEEMER FROM DONA MARTA BELVEDERE	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
008	slide	NOMINATED SITE OVERVIEW	May, 20 2009	Katri Lisitzin	-	Katri Lisitzin Address: Odensgatan 16 A, SE 75313 UPPSALA SWEDEN E-mail: Katri.Lisitzin@sol.slu.se	YES
009	slide	TIJUCA FOREST VIEW	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
010	slide	TIJUCA FOREST OLD MANSORY BRIDGE	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
011	slide	TIJUCA FOREST MAIRINKY CHAPEL	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
012	slide	HENRIQUE LAGE MANSION AT LAGE PARK	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES

IMAGE INVENTORY AND PHOTOGRAPH AND AUDIOVISUAL AUTHORIZATION FORM (Cont.)							
013	slide	VISTA CHINESA BELVEDERE - CHINESE PAGODA	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
014	slide	BOTANICAL GARDEN - CAST IRON FOUNTAIN AND CORCOVADO HILL	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
015	slide	BOTANICAL GARDEN - JAPANESE GARDEN	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
016	slide	BOTANICAL GARDEN - PALM TREE PATH	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
017	slide	BOTANICAL GARDEN - PERGOLA	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
018	slide	BOTANICAL GARDEN – CARPOTECA	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
019	slide	MOUTH OF RIO DE JANEIRO BAY	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES

IMAGE INVENTORY AND PHOTOGRAPH AND AUDIOVISUAL AUTHORIZATION FORM (Cont.)							
020	slide	VIEW OF PROPOSED SITE FROM CORCOVADO BELVEDERE	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
021	slide	VIEW OF PROPOSED SITE FROM CORCOVADO BY NIGHT	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
022	slide	SÃO JOÃO FORT AND SUGAR LOAF	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
023	slide	SUGAR LOAF FROM THE MOUTH OF GUANABARA BAY	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
024	slide	SUGAR LOAF AND URCA DISTRICT	May, 20 2009	Márcia Nogueira	-	Marcia Nogueira Batista Address: Rua Gustavo Sampaio 576 ap 1204 22 010-010 - Rio de Janeiro Tel./fax 2275 2351 E-mail: marcianbatista@terra.com.br	YES
025	slide	URCA WATERFRONT	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
026	slide	BOTAFOGO COVE	May, 20 2010	Katri Lisitzin	-	Katri Lisitzin Address: Odensgatan 16 A, SE 75313 UPPSALA SWEDEN E-mail: Katri.Lisitzin@sol.slu.se	YES

IMAGE INVENTORY AND PHOTOGRAPH AND AUDIOVISUAL AUTHORIZATION FORM (Cont.)							
027	slide	BOTAFOGO COVE	June, 2009	Rafael Winter	-	Rafael Winter Ribeiro Address: Rua da Passagem, 78 - Cob.03, Rio de Janeiro - RJ, CEP: 22.290-030 Tel: 21 - 2275-0627 E-mail: rafaelwinter2002@yahoo.com.br	YES
028	slide	NITERÓI HISTORIC FORTS AND HILLS FROM URCA HILL	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
029	slide	SANTA CRUZ FORT	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
030	slide	SANTA CRUZ FORT - DETAIL OF THE STONE ARCHES	June, 2009	Cristina Lodi	-	Cristina Lodi Address: R. Senador Vergueiro, 157, apt 405 , Flamengo, Rio de Janeiro, RJ, CEP: 22230-000 Tel: 21-37986132 / E-mail: mclodi@superig.com.br	YES
031	slide	SANTA CRUZ FORT - STONE ARCHITECTURE THAT SHELTER THE CANNONS FROM THE CITY'S DEFENCES	June, 2009	Cristina Lodi	-	Cristina Lodi Address: R. Senador Vergueiro, 157, apt 405 , Flamengo, Rio de Janeiro, RJ, CEP: 22230-000 Tel: 21-37986132 / E-mail: mclodi@superig.com.br	YES
032	slide	FLAMENGO PARK	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
033	slide	FLAMENGO PARK AT THE WEEKEND	March, 2009	Cristina Lodi	-	Cristina Lodi Address: R. Senador Vergueiro, 157, apt 405 , Flamengo, Rio de Janeiro, RJ, CEP: 22230-000 Tel: 21-37986132 / E-mail: mclodi@superig.com.br	YES

IMAGE INVENTORY AND PHOTOGRAPH AND AUDIOVISUAL AUTHORIZATION FORM (Cont.)							
034	slide	VIEW OF THE PARKWAY TOWARDS SOUTH	March, 2009	Cristina Lodi	-	Cristina Lodi Address: R. Senador Vergueiro, 157, apt 405 , Flamengo, Rio de Janeiro, RJ, CEP: 22230-000 Tel: 21-37986132 / E-mail: mclodi@superig.com.br	YES
035	slide	BURLE MARX GARDENS	Mai, 2009	Cristina Lodi	-	Cristina Lodi Address: R. Senador Vergueiro, 157, apt 405 , Flamengo, Rio de Janeiro, RJ, CEP: 22230-000 Tel: 21-37986132 / E-mail: mclodi@superig.com.br	YES
036	slide	FLAMENGO PARK WITH OUTEIRO DA GLÓRIA IN THE BACKGROUND	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
037	slide	OUTEIRO DA GLÓRIA AND CORCOVADO IN THE BACKGOUND FROM GLÓRIA MARINA	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
038	slide	MUSEUM OF MODERN ART NORTH FACADE	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
039	slide	MONUMENT TO THE SOLDIERS WHO DIED IN WORLD WAR II	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
040	slide	] FLAMENGO PARK FROM GLÓRIA MARINA	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES

IMAGE INVENTORY AND PHOTOGRAPH AND AUDIOVISUAL AUTHORIZATION FORM (Cont.)							
041	slide	ESTÁCIO DE SÁ MONUMENT	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
042	slide	PASSEIO PÚBLICO SQUARE - VIEW OF MESTRE VALENTIN'S MONUMENT	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
043	slide	VIEW OF COPACABANA AND VERMELHA BEACH FROM LEME FORT	Mai, 2009	Katri Lisitzin	-	Katri Lisitzin Address: Odensgatan 16 A, SE 75313 UPPSALA SWEDEN E-mail: Katri.Lisitzin@sol.slu.se	YES
044	slide	COPACABANA BEACH FROM LEME FORT	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
045	slide	COPACABANA PALACE IN THE CENTRE OF COPACABANA BEACH - SÃO JOÃO HILL AND TIJUCA NATIONAL PARK IN THE BACKGROUND	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
046	slide	ARPOADOR SPIT AND DIABO BEACH	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
047	slide	TIJUCA NATIONAL PARK SOUTH SECTOR WITH COPACABANA BEACH IN THE FOREGROUND	-	Unknown	-	-	NO

IMAGE INVENTORY AND PHOTOGRAPH AND AUDIOVISUAL AUTHORIZATION FORM (Cont.)							
048	slide	COPACABANA SEAFRONT AND THE COBBLESTONE MOSAIC	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, No.1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
049	slide	COPACABANA PALACE HOTEL	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES
050	slide	VIEW OF LEME BEACH FROM COPACABANA FORT	August, 2009	Ruy Salaverry	-	Ruy Salaverry Address: Rua Aquidabã, 1117 Ap.103, Méier, Rio de Janeiro, RJ, CEP 20720-292 Tel: 21-71226112 E-mail: ruysalaverry@oi.com.br	YES

VII.A.2 Iconographic Survey

Maria Inez Turazzi and Lúcia Garcia

PANORAMAS OF THE CITY

[001 a, b, c, d, e]
Circular panorama of Rio de Janeiro bay (originally in eight parts)
Part 1: Entrance of the harbour of Rio Janeiro
T. Sydenham and J. Jeakes, 1812, print on metal

Part 2: View of the West side of the harbour of Rio de Janeiro with the Sugar Loaf rock
T. Sydenham (based on a sketch by B. Sydenham), September 1795, watercolour

Part 4: View of the town of St. Sebastian at Rio Janeiro on the West side of the harbour
T. Sydenham and J. Jeakes, 1812, print on metal

Part 6: Continuation of the East side of the harbour of Rio Janeiro
T. Sydenham (based on a sketch by B. Sydenham), September 1795, watercolour

Part 7: Continuation of the East side of the harbour of Rio Janeiro
T. Sydenham (based on a sketch by B. Sydenham), September 1795, watercolour

GEYER / MUSEU IMPERIAL COLLECTION

[002 a, b, c]
Circular panorama of Rio de Janeiro bay
Part 1: From Villegaignon island to Lapa beach and Santa Teresa hill
Part 2: From Castelo hill to São Bento hill and Cobras island
Part 3: From Armação spit in Niterói to Santa Cruz fortress
Sunqua, c. 1830, oil on canvas

GEYER / MUSEU IMPERIAL COLLECTION

[003 a, b, c, d, e, f] CG 00357; CG 00375; CG 00348; CG 00350; CG 00347; CG 00349
Circular panorama of Rio de Janeiro bay
Part 1: From Laje fortress to Glória church
Part 2: From Dona Marta hill to Candelária church
Part 3: From São Diogo hill to Ratos island
Part 4: From Enxadas island to Órgãos mountain range
Part 5: From Armação hill to Niterói
Part 6: From São Domingos spit to Santa Cruz fortress
Joseph Alfred Martinet, 1845, print

GEYER / MUSEU IMPERIAL COLLECTION

[008] Bauch
Bird's eye Panorama of Rio de Janeiro
Emil Bauch and J. Vogler, c. 1870, colour print

MUSEUS CASTRO MAYA COLLECTION

[039a]
View from the Summit of the Cacavada [sic] Mountains, near Rio
Augustus Earle, c. 1822, watercolour

NATIONAL LIBRARY OF AUSTRALIA

SUGAR LOAF

[040] CG 03843
Frigate in a squall under the Sugar Loaf entering Rio de Janeiro harbour
Emeric Essex Vidal, 1816, watercolour

GEYER / MUSEU IMPERIAL COLLECTION

[041] CG 00377
Westseite der Einfahrt in die Bai on Rio de Janeiro
West Side of the Mouth of Rio de Janeiro Bay
Prince Adalbert of Prussia (sketch) and W. Loeillot (print), 1842

GEYER / MUSEU IMPERIAL COLLECTION

[042] Ferrez – Museu Imperial
Vue prise du haut du Pain Sucre, 380 m
View from the top of Sugar Loaf, 380 m
Marc Ferrez, c. 1890, photograph

MUSEU IMPERIAL COLLECTION

[043] GErmakoff
Sugar Loaf
Anonymous, c. 1915, photograph

GEORGE ERMAKOFF COLLECTION

[044] IMS 007A5P3F13-13
View from the top of Sugar Loaf
A. Ribeiro, c. 1920, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[045] MIT – Fuss, p. 55
Rio de Janeiro (view from the top of Sugar Loaf)
Peter Fuss, c. 1937, photographic print

PRIVATE COLLECTION

CORCOVADO

[046] CG 01757
View of the Corcovado
Maria Graham, 1822, print by Edw. Finden

GEYER / MUSEU IMPERIAL COLLECTION

[047] Sabatier - MNH
View from the top of Corcovado
Leon J. B. Sabatier, c. 1830, print

MUSEU HISTÓRICO NACIONAL COLLECTION

[048] CG00353
Rio de Janeiro seen from the top of Corcovado
Adolphe D'Hastrel, c. 1840, watercolour

GEYER / MUSEU IMPERIAL COLLECTION

[049] Martinet
Panorama of Rio seen from the top of Corcovado
Alfred Martinet, c. 1850, print

MUSEUS CASTRO MAYA COLLECTION

[050] IMS 007 A5P3F03-24
Corcovado
Marc Ferrez, c. 1886, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[051] Malta - AFW
Corcovado
Augusto Malta, c. 1915-1920, photograph

ÁLVARO DE FRONTIN WERNECK COLLECTION

[052] Malta - AFW
Corcovado
Augusto Malta, c. 1915-1920, photograph

ÁLVARO DE FRONTIN WERNECK COLLECTION

[053] IMS 013 RJ 009-13
Construction of Christ the Redeemer
Anonymous, c. 1930, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[054] MIT - Fuss, p. 58
Monument to Christ the Redeemer
Peter Fuss, c. 1937, photographic print

PRIVATE COLLECTION

GÁVEA, RODRIGO DE FREITAS LAGOON

[055] CG 03946
Rodrigo de Freitas lagoon
Franz Keller, c. 1870, watercolour

GEYER / MUSEU IMPERIAL COLLECTION

[056] Ferrez - BN
Gávia
Marc Ferrez, c. 1890, photograph

NATIONAL LIBRARY COLLECTION

[057] MIT
Canoas viaduct – Gávea
Joel Guimarães, c. 1960, printed

PRIVATE COLLECTION

[058] CG 04103
View upon the Lake of Rodriguez de Freytas
Robert Streatfield, c. 1850, watercolour

GEYER / MUSEU IMPERIAL COLLECTION

[059] MIT – Fuss, p. 84
Rio de Janeiro –Rodrigo de Freitas lagoon – Corcovado
Peter Fuss, c. 1937, photographic print

PRIVATE COLLECTION

[060] CG 01202
View of the Botanical Garden
Sebastien Auguste Sisson, c. 1860, print

GEYER / MUSEU IMPERIAL COLLECTION

[061] Ferrez - JHermes
Botanical Garden
Marc Ferrez, c. 1885,photograph

JOÃO HERMES COLLECTION

[062] Ferrez - Itamaraty
Botanical Garden
Marc Ferrez, c. 1880, photograph

MAPOTECA DO ITAMARATY COLLECTION

[063] CG 02961 p. 115
Botanical Garden – hothouse for giant water lilies
Erich Eichner, c. 1944, photographic print

GEYER / MUSEU IMPERIAL COLLECTION

[064] MIT – Mann, p. 123
Lagoon and Botanical Garden
Hans Mann, c. 1957, printed

PRIVATE COLLECTION

TIJUCA FOREST

[065] CG 03702
Tijuca Waterfalls
G. H. von Löwenstern, 1827-1829, watercolour

GEYER / MUSEU IMPERIAL COLLECTION

[066] CG 03969
Tijuca Waterfalls
Johann Moritz Rugendas, c. 1821-1825, watercolour

GEYER / MUSEU IMPERIAL COLLECTION

[067] CG 04104
Large Tijuca Waterfalls
Robert Streatfield, c. 1850, watercolour

GEYER / MUSEU IMPERIAL COLLECTION

[068] CG 03928
Virgin Forest
Manoel de Araújo Porto Alegre, c. 1856, print

GEYER / MUSEU IMPERIAL COLLECTION

[069] CG 03643
View from Boa-Vista. Tijuca
George Lothian Hall, c. 1856-1858, print

GEYER / MUSEU IMPERIAL COLLECTION

[070] IMS 007 A6 P 4 FP 12-39
Diabo Spit
Marc Ferrez, c. 1886, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[071] Ferrez - IMS
Walk in Tijuca Forest
Marc Ferrez, c. 1885, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[072] Ferrez - Itamaraty
Tijuca – Papagaio Peak
Marc Ferrez, c. 1880, photograph

MAPOTECA DO ITAMARATY COLLECTION

[073] Malta - AFW
Tijuca - Vista Chinesa
Augusto Malta, c. 1910-1920, photograph

ÁLVARO DE FRONTIN WERNECK COLLECTION

[074] CG 02961, p 147
Vista Chinesa on Tijuca mountain range
Erich Eichner, c. 1944, photographic print

GEYER / MUSEU IMPERIAL COLLECTION

[074 a]
Nassau coffee plantation in Valley of TIjuca.
Watercolour by Emeric Essex Vidal, c. 1828. In: CEZAR, Paulo Bastos. *A Casa da Gávea Pequena: residência oficial da Cidade do Rio de Janeiro*. Rio de Janeiro: Casa da Palavra, 2006. P. 14

[74 b]
View of Rio from Alto da Boa Vista. c. 1820.
Nicolas Antoine Taunay.

MUSEUS CASTRO MAYA / IPHAN

[74 c]
Map – Restoration of Sites, Houses and Footpaths by Rio de Janeiro Federal District Authority – TIJUCA FOREST – 1949
In: CASTRO MAYA, Raymundo Ottoni. *A Floresta da Tijuca*. Rio de Janeiro: Edições Bloch, 1967.

PASSEIO / GLÓRIA / FLAMENGO

[031] Stahl
Passeio Público
August Sthal, c. 1865, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[037] LJoaquim – MHN
View of Glória
Leandro Joaquim, c. 1780-1790, oil on canvas

MUSEU HISTÓRICO NACIONAL COLLECTION

[038] CG 03982
View of Glória
Nicolas Antoine Taunay (unsigned), c. 1816-1820, watercolour

GEYER / MUSEU IMPERIAL COLLECTION

[039] CG 02961 p50
Glória church with lighting in August
Erich Eichner, c. 1944, photographic print

GEYER / MUSEU IMPERIAL COLLECTION

[075] CG 01757
Rio, from the Glória hill
Maria Graham (sketch) and Edw. Finden (print), 1822

GEYER / MUSEU IMPERIAL COLLECTION

[076] Bertichem
Glória
Peter Godfred Bertichem, 1846, oil on canvas

MUSEU DA IRMANDADE DO OUTEIRO DA GLÓRIA COLLECTION

[077] IMS 007A5P4F5-066
View from Glória
Marc Ferrez, c. 1900, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[078] IMS 007RAFMF - 194
View from Glória
Marc Ferrez, c. 1908, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[079] IMS 013RJ006-19
Avenida Beira Mar, Flamengo
Augusto Malta, c. 1906, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[080] CG 02961 p. 39
Paris square and monument to Deodoro
Erich Eichner, c. 1944, photographic print

GEYER / MUSEU IMPERIAL COLLECTION

[081] IMS 010RJAT26197
Aterro do Flamengo
Marcel Gautherot, c. 1964-1968, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[082] IMS 010RJ AT 26 188
Aterro do Flamengo
Marcel Gautherot, c. 1964-1968, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[082 a]
Passeio Público c. 1850.
Martinet.

NATIONAL LIBRARY FOUNDATION

[082 b]
Entrance to Passeio Público (1835)
THEREMIN, Karl Wilhelm von (German, 1784-1852). *print, 15.8 x 25.0 c.*

NATIONAL LIBRARY FOUNDATION

[082 c]
Panorama of the city of Rio de Janeiro. View of Gloria from Passeio Público
[print]/dessiné d'après nature par Desmons. Publicação Paris: Imp Lemercier [1854]

NATIONAL LIBRARY FOUNDATION

[082 d]
View of Guanabara Bay from Passeio Público terrace. *Vista tomada do Passeio Publico*. In: Ostensor Brazileiro Jornal Literário e Pictorial published by Vicente Pereira de Carvalho Guimaraens and João José Moreira. Rio de Janeiro. Vol. II. 1846-1847.Lith: Ludwig & Briggs.

NATIONAL LIBRARY FOUNDATION

[082 e]
Passeio Público
Bertichem, Pieter Godfred.. In: O Rio de Janeiro e seus arrabaldes. Rio de Janeiro: E. Rensburg, 1857.

NATIONAL LIBRARY FOUNDATION

[082 f]
Nossa Senhora da Gloria church taken from a terrace – (1835) – N. D. de Gloire pris d'une terrasse.
THEREMIN, Karl Wilhelm von (German, 1784-1852). print. 16.0 x 24.8 cm.

NATIONAL LIBRARY FOUNDATION

[082 g]
Mouth of the bay and city of Rio de Janeiro from the terrace in Santo Antonio convent, 1816
Nicolas AntoineTaunay.
Museu Nacional de Belas Artes

[082 h]
Drawing by Lúcio Costa for the Ministry of Education and Health building

LUCIO COSTA COLLECTION

[082 i]
Design by Burle Marx for the Ministry of Education and Health gardens

BURLE MARX E CIA COLLECTION

[082 j]
Photo-montage of the mock-up for the Museum of Modern Art
Affonso Eduardo Reidy.
PUC Rio de Janeiro Solar GrandJean de Montigny. – Rio de Janeiro: O Solar: Index, 1985, pag.93

[082 k]
Mock-up of the north façade, profile of the theatre on the left, Museum of Modern Art, Rio de Janeiro
Affonso Eduardo Reidy, drawing
(content of the webpage at: http://bhpbrasil.spaces.live.com)

[082 l]
Schematic of the blocks for the Museum of Modern Art
Affonso Eduardo Reidy, drawing
(content of the webpage at http://bhpbrasil.spaces.live.com)

[082 m]
Affonso Eduardo Reidy during a visit to the works in 1950
source: *Affonso Eduardo Reidy*, Ed. Blau
Photograph (content of the webpage at http://bhpbrasil.spaces.live.com)

[082 n]
MAM – back façade, terrace
Photograph (content of the webpage at http://bhpbrasil.spaces.live.com)

[082 o]
Reidy's original drawing for Flamengo park

CARMEM PORTINHO COLLECTION

[082 p]
Burle Marx's perspective for Flamengo park

BURLE MARX E CIA COLLECTION

[082 q]
Construction of the 2nd lane on reclaimed land in Flamengo
Gilberto Paixão photo collection. In Soares, Nair de Paula. Engenheiro Paula Soares: Antevisão Humana. Rio de Janeiro:PVDI,1977, p.14..

[082 r]
Burle Marx's design for the Copacabana mosaics

BURLE MARX E CIA COLLECTION

BOTAFOGO COVE

[083] CG 00017
Botafogo from Viúva hill
Iluchar Desmons (drawing) and St. Martin (print), c. 1854, print
GEYER / MUSEU IMPERIAL COLLECTION

[084] CG 00301
Botafogo beach still life at the jetty overlooking Viuva hill
Nicolau Antonio Facchinetti, 1878, oil on canvas
GEYER / MUSEU IMPERIAL COLLECTION

[085] IMS 013 RJ 011 - 54
Avenida Beira Mar, Botafogo
Augusto Malta, 12th November 1906, photograph
INSTITUTO MOREIRA SALLES COLLECTION

[086] IMS 007 A5 P3 F3 - 21
Botafogo cove
A. Ribeiro, 1916, photograph
INSTITUTO MOREIRA SALLES COLLECTION

[087] MIT - Fuss, p. 53
Rio de Janeiro (Botofogo cove)
Peter Fuss, c. 1937, photographic print
PRIVATE COLLECTION

COPACABANA AND SEAFRONT

[088] CG 04081
Copacabana
Reather, c. 1860., watercolour
GEYER / MUSEU IMPERIAL COLLECTION

[089] IMS 013 RJ 12 036
Copacabana
Augusto Malta, c. 1920, photograph
INSTITUTO MOREIRA SALLES COLLECTION

[090] Kfury - AFW
Strong Seas in Copacabana
Jorge Kfury, c. 1924, photograph
ÁLVARO DE FRONTIN WERNECK COLLECTION

[093] IMS 013 RJ 012 039
Avenida Delfim Moreira
Augusto Malta, c. 1919, photograph

INSTITUTO MOREIRA SALLES COLLECTION

[094] MIT – Fuss, p. 50
Rio de Janeiro (Ipanema and Lagoa)
Peter Fuss, c. 1937, photographic print

PRIVATE COLLECTION

[094 a]
Avenida Atlântica before it was widened
In Soares, Nair de Paula. Engenheiro Paula Soares: Antevisão Humana. Rio de Janeiro:PVDI,1977, p.9.
Photo from Rio Image archives.

[094 b]
Construction of Sewage Channel
In Soares, Nair de Paula. Engenheiro Paula Soares: Antevisão Humana. Rio de Janeiro:PVDI,1977, p.10.
(Photo from Rio GB Uma Nova Dimensão)

[094 c]
Partial View of Copacabana beach / 1970.
In Soares, Nair de Paula. Engenheiro Paula Soares: Antevisão Humana. Rio de Janeiro:PVDI,1977, p.13.

HISTORICAL FORTS

1- João Teixeira Albernaz, "o Moço". **APPEARANCE OF RIO DE JANEIRO**, 1666. Watercolour manuscript
PREFEITURA DA CIDADE DO RIO DE JANEIRO, *Do Cosmógrafo ao Satélite – Mapas da Cidade do Rio de Janeiro*. Secretaria Municipal de Urbanismo, Centro de Arquitetura e Urbanismo. Rio de Janeiro, 2000; p.37;

2 - PLAN OF RIO DE JANEIRO BAY AND ITS DEFENCES. Ca 1757
FERREZ, Gilberto. *O Rio de Janeiro e a defesa do seu porto. 1555-1800*. Rio de Janeiro: Serviço de Documentação Geral da Marinha, 1972. PRANCHA 42

3 - PLAN OF RIO DE JANEIRO LAGE. 1645
FERREZ, Gilberto. *O Rio de Janeiro e a defesa do seu porto. 1555-1800*. Rio de Janeiro: Serviço de Documentação Geral da Marinha, 1972. PRANCHA 11
4 - Gregório Gomes. **PLAN OF PRAIA VERMELHA FORTRESS**. Ca 1698.
FERREZ, Gilberto. *O Rio de Janeiro e a defesa do seu porto. 1555-1800*. Rio de Janeiro: Serviço de Documentação Geral da Marinha, 1972. PRANCHA 14

5 - PLAN OF SANTA CRUZ FORTRESS. C. 1765
FERREZ, Gilberto. *O Rio de Janeiro e a defesa do seu porto. 1555-1800.* Rio de Janeiro: Serviço de Documentação Geral da Marinha, 1972. PRANCHA 44

6 - PLAN OF THE WORKS FOR VILLEGAGNON FORT. 1767
FERREZ, Gilberto. *O Rio de Janeiro e a defesa do seu porto. 1555-1800.* Rio de Janeiro: Serviço de Documentação Geral da Marinha, 1972. PRANCHA 45

7 - Jacques Funck. **PLAN DES FORTIFICATIONS SUR LA PRESQUI'ISLE S. JOÃO**. 1769
FERREZ, Gilberto. *O Rio de Janeiro e a defesa do seu porto. 1555-1800.* Rio de Janeiro: Serviço de Documentação Geral da Marinha, 1972. PRANCHA 66

8 - Jacques Funck. **PLAN OF S. CRUZ PENINSULA**.1769
FERREZ, Gilberto. *O Rio de Janeiro e a defesa do seu porto. 1555-1800.* Rio de Janeiro: Serviço de Documentação Geral da Marinha, 1972. PRANCHA 55

9 - Marc Ferrez. **PHOTOGRAPH OF SANTA CRUZ FORT**. Ca. 1880.
FERREZ, Gilberto. *O Rio de Janeiro e a defesa do seu porto. 1555-1800.* Rio de Janeiro: Serviço de Documentação Geral da Marinha, 1972. PRANCHA 73

10 - Marc Ferrez. **PHOTOGRAPH OF LAGE FORTRESS**. Ca. 1893
FERREZ, Gilberto. *O Rio de Janeiro e a defesa do seu porto. 1555-1800.* Rio de Janeiro: Serviço de Documentação Geral da Marinha, 1972. PRANCHA 78.

CULTURAL LANDSCAPES – ASSOCIATED IMAGES

[01]
Commemorative card deck to celebrate the centenary of independence. 1922.
NATIONAL LIBRARY FOUNDATION.

[02]
Gautherot, Marcel. **Carnaval**. Praia do Flamengo. Rio de Janeiro. RIO DE JANEIRO / Brasil. c.1954. IMS

[03]
Medeiros, José. **Carnival floats seen from the balcony of a building on Avenida Atlântica**. Copacabana. Rio de Janeiro. RIO DE JANEIRO / Brazil. Ca 1950. IMS

[04]
Advertising design involving the image of Christ the Redeemer
DENIS, Rafael Cardoso. "O Rio de Janeiro que se vê e que se tem: encontro da imagem com a matéria". pp.82-97. In: A Paisagem carioca. Catalogue for exhibition held at the Museum of Modern Art, Rio de Janeiro, from 8th August to 17th September 2000. General Curator: Carlos Martins. Rio de Janeiro: Prefeitura do Rio de Janeiro/ Rioarte, 2000. 244 p.il.

[05]
Air France plane: advertising poster (Air France)
Desenho de Vasarely, France, c.1946, Printed without paper, 100 X 65cm, MR
DENIS, Rafael Cardoso. "O Rio de Janeiro que se vê e que se tem: encontro da imagem com a matéria". pp.82-97. In: A Paisagem carioca. Catalogue for exhibition held at the Museum of Modern Art, Rio de Janeiro, from 8th August to 17th September 2000. General Curator: Carlos Martins. Rio de Janeiro: Prefeitura do Rio de Janeiro/ Rioarte, 2000. 244 p.il.

[06]
Welcome to the wonder city: advertising poster
Moore McComarck Lines, USA, c.1940, Printed without paper, 100 X 65 cm, MR
DENIS, Rafael Cardoso. "O Rio de Janeiro que se vê e que se tem: encontro da imagem com a matéria". pp.82-97. In: A Paisagem carioca. Catalogue for exhibition held at the Museum of Modern Art, Rio de Janeiro, from 8th August to 17th September 2000. General Curator: Carlos Martins. Rio de Janeiro: Prefeitura do Rio de Janeiro/ Rioarte, 2000. 244 p.il.

[07]
Suedamerike: advertising poster
Pan American Airways, USA, c.1950, Printed without paper, 103 X 60.5 cm, CP
DENIS, Rafael Cardoso. "O Rio de Janeiro que se vê e que se tem: encontro da imagem com a matéria". pp.82-97. In: A Paisagem carioca. Catalogue for exhibition held at the Museum of Modern Art, Rio de Janeiro, from 8th August to 17th September 2000. General Curator: Carlos Martins. Rio de Janeiro: Prefeitura do Rio de Janeiro/ Rioarte, 2000. 244 p.il.

[08]
KLM: advertising poster
DENIS, Rafael Cardoso. "O Rio de Janeiro que se vê e que se tem: encontro da imagem com a matéria". pp.82-97. In: A Paisagem carioca. Catalogue for exhibition held at the Museum of Modern Art, Rio de Janeiro, from 8th August to 17th September 2000. General Curator: Carlos Martins. Rio de Janeiro: Prefeitura do Rio de Janeiro/ Rioarte, 2000. 244 p.il.

[01] ROUTES16

Map of the Western Hemisphere Showing the Routes of the Most Famous Navigators by Captain Jacques Cook, 1778

57.7 x 58.8, NATIONAL LIBRARY OF AUSTRALIA

Reproduced from: CUNHA E MENEZES, Pedro da. Rio de Janeiro on the Route of the Southern Seas: iconography of Rio de Janeiro in Australia.. Rio de Janeiro: Andrea Jackobsson Estúdio, 2004. Page 16

[02] ROUTES 13

Development of the Route of the Vessels of Roi la Boudeuse. And The Star around the World

Les voyages de Bougainville, Les Edition du Pacifique, Papeete, Tahiti

Reproduced from: CUNHA E MENEZES, Pedro da. Rio de Janeiro on the Route of the Southern Seas: iconography of Rio de Janeiro in Australia.. Rio de Janeiro: Andrea Jackobsson Estúdio, 2004. Page

[03] DSC_8146

The Bay of Rio de Janeiro and the City of São Sebastião 1573

TEIXEIRA, Luís. Pen and ink drawing. 23 x 16,5 cm.

Plan of all the signals, recognisable marks, depths, shallows, heights and pitfalls which exist on the Brazilian coast from the Santo Agostinho Cape to the Straits of Fernão de Magalhães. Copy of the manuscript of Biblioteca da Ajuda library. Lisboa: Tagol, 1988. SDM.

[04] Geelkerken_digital_BN

Rio Genero

GEELKERKEN, Nicolas van (Dutch, 15??-16??). Copper engaving. 20.0 x 15.0 cm. In: Reys-boeck van het rijcke Brasilien... Amsterdam, 1624. National Library Foundation. Rio de Janeiro, Brazil. The name of the engraver is unknown.

On the map of Rio de Janeiro are the following indications:

A ~ a block of stone called the Sugar Loaf.

B ~ the fortress which overlooks the mouth of the bay (Santa Cruz fortress).

C ~ the second fortress (São João fortress).

D ~ a small fort to prevent the passage of enemies at low tide (São Tiago or of Calabouço fortress).

E ~ an island containing the fortress which the French built (Villegaignon island and fortress).

F ~ the main part of the city (Indicates the whole harbour area, from Misericórdia Street to São Bento monastery and some of the streets which go from the beach to São Domingos square, which is now República square).

G ~ Santa Cathalina church(Candelária church).

H ~ São Francisco (H indicates São Bento monastery, while S. Francisco indicates the Franciscans convent).

I - the Governor´s residence with other fine houses; afterwards, in front of these there is a mountainous region in whose valleys (?) grow and fruits of the earth (unfortunately the engraver omitted this letter).

I' - Monges (the island of the Benedictine Monks known as Cobras island) / Flumen (Rio de Janeiro Bay still considered a river).

[05] COSMOGRAFO34

Captaincy of Rio de Janeiro 1631

João Teixeira Albernaz, "o Velho", Watercolour on parchment manuscript, 40 x 61 cm

ITAMARATY MAP LIBRARY, RIO DE JANEIRO.

Reproduced from: From the Cosmograph to the Satellite – Maps of the City of Rio de Janeiro Municipal Secretariat of Urbanism, Centre for Architecture and Urbanism. Rio de Janeiro, 2000; p. 34

[06] DSC_8153

Demonstration of Rio de Janeiro. Made by João Teixeira. His Majesty´s Cosmograph. Year 1645

TEIXEIRA, João (Portuguese, 17th century). Watercolour drawing on paper. 41.5 x 71.5cm. Brazilian Historical and Geographical Institute.

Shows the lines of defence from the fortresses at the mouth of Guanabara Bay and the city which develops between São Bento, Santo Antônio, Castelo and Conceição hills.

[07] DSC_8655

Appearance of Rio de Janeiro 1666.

ALBERNAZ, João Teixeira, "o Velho",.

Map library of Itamaraty.

[08] DSC_8147

Plan of the City of São Sebastião of Rio de Janeiro, with its fortifications 1713

MASSÉ, João (French, 16??-17??). Pen and ink, watercolour drawing. 57.5 x 87 cm. Original unsigned. In: FERREZ, Gilberto. The very loyal and heroic city of São Sebastião of Rio de Janeiro: four centuries of expansion and evolution, initiative of Raymundo de Castro Maya in commemoration of the 4th centenary of the founding of the city; texts and organisation by Gilberto Ferrez; carried out in Paris under the direction of Marcel Mouillot, R. de Castro Maya, s.l., 1965. Documentation Service of the Navy, Rio de Janeiro.

In the bottom left hand corner, in a big rectangle, under the title Explications, there are the following captions:

Note ~ the lines outlined in yellow show the works and new repairs made, or initiated to be made from the month of July 1713. The yellow lines show the works which have been intended since this time but not as yet undertaken

A ~ Fortress of São Sebastião with its new reforms and those still planned.

B ~ Bulwark designed on the site of the Cathedral with its new Communication Line

C ~ The College with its fence and hill.

D ~ Misericordia.

E ~ The Ancient Fortress of Santo Iago.

F ~ Harbour design (project of quays from the whole shoreline, from Calabouço to São Bento).

G ~ Storerooms of the King (later the Governadors' House, in Carmo square).

H ~ Caza da Moeda (later the Governadors' House, in Carmo square).

I ~ Carmo Convent.

L ~ Governor's and Customs Houses (Casa dos Contos).

M ~ São Bento Convent, with its fence and hill.

N ~ Government Storerooms.

O ~ Parainha Battery which must be repaired.

P ~ Trapixo dos Terceiros (a little further on from Prainha).

Q ~ Conceição Fortress with its link to the sea, and the City wall.

R ~ Bishop's House, with its platforms in front.

SSS ~The City Wall (more or less following the present route of Uruguaiana Street);

T ~ Santo Antonio Convent with its fence and hill, with design of work by the crown for its hill.

V ~ Cobras island with its fortifications designed and its Communication Line .

X ~ Dotted line which shows another site, where it is possible to scale the wall, if so required

Include the garrisons inside it.

[09] COSMOGRAPH 48_49

Plan of the Bay of Rio de Janeiro, with the invading squadron of Duguay-Trouin em 1711.

Watercolour manuscript, 49 x 71 cm

National Library of France, Paris

Reproduced in: Do Cosmógrafo ao Satélite – Mapas da Cidade do Rio de Janeiro Secretaria Municipal de Urbanismo, Centro de Arquitetura e Urbanismo. Rio de Janeiro, 2000; p 48, 49.

[010] COSMOGRAPH _62-63

Plant of the City of São Sebastião of Rio de Janeiro, 1812

J. A. dos Reis and Paulo dos Santos Ferreira Souto

Engraving on paper, 92 x 123 cm

Map library of Itamaraty, Rio de Janeiro

Reproduced in: Do Cosmógrafo ao Satélite – Mapas da Cidade do Rio de Janeiro Secretaria Municipal de Urbanismo, Centro de Arquitetura e Urbanismo. Rio de Janeiro, 2000; p 62-63

[011] COSMOGRAPH_67_1870

MAP OF THE LINES OF THE BOTANICAL GARDEN RAIL ROAD COMPANY, c. 1870

Anonymous

Coloured print on paper, 52 x 74 cm

Arquivo Nacional, Rio de Janeiro

Reproduced in: Do Cosmógrafo ao Satélite – Mapas da Cidade do Rio de Janeiro Secretaria Municipal de Urbanismo, Centro de Arquitetura e Urbanismo. Rio de Janeiro, 2000; p 67

[012] COSMOGRAPH _70_71

PLANT OF THE CITY OF RIO DE JANEIRO, 1907

Anonymous

print on paper, 47 x 55 cm

National Archives, Rio de Janeiro

Reproduced in: Do Cosmógrafo ao Satélite – Mapas da Cidade do Rio de Janeiro Secretaria Municipal de Urbanismo, Centro de Arquitetura e Urbanismo. Rio de Janeiro, 2000; p.69.

[013]

PART OF THE MAP OF THE RIO DE JANEIRO FEDERAL DISTRICT, 1922

Military Geographical Service of Brazil

Coloured print on paper, 33 x 56 cm

Reproduced in: Do Cosmógrafo ao Satélite – Mapas da Cidade do Rio de Janeiro Secretaria Municipal de Urbanismo, Centro de Arquitetura e Urbanismo. Rio de Janeiro, 2000; pag.70.

[014]

Part of the Map of the Conservation Area of the Biosphere of the Atlantic Forest – 1994.

Rio de Janeiro State Government - Secretariat for the Environment and Special Projects, Fundação Instituto Estadual de Florestas – IEF

[015]

Plan of the City of Rio de Janeiro – 2007.

Rio de Janeiro City Council, Pereira Passos Institute.

AERIAL VIEWS

[001] TIJUCA NATIONAL PARK 1

Ruy Salaverry

[002] TIJUCA NATIONAL PARK 2

Ruy Salaverry

[003] CORCOVADO 1

Ruy Salaverry

[004] SANTA CRUZ FORT 1

Ruy Salaverry

[005] MOUTH OF RIO DE JANEIRO BAY

Ruy Salaverry

[006] COPACABANA BEACH

Ruy Salaverry

[007] RODRIGO DE FREITAS LAGOON

Ruy Salaverry

[008] CORCOVADO 2

Ruy Salaverry

[009] CORCOVADO 3

Ruy Salaverry

[010] TIJUCA NATIONAL PARK 3

Ruy Salaverry

[011] TIJUCA NATIONAL PARK 4

Ruy Salaverry

[012] TIJUCA NATIONAL PARK 5

Ruy Salaverry

[013] FLAMENGO PARK

Ruy Salaverry

[014] SUGAR LOAF AND URCA DISTRICT

Márcia Nogueira

[015] URCA HILL AND DISTRICT

Márcia Nogueira

[016] SÃO JOÃO FORT

Márcia Nogueira

[017] SANTA CRUZ FORT 2

Márcia Nogueira

[018] COPACABANA FORT

Márcia Nogueira

[019] TIJUCA NATIONAL PARK PROFILE

Márcia Nogueira

[020] NOMINATED SITE OVERVIEW 1

Katri Lisitzin

[021] NOMINATED SITE OVERVIEW 2

Katri Lisitzin

[022] BOTAFOGO COVE

Katri Lisitzin

[023] VIEW OF COPACABANA AND VERMELHA BEACH

Katri Lisitzin

[024] COTUNDUVA ISLAND AND COPACABAN IN THE BACKGOUND

Katri Lisitzin

[025] COPACABANA BEACH

Katri Lisitzin

[026] ARPOADOR SPIT

Katri Lisitzin

VIEWS FROM THE SEA

[027] BOTAFOGO COVE

Rafael Winter

[028] COPACABANA BEACH

Rafael Winter

[029] TIJUCA NATIONAL PARK SOUTH SECTION

Rafael Winter

[030] FLAMENGO DISTRICT FROM THE BAY

Rafael Winter

[031] FLAMENGO DISTRICT FROM THE BAY

Rafael Winter

[032] MOUTH OF GUANABARA BAY

Rafael Winter

[033] SÃO JOÃO FORT AND SUGAR LOAF

Ruy Salaverry

[034] LEME BEACH AND BABILÔNIA HILL WITH TIJUCA NATIONAL PARK IN THE BACKGROUND

Ruy Salaverry

[035] COPACABANA PALACE IN THE CENTRE OF COPACABANA BEACH. SÃO JOÃO HIL AND TIJUCA NATIONAL PARK IN THE BACKGROUND

Ruy Salaverry

[036] COPACABANA FORT

Ruy Salaverry

[037] ARPOADOR SPIT AND DIABO BEACH

Ruy Salaverry

[038] GÁVEA PEAK IN THE BACKGROUND FROM CAGARRAS ISLANDS

Ruy Salaverry

[039] SANTA CRUZ FORT AND ITS STONE WALL WITH THE SUGAR LOAF IN THE BACKGOUND

Ruy Salaverry

[040] OUTEIRO DA GLÓRIA WITH CORCOVADO IN THE BACKGOUND FROM GLÓRIA MARINE

Ruy Salaverry

[041] OUTEIRO DA GLÓRIA WITH DONA MARTA HILL IN THE BACKGOUND

Ruy Salaverry

[042] SUGAR LOAF FROM THE MOUTH OF GUANABARA BAY

Ruy Salaverry

COPACABANA, ARPOADOR AND LEME HILL

[043] ARPOADOR SPIT

Ruy Salaverry

[044] DIABO BEACH

Ruy Salaverry

[045] COPACABANA SEAFRONT AND THE COBBLESTONE MOSAIC

Ruy Salaverry

[046] COPACABANA PALACE HOTEL

Ruy Salaverry

[047] VIEW OF LEME BEACH FROM COPACABANA FORT

Ruy Salaverry

[048] VIEW OF COPACABANA BEACH FROM COPACABANA FORT

Ruy Salaverry

[049] COPACABANA BEACH FROM LEME FORT

Ruy Salaverry

[050] VIEW OF SUGAR LOAF FROM LEME FORT

Ruy Salaverry

[051] TIJUCA NATIONAL PARK SOUTH SECTION WITH COPACABANA BEACH IN THE FOREGROUND

Unknown

MOUTH OF GUANABARA BAY, SUGAR LOAF AND NEIGHBOURHOODS

[052] PRAIA VERMELHA AERIAL VIEW

Ruy Salaverry

[053] NITERÓI HISTORIC FORTS AND HILLS FROM URCA HILL

Ruy Salaverry

[054] SUGAR LOAF BELVEDERE - TOURISM INFRASTRUCTURE

Ruy Salaverry

[055] SUGAR LOAF PEAK AND ITS VEGETATION

Ruy Salaverry

[056] CLAUDIO COUTINHO PATH

Ruy Salaverry

[057] SUGAR LOAF FROM CÍRCULO MILITAR

Ruy Salaverry

[058] AERIAL VIEW OF VERMELHA BEACH

Ruy Salaverry

[059] URCA WATERFRONT

Ruy Salaverry

[060] URCA BEACH

Ruy Salaverry

FLAMENGO PARK AND PASSEIO PÚBLICO

[061] MONUMENT TO THE SOLDIERS WHO DIED IN WORLD WAR II

Ruy Salaverry

[062] MUSEUM OF MODERN ART NORTH FACADE

Ruy Salaverry

[063] FLAMENGO PARK FROM GLÓRIA MARINA

Ruy Salaverry

[064] CORCOVADO AND OUTEIRO DA GLÓRIA FROM GLÓRIA MARINA

Ruy Salaverry

[065] FLAMENGO PARK WITH OUTEIRO DA GLÓRIA IN THE BACKGROUND

Ruy Salaverry

[066] OUTEIRO DA GLÓRIA – AERIAL VIEW

Ruy Salaverry

[067] CARMEM MIRANDA MUSEUM

Ruy Salaverry

[068] SUGAR LOAF VIEW TAKEN FROM THE PARK'S GARDENS

[069] ESTÁCIO DE SÁ MONUMENT

Ruy Salaverry

[070] PASSEIO PÚBLICO SQUARE - VIEW OF MESTRE VALENTIN MONUMENT

Ruy Salaverry

[071] PASSEIO PÚBLICO SQUARE -VIEW OF THE ARBORETUM

Ruy Salaverry

[072] FLAMENGO PARK AT THE WEEKEND

Cristina Lodi

[073] SUGAR LOAF AND URCA HILL FROM FLAMENGO PARK WATERFRONT

Cristina Lodi

[074] FLAMENGO BEACH FROM FLAMENGO PARK WATERFRONT

Cristina Lodi

[075] BURLE MARX'S GARDENS

Cristina Lodi

[076] INTERPRETIVE SIGNAGE

Cristina Lodi

[077] DETAILS OF INTERPRETIVE SIGNAGE

Cristina Lodi

[078] FLOWERING – CANNONBALL (ABRICÓ DE MACACO) TREE -

Cristina Lodi

[079] VIEW OF THE PARKWAY TOWARDS SOUTH

Cristina Lodi

[080] VIEW OF THE PARKWAY TOWARDS NORTH

Cristina Lodi

RIO DE JANEIRO BOTANICAL GARDEN

[081] BOTANICAL GARDEN – VIEW 1

Ruy Salaverry

[082] BOTANICAL GARDEN – VIEW 2

Ruy Salaverry

[083] CAST IRON FOUNTAIN AND CORCOVADO IN THE BACKGROUND

Ruy Salaverry

[084] CAST IRON FOUNTAIN AND THE PALM TREE PATH

Ruy Salaverry

[085] JAPANESE GARDEN

Ruy Salaverry

[086] PALM TREE PATH

Ruy Salaverry

[087] BOTANICAL GARDEN – THE LIBRARY

Ruy Salaverry

[088] BOTANICAL GARDEN –THE RESEARCH INSTITUTE

[089] PERGOLA

Ruy Salaverry

[090] BOTANICAL GARDEN – CARPOTECA

Ruy Salaverry

[091] BOTANICAL GARDEN – RESEARCH FACILITIES

Ruy Salaverry

[092] BOTANICAL GARDEN – NURSERY

Ruy Salaverry

[093] HORTO FLORESTAL / BOTANICAL GARDEN

Ruy Salaverry

[094] THE EMPRESS'S MANOR HOUSE - STAIRWAY

Ruy Salaverry

[095] THE EMPRESS'S MANOR HOUSE – SIDE FAÇADE

Ruy Salaverry

[096] BOTANICAL GARDEN – MAIN ENTRANCE

Ruy Salaverry

TIJUCA NATIONAL PARK

[097] VIEW OF PROPOSED SITE FROM CORCOVADO BY NIGHT

Ruy Salaverry

[098] CORCOVADO RAILWAY STATION

Ruy Salaverry

[099] BOTAFOGO DISTRICT FROM CORCOVADO

Ruy Salaverry

[100] CORCOVADO – USE BY TOURISTS

Ruy Salaverry

[101] RODRIGO DE FREITAS LAGOON FROM CORCOVADO

Ruy Salaverry

[102] VIEW OF PROPOSED SITE FROM CORCOVADO

Ruy Salaverry

[103] TIJUCA FOREST VIEW 1

Ruy Salaverry

[104] TIJUCA FOREST – OLD MANSORY BRIDGE

Ruy Salaverry

[105] TIJUCA FOREST - MAIRINKY CHAPEL

Ruy Salaverry

[106] TIJUCA FOREST – LEISURE AREA

Ruy Salaverry

[107] TIJUCA FOREST – WATERFALL

Ruy Salaverry

[108] RUINS OF MOKE COFFEE PLANTATION RUIN - ARCHAEOLOGICAL SITE 1

Ruy Salaverry

[109] RUINS OF MOKE COFFEE PLANTATION RUIN - ARCHAEOLOGICAL SITE 2

Ruy Salaverry

[110] VIEW OF PROPOSED SITE FROM DONA MARTA BELVEDERE 1

Ruy Salaverry

[111] VIEW OF PROPOSED SITE FROM DONA MARTA BELVEDERE 2

Ruy Salaverry

[112] VIEW OF PROPOSED SITE FROM DONA MARTA BELVEDERE 3

Ruy Salaverry

[113] DONA MARTA BELVEDERE

Ruy Salaverry

[114] CHRIST THE REDEEMER FROM DONA MARTA BELVEDERE

Ruy Salaverry

[115] BOTAFOGO COVE FROM DONA MARTA BELVEDERE

Ruy Salaverry

[116] VIEW OF LEBLON DISTRICT FROM PAINEIRAS ROAD

Ruy Salaverry

[117] A VIEWPOINT IN PAINEIRAS ROAD

Ruy Salaverry

[118] VIEW OF CORCOVADO FROM PAINEIRAS ROAD

Ruy Salaverry

[119] RODRIGO DE FREITAS LAGOON FROM PAINEIRAS ROAD

Ruy Salaverry

[120] HENRIQUE LAGE PALACE AT LAGE PARK

Ruy Salaverry

[121] AERIAL VIEW OF LAGE PARK AND JARDIM BOTÂNICO DISTRIC

Ruy Salaverry

[122] LAGE PARK – STUDENTS AT THE SCHOOL OF VISUAL ARTS

Ruy Salaverry

[123] HENRIQUE LAGE MANSION

Ruy Salaverry

[124] CORCOVADO FROM SUMARÉ HILLTOP

Ruy Salaverry

[125] TIJUCA NATIONAL PARK - ANTENNA AREA

Ruy Salaverry

[126] VIEW FROM TIJUCA NATIONAL PARK OF THE ANTENNAS

Ruy Salaverry

[127] VISTA CHINESA BELVEDERE

Ruy Salaverry

[128] VISTA CHINESA BELVEDERE - CHINESE PAGODA

Ruy Salaverry

SANTA CRUZ FORTRESS

[129] PANORAMA OF THE ARCHITECTURE OF SANTA CRUZ FORTRESS

Rafael Winter

[130] DETAILS OF WALLS MADE OF STONE AND LIME MORTAR

Cristina Lodi

[131] DETAIL OF THE LIGHTHOUSE

Cristina Lodi

[132] DETAIL OF STONE ARCHES

Cristina Lodi

[133] DETAIL OF STONE ARCHES

Cristina Lodi

[134] STONE ARCHITECTURE THAT SHELTERS THE CANNONS FROM THE CITY'S DEFENCES

Cristina Lodi

[135] DETAIL OF WALL MADE OF STONE AND LIME MORTAR

Cristina Lodi

[136] SUGAR LOAF SEEN FROM THE CITY'S DEFENCES

Cristina Lodi

[137] CANNON FROM THE CITY'S DEFENCES POINTING POINTING TOWARDS THE MOUTH OF GUANABARA BAY

Cristina Lodi

[137] CANNON FROM THE OLD DEFENSE SYSTEM POINTING THE MOUTH OF GUANABARA BAY

Cristina Lodi

VII.B. ARTICLES AND OTHER DOCUMENTS

VII.B.1. Timeline

1565 – The town of São Sebastião do Rio de Janeiro is founded at the foot of Cara de Cão hill (now Urca). At the same spot, São João fortress is built in 1578, comprising three fortifications and São Jose fort. The French are expelled from Guanabara Bay by an expedition led by Estácio de Sá.

1567 - Mem de Sá attacks Antarctic France and regains Rio de Janeiro. The Royal Captaincy of Rio de Janeiro is created by Mem de Sá on 4th March. São Sebastião fort is built on Descanso hill (later Castelo) in Rio de Janeiro. Construction of Santiago fortification is begun between Santa Luzia and Piaçaba beach in a region later to be known as Calabouço spit.

1603 – Santiago fortification is expanded and renamed Santiago fort, at the site which now houses the National Museum of History (Museu Histórico Nacional).

1605 – Santa Cruz city fort is built where Santa Cruz dos Militares now stands on Rua Primeiro de Março.

1605 – Santa Cruz fort is built at the mouth of Guanabara Bay.

1607 – Franciscan monks occupy Santo Antônio hill.

1646 – Lage fortress is built.

1698 – Plan for the fortification of Vermelha beach is drawn up by Gregório Gomes, now kept at the Overseas Archive (Arquivo Ultramarino) in Lisbon.

1711 – Rio de Janeiro is invaded by a French squadron led by Duguay-Trouin.

1718 – Conceição fortress is built on the hill of the same name, which was later to be the head of the diocese of Rio de Janeiro and is today the site of the Army's Geographical Service.

1739 – Nossa Senhora da Gloria do Outeiro church is completed.

1750 – Carioca aqueduct is built, now better known as Arcos da Lapa.

1760 – First coffee plants are brought to Rio de Janeiro.

1762 – On the order of the Count of Bobadela, works are begun to build Casa do Trem beside Santiago fort, to serve as an arsenal.

1763 – Brazil is raised to the category of Vice-Kingdom. The capital is transferred from Salvador to Rio de Janeiro.

1776-9 – Vigia fort is built, later renamed Leme fort.

1783 – Passeio Público is opened, the first public gardens in South America. It was designed by Mestre Valentim under the administration of Viceroy D. Luís de Vasconcelos e Souza.

1808 – The Portuguese royal family moves to Rio de Janeiro and the city becomes the seat of the Portuguese monarchy.

1808 – A decree is signed to allow the entry of ships from friendly nations. The Botanical Garden are founded.

1810 – The first Chinese migrate to Rio de Janeiro to introduce tea plantations to Brazil.

1815 – Brazil is raised to the status of kingdom, forming part of the United Kingdom of Portugal, Brazil and the Algarve.

1821 – D. João VI returns to Portugal, leaving D. Pedro as the Prince Regent.

1822 – D. Pedro proclaims the independence of Brazil and is crowned its first emperor.

1831– D. Pedro I abdicates; beginning of the Regency period.

1832 – Charles Darwin visits Rio de Janeiro.

1833 – Creation of a forest reserve on Tijuca massif by Imperial Decree 429.

1834 – A steamboat service starts running between Botafogo and Saco do Alferes, now Santo Cristo.

1837 – The city's first public transport system is opened, linking the Centre to São Cristóvão, Engenho Velho and Botafogo. The omnibuses, of French design, are pulled by mules.

1840 – D. Pedro II is proclaimed Emperor of Brazil at 14 years of age.

1850 – Several imperial acts are passed relating to the expropriation and safeguard of areas around water sources.

1858 – Arrival of Glaziou in Rio de Janeiro.

1859 – First animal-drawn vehicles on tracks enter service, which the Rio residents call trams.

1860 – Law 1.114, is passed on 27th September, by which the areas around the springs which supply the city's water are expropriated.

1861 – Administration created for Tijuca and Paineiras forests. Start of Manoel Gomes Archer's administration, under whose initiative Tijuca forest is reforested.

1864 – Passeio Publico is reformed by French landscape designer Auguste François Marie Glaziou.

1866 – The areas of Tijuca and Paineiras forests are declared public land.

1874 – Beginning of the administration of Gastão Luis Henrique de d'Escragnolle, who promotes the embellishment of Tijuca forest, making it a romantic public garden.

1878 – Companhia de Carris Urbanos created, and the first piped water is provided for eight thousand households in Rio.

1885 – Corcovado railway service opened.

1889 – Brazil is declared a republic.

1892 – Inauguration of Alaor Prata tunnel, linking Copacabana to the rest of the city.

1905 – Avenida Central and Avenida Beira-Mar are opened.

1908 – International Exhibition held at Vermelha beach to celebrate the centenary of the opening up of the country's ports to foreign shipping.

1909 – Roberto Burle Marx is born on 4th August in São Paulo.

1919 – Demolition of Nossa Senhora de Copacabana church and construction of Copacabana fort.

1922 – International exhibition held to celebrate the centenary of the country's independence from Portugal.

1927 – The city gains its first urban redevelopment plan: the Agache plan.

1929 – Le Corbousier visits Rio de Janeiro.

1931 – Inauguration of the statue of Christ the Redeemer on the top of Corcovado.

1936-1945 – A new building for the Ministry of Education is designed by Oscar Niemeyer and Le Corbusier, with a mural by Portinari.

1938 – Passeio Publico and Botanical Garden of Rio de Janeiro are listed by SPHAN.

1958 – The Museum of Modern Art is opened on land reclaimed by razing Castelo hill.

1960 – The Brazilian capital is moved from Rio to Brasília.

1961-1965 – Landscape design for land reclaimed in Flamengo Park

1961 – Tijuca National Park is created.

1965 – Rebouças tunnel is opened, linking Rodrigo de Freitas lagoon to Rio Comprido.

1967 – Tijuca forest is listed.

1971 – The gardens designed by Burle Marx for the Copacabana promenade are built.

1974 – The Rio-Niterói bridge is opened.

1975 – Rio de Janeiro state and Guanabara states are merged.

1977 – The Rio de Janeiro underground system starts operating.

1985 – Burle Marx donates his country residence in Guaratiba and its collection to Fundação Nacional Pró Memória (now IPHAN)

1984 – *Sambadromo* opened in Rio de Janeiro for carnival parades.

1992 – 2nd United Nations Conference on Environment and Development (Earth Summit) held in Rio de Janeiro.

1994 – Burle Marx dies in Rio de Janeiro on 4th June, having designed more than 2000 gardens throughout his lifetime.

VII.B.2 Articles

Most articles presented here were written to be part of the first Rio's World Heritage Nomination Document sent to UNESCO in 2001, excep the ones written by José Tabacow, Fernando Magalhaes Chacel and Maurício Abreu, regarding Burle Marx, Rio de Janeiro landscaping projects andTijuca Forest.

CITY, MOUNTAIN AND FOREST

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One of the outstanding elements that make up the natural setting of Rio de Janeiro is the Tijuca massif, a chain of mountains stretching over an area of 95 km2 and splitting the city into the "South zone" and the "North zone." Also known as the Carioca and Tijuca range, the location of this massif and the isolated rocky alignments that follow it down the coast has always ensured it a fundamental role in the life of the city, beginning with the orientation that it has imposed on urban growth.

Squeezed in between mountain and sea, Rio de Janeiro has enjoyed these natural elements as the great mainstays of its expansion. While the development of technology has allowed many of the obstacles imposed by these elements to be overcome and enabled the city to incorporate into its urban structure areas that were formerly seen as inappropriate or even impossible to occupy, the truth is that Rio de Janeiro adopted a characteristically radical profile as a result of this powerful orographic presence.

The existence of a chain of mountains in the very heart of one of the largest cities in the world makes Rio de Janeiro a special place. Its unique landscape is very beautiful, and has long been praised in prose and poetry. Many tourists are attracted to the city, and those who reside here are willing to pay a high price for the privilege of having a view, no matter how limited, of this union of city, sea and mountain. Nevertheless, while this conjugation of landscapes lends the city aesthetic advantages, it is also responsible for the appearance of a wide range of concerns, ranging from the constant monitoring of natural processes affected by urban growth - periodically causing considerable catastrophes with loss of human lives - to the difficulty of providing the city with a physical and social infrastructure that, on account of its very location, has become so compartmented. Add to this the urgency of finding a point of equilibrium between the need to preserve such

a beautiful landscape - an unquestionable asset of the city, not to say a heritage of all mankind – and the demands of a population that is characterized by enormous social inequality.

Over the last two decades, concern with the environment has been a common feature in different societies, and endless efforts have been made to preserve still existing natural treasures and to recuperate those that have been lost. This effort has also been felt in Brazil, as reflected, for example, in the enacting of an environmental legislation that in many aspects is considered one of the most advanced anywhere in the world. Nonetheless, one notes a great gap between the legislator's intentions and demands on the one hand, and the actions and reactions of society on the other, since the law of least effort, the pursuit of easy profit and the need to satisfy minimum demands of survival on the part of a great deal of the population all act in the opposite direction, leading to social tensions that spread all over the country.

Indeed, today Brazil is witnessing a serious struggle between the need to preserve environmental values for the generations to come and using them for the present generation. This combat is expressed on many levels, materializing, for example, in international discussions concerning the rapid destruction of the Amazon, or in debates and more local actions regarding the preservation of significant cultural landmarks of Brazilian cities that are constantly being threatened by real-estate speculation.

In Rio de Janeiro this struggle takes on special characteristics, either because of the intricate relationship between nature and society, or because the splendid landscape of today incorporates so much human effort in the past, which reminds us of the matter of the responsibility that each generation needs to assume with regard to collective treasures. The case of the Tijuca massif is in this sense exemplary. With the magnificent forest that covers much of its territory, the massif gives many cariocas the chance to "integrate with nature," to "flee from the city" and to marvel at the "stunning panoramic scenery." However, these benefits can only be enjoyed today because these surroundings were given special attention in the 19th century which enabled them to be preserved and even recomposed. This natural setting is therefore to a great extent also a cultural landscape.

That is why, at the moment when Rio de Janeiro is applying for inclusion of part of its beautiful landscape in UNESCO's list of places of world heritage, it is appropriate to discuss how this symbiosis between natural landscape and cultural landscape came about, that is, how city, mountain and forest have related throughout the years. This text sets out to analyze the determining elements, forms and meanings

that these relations have had at certain moments in the life of the city. By reclaiming this history, we aim to make a contribution towards finding solutions to today's dilemma between the predominant need to preserve this rich heritage for future generations without congealing it or prohibiting the present generation from enjoying it.

WATER, CITY AND MOUNTAIN

Over the years, man and mountain have related to one another in Rio de Janeiro in many different ways. Our work is an attempt to recover some of these ways, but it can be said at the outset that none was as lasting, important and problematic than the need to supply water to a city in a process of continuous growth. This is the story and these are the characters that we are about to describe.

The problem of water supply in Rio de Janeiro began on the same day that the city was founded. The spot chosen for the definitive location had advantages as far as defense was concerned, but lacked some important environmental qualities, especially sources for collecting drinking water. So water had to be sought outside the city limits, in the valley of the Carioca river, a small waterway that descended the hills from its source near Corcovado and flowed towards what is now Flamengo beach.

The qualities of the Carioca were famous: long before the city was founded, the ships sailing up and down the coast had stopped at Guanabara Bay to stock up on the river's water. This would continue after the city was established. The oldest historians tell us that water-vendors were among the first professionals to appear in the city, an activity initially performed by Indian slaves and later by Negroes brought from Africa. Still, the distance that separated the city from its source of water supply was a cause for concern. It was not just the inconvenience of the walk. From the strategic point of view, this separation also compromised the defense of the city, since any enemy only had to occupy the Carioca valley for Rio de Janeiro to be deprived of the precious liquid. So a solution was needed, and that is when the idea arose of gathering the water in the vicinity of the sources of the Carioca and piping it down to the city. Nevertheless, it would take a long time to make that desire a reality.

The long struggle for the "water of the Carioca"

As early as the first mandate of Martim de Sá (1602-1608), the idea was entertained of levying a tax to bring thewater as far as the Nossa Senhora da Ajuda Field (present-day Cinelândia), but nothing was

done at the time. A fresh attempt was made twenty years later, when a contract was drawn up with Domingos da Rocha to provide the service in four months, cash down. As Noronha Santos pointed out, given the grandiosity of the job, the shortness of the period granted, or possibly the insignificance of the amount agreed upon, the work was never even started.1

In 1658, during the government of Tomé Correia de Alvarenga, still nothing had been done. The inconvenience suffered by the population had become more serious, both because the population had grown (and with it, the demand for water) and because the agricultural occupation of the land situated in the upper and middle valleys of the Carioca caused considerable conflict. In fact, quite a few people who owned land there began to consider themselves owners of the running waters and prevented them from being used in common. Some indignant residents appealed to the City Chambers, asking for the land and forest located on the banks of the Carioca to be expropriated and be made thenceforth "perpetually free, not to be privatized at any time".2

Lacking the means to do so, the City Chambers was unable to answer the request, but the governor, convinced of the pressing need to collect the waters of the Carioca before they became irremediably compromised, ordered the start of exploratory work to reconnoiter the terrain and organize a working plan. The objective was to transport the liquid by gravity, taking advantage of the natural incline of the slopes of the massif. The pipes were to snake their way through what is now the Santa Teresa neighborhood, in this way approaching the Lapa district, which at that time corresponded to the suburbs. Since any important decision taken in the days of the Colony had to be approved by the central power, the plans were sent to Lisbon together with a requisition for credit to carry out the work. Some more years were yet to pass before the work was begun, the bureaucracy being such that only in 1673 was the governor João da Silva e Souza able to start the operations, relying on a small tax levied on imports of wine and half of the revenue for the expenses of Justice.3

New obstacles, however, hindered the development of the work. In 1697, realizing that they were poorly administered and offered little safety, governor Artur de Sá e Menezes ordered the work to be interrupted. Soon after that, problems of another sort emerged, since the number of Indian workers under Jesuit administration was growing less and less, forcing governor Álvaro da Silveira e Albuquerque to request permission to replace them by slaves bought at the expense of the Crown. The request was approved and the work resumed in 1704, only to be interrupted once more in 1711 due to the French invasion commanded by Duguay Trouin, which called for all

the city's resources to be spent on its defense, and later on its ransom.

In 1717, much of what was built already showed signs of ruination, which led to Dom João V authorizing not only the continuation of the work but also the repair of what was already done. He also demanded new plans for the final stretch of the water pipes. Yet, even after the new design was made, the government of Lisbon decided otherwise and ruled that the old design should be kept "save for alterations to correct the worst mistakes in the existing work".4

Nevertheless, convinced of the superiority of the new work, governor Aires de Saldanha e Albuquerque decided to adopt it and even without authorization from the metropolis built a provisional aqueduct bringing the water from Desterro Hill (present-day Santa Teresa) to the Ajuda Field. Later on, this pipeline was extended as far as Santo Antônio Field, where a marble fountain sculpted in Lisbon was erected with 16 bronze spouts.

Water spurted forth for the first time in what is now the Largo da Carioca in 1723, changing this area into the nervous center of the colonial city, which it still is, albeit for other reasons. In this way, after more than a century of waiting, the dream of bringing the precious liquid to the city turned real. The epilogue to this story, however, was only to take place some years further ahead. Authorized by Royal Charter on 28 April 1744, governor Gomes Freire de Andrada decided to change the wooden aqueduct built three decades earlier, replacing it by a far more majestic and durable one with a double arcade made of stone and limestone. Inaugurated in 1750, the "Lapa archways," as they are known today, still embellish the central area of the Largo da Carioca and stand as living testimony to this long struggle of colonial times.

The water arrived, but the city wants more

As soon as the waters of the Carioca river, awaited since the beginning of the 17th century, reached the city, they proved to be insufficient to meeting the needs. Since the early 18th century, Rio de Janeiro had seen itself transformed into the port that exported the gold newly discovered in the "general mines," and since 1763 had also won the status of capital of the Colony. As a reflection of these new functions, the city became more and more the destination of adventurers travelling to the gold-yielding uplands and also attracted a large number of soldiers whose mission was to defend the city from external attacks and to curb smuggling. The flourishing of trade was an immediate consequence that attracted new residents, especially from the metropolis. Demographic dynamism was also felt in the surrounding countryside, which witnessed an expansion of agriculture

both for export and for domestic consumption. Finally, in order to make all this economic dynamism feasible, the slave trade grew, thus reinforcing the important role of reception and distribution of the captive labor-force that the city already played.

The expanding population and economic activities soon brought the question of water supply back to the fore. At first the focus aimed at distributing the liquid better, so derivations of the existing pipes were built to allow other neighborhoods in the city to be attended. But this did not solve the serious problem of the available volume of water, which depended exclusively on the flow of the Carioca river. That is why, from the end of third quarter of the 18th century, the viceroys sought new sources of water catchment in the massif. The first step in this direction as to join to the piping of the Carioca the waters that came from the springs of the Lagoinha, Silvestre and Caboclas streams.5 Later on, the waters of the Catumbi were collected and transported to the city by means of another pipeline that stretched as far as the Santana Field, very close to the periphery of the city.6

Despite all these efforts, the crucial problem remained unsolved, namely, that the fountainhead of the Carioca was no longer enough to attend to the demands of the city, especially during the hot season, and the lack of water became a constant menace. On account of this, a decision was taken in the late part of the 18th century to expand the water supply by catching the waters of the Maracanã, a river located much farther away that descended the slopes of the massif towards Guanabara bay. In 1800 the plan was ready to start p this new undertaking, announced to "begin ... with the construction of the dam in the place called Boa Vista".7 However, just like the Carioca project, this too would be paralyzed shortly afterwards, an interruption that was not prolonged into the 19th century only because of he unexpected arrival of the Portuguese Royal Family in March 1808, an event that made an immediate reinforcement of the city's water supply a matter of even greater urgency.

The arrival of the Royal Family and its consequences

The arrival of the Royal Family, who moved from Portugal to Brazil because of the Napoleonic Wars, was a true watershed in the history of the country. The breach of the colonial pact caused by this event not only opened up the Brazilian territory to the interests of Europe's emerging capitalist powers but also led to deep economic and social changes, particularly in the city of Rio de Janeiro, which now gained the status of seat of the Court.

It would be quite impossible to discuss here the significance that these

changes brought to bear on the history of the city.8 It should suffice to mention that in the short period of fourteen years separating the arrival of the Portuguese court from the political independence of the country, the population and urban space of Rio de Janeiro expanded, commercial activities multiplied, manufacturing prospered, the banking system was set up, the press was born, and roads were opened up towards the interior. Much changed too with regard to culture and science: higher education (both civil and military) was established, the National Library was founded, along with the Academy of Fine Arts, the Botanical Garden and the National Museum, and palaces, noble residences and a majestic theater were built.

It should be noted that these changes took place in a territory filled with the legacy of times past, which at first placed endless obstacles before the new order. In fact, the impact of the unexpected arrival of thousands of people to a city of no more than 50,000 inhabitants could not be any different. How to accommodate so many people (and so many of noble birth) in a place which had until then been a mere trading post inhabited mostly by slaves? How to guarantee supplying foodstuff to a population that had almost doubled in size in so short a time? How to provide so many people with water if the only source to supply the city had already proved insufficient for at least a decade?

Careful analysis of the early days of the sojourn of the Portuguese court in Rio de Janeiro shows that the feasting and jubilation triggered by the arrival of the Royal Family, so well described by the writers of the day,9 were soon substituted by numerous impasses and challenges, including the urgent implanting of State bureaucracy in the colony and the vital need to make the city take on the new role that the disputes in Europe had reserved for it. The housing crisis that afflicted Rio de Janeiro is well known and has been described and discussed by various writers. Few of them, however, referred to the worsening of the water-supply crisis, which had become so serious that it was even raised to the level of a matter of the State. Guaranteeing that the seat of the Court was well supplied with water therefore became one of the government's great challenges, and it was as a result of the efforts to attain that objective that the Tijuca massif and forest became even more intricately intertwined with the movement of the city.

The aggravation of the water-supply crisis

If we can claim, as so may authors have done, that the coming of the Royal Family "took Rio by surprise," the fact is that the opposite also holds true, for many surprises awaited those who arrived in the city so unexpectedly, and among these surprises the lack of water

was predominant. The problem was so serious that Paulo Fernandes Viana, soon after his appointment as General Police Intendant in April 1808, informed the Prince Regent that it was indispensable "to see to bringing more water to the City, and to different neighborhoods, and [that] this water could be the so-called Maracanã water, for which there has been a project for so many years."10 In answer he was ordered to resume at once the work of bringing the water from that source to the city as soon as possible.

While the work was being carried out, the illustrious newcomers were given the opportunity to feel the hardships of life in the colony for themselves. In early 1809 the scarcity of water was intensely felt, forcing the government to adopt many emergency measures to minimize the crisis. An official notice from the police intendant dated 14/1/1809 determined, for example, that until the waters of the Maracanã were piped - now fully at the cost of the Royal Purse - access to the fountain at the Carioca river would only be permitted to slaves who went there carrying barrels on their heads. Carts and watercarriers would have to be filled at the springs and wells of the farms on the outskirts of the city; accordingly, the owners of these farms received orders to allow access "during this public calamity ... otherwise they will be punished ... with imprisonment and other measures."11 That was not all: the Carioca aqueduct was thoroughly inspected for leaks or unauthorized deviations, vessels had to fill up in the rivers on the other side of the bay, and the pipelines that served the convents were submitted to strict control.

The drought of 1809 also underscored the need for short-term measures to be taken to increase the amount of water supplied to the population. Since the water-piping work on the Maracanã would take a while to be concluded, it was decided to catch immediately the waters of the Comprido river and direct them towards the Catumbi aqueduct. The contribution made by these two rivers was also brought closer by constructing a provisional pipeline - open and made of wooden troughs - to bring the water all the way to Santana Field, where a temporary fountain was erected, later known as the "Chafariz das Lavadeiras" (The Washing Ladies' Fountain).12

The year of 1817 also proved to be difficult. With the water-conduit system still restricted to the installed capacity dating from 1809, in spite of the city having increased considerably in population and economic activity, it comes as no surprise that the drought suffered that year greatly upset the daily life of the residents. Worried about the forest clearing that was going on in the Carioca sierra, Dom João VI ruled by decree of 9 August 1817 "to preserve with wood, logs and grass all the property on the top of the Sierra surrounding the sources

of the Carioca river, and all along the Aqueduct, from the last spring as far as S. Teresa Hill ... likewise preserving the space of three lengths (6.6 meters) of land on each side of the Aqueduct." He further ordered that "the preservation be started at once and all tree-cutting and felling for the purpose of cultivating the land suspended, and by this My Royal Decree preserved and protected."13

For all the authority of these royal orders, the truth is that the demarcation of the area of preservation was only to happen - and even so only in part - in 1823, after the King had already returned to Portugal. The delay was perhaps due to the relief caused by the conclusion shortly thereafter of the first piping of the Maracanã, which was later to be known as "the old piping." It was indeed a rough job made of wooden troughs and croosovers that even took advantage of the natural grooves of the terrain. Twisting and turning down the Carioca hills, this pipeline started at the place known as "Águas Férreas" (Iron Waters), received along the course the contributions of various streams and at the Comprido river joined the previously built water mains system.

In spite of the improvement in the water supply, another drought in 1824 soon showed that the problem was not over. The truth is that the struggle for more supply was always linked to the demand for water, and this demand never ceased to grow, driven by the increase in commercial and manufacturing activities and the growth of the population, which in 1821 already stood at 79,391 inhabitants, counting only the districts in the center.14 On the other hand, the drought of 1829 made the government intensify the search for additional sources in the massif, a result of which effort was a "Topographic Plan of the Slopes of the Sierra of the Lagoa de Freitas", drawn up by Engineering Major Revière, which led to the catchment of the Paineiras river two years later.15

During 1830 an intense campaign took place in the city to encourage the public to contribute money towards speeding up the work on exploiting new sources. However, little was done in the following years to improve the supply. For lack of funds, the building of a new pipeline for the Maracanã, with more capacity and strength, remained a dream. In turn, the piping work inaugurated fifteen years before was fast deteriorating, having been built in a hurry with clay tiles and wooden troughs that any heavier rainfall plugged up with sediments or else just swept away. Still and all, the city's population did not stop growing, and with it the demand for water.

In 1843 Rio suffered once again the effects of the dry weather. This time the drought was so severe and prolonged that the city even had to resort

to the water in the tanks of the vessels anchored in Guanabara bay, and when that was not enough, a fleet of small sailboats was assembled to seek water on the other side of the bay. The situation was so distressful that when the dry season came to an end the government realized that a definitive solution had to be found. No longer was it possible to face the crisis with palliative solutions. In other words, one could no longer go on chasing after new fountainheads in the Tijuca massif if the very conditions for these sources to exist could not be ensured.

The truth is that despite twenty-five years already having elapsed since Dom João VI had decreed the preservation of the woods bordering on the sources of the rivers that fed the city, little or nothing had been done in this direction. The rhythm of devastation had actually increased, as will be discussed further ahead. The city's needs, however, did not cease to grow along with the expansion of the population and economic activities.

A growing city

From 1821 to 1838 the population of Rio de Janeiro rose by 22%.16 The census carried out in 1849 revealed that the districts in the center were home to 205,906 inhabitants, 116,319 of whom were free persons, 10,732 former slaves, and 78,855 slaves.17 Though useful to illustrate the impressive dimensions of demographic growth, these data fail to describe the whole complexity that surrounded the process of change that the city was undergoing during this period. This is because the growth of the population went hand in hand with the transformation of the urban landscape, which was rapidly changing on account of the mobility of the wealthier classes and the materialization in the Court of a great deal of the wealth coming from the interior of the country.

The changes began to appear in the second quarter of the 19th century. The spread of the urban web, for example, was driven forward by the action of a small but wealthy portion of the population who, in their desire to leave behind an urban center that was growing more and more dense, began to move out to small farms and villas located in more agreeable places on the periphery of the city, especially the Catete, Laranjeiras, Botafogo, São Cristóvão and Engenho Velho neighborhoods. Following right on their heels were the first collective transportation association which as of 1839 began to run regularly between these districts and the center of town. Steamship companies were also organized after 1843 to connect Botafogo and São Cristóvão to the center.18 For those who did not have the chance to live in these new suburbs, there was still the option of staying in the densely populated central area. This is the context in which the constant crises of scarcity of water described above have to be understood.

In fact, by moving out from the center of the city, either for a sojourn or on a definitive basis, the better-off segment of the population was able to alleviate the bothersome effects of the hot weather. On the one hand, the new neighborhoods they occupied were situated on the foot of the mountain slopes and cut by the rivers and streams that flowed down them. On the other hand, the very fact that these were areas of urban expansion allowed these outskirts the benefit of a water table that was less affected by the interference of civil construction, making it possible to collect water in wells. In the densely populated city, however, these environmental conditions did not exist, which made the consequences of any drought all the more drastic.

The classified sections of the newspapers of the 19th century are a good illustration of the importance given at the time to access to private sources of water supply. In an attempt to attract whoever could afford living in the suburbs, the owners of small farms and land never tired of praising this feature. In 1831, for example, the Diário do Rio de Janeiro newspaper announced the sale of a very good farm in what is now the Tijuca neighborhood, "with very good drinking and washing water, as well as good meadows for grazing ... ."19 Another example from 1844 announced the sale of a small farm in the same area "with lots of virgin woodland, fresh water, a large house with a chapel, water tanks, etc.".20

"Drinking water" and "washing water." There was a difference between one and the other, which is why the existence of the former always gave the seller more of an advantage. Drinking water was pure water that came from springs located inside the property. The other was river or stream water already used upstream by others for their many activities, a variety of needs that ranged from washing clothes to moving mills, irrigating crops and serving in some manufacturing processes, especially paper.

More water, more problems

With the inauguration of the new piping in the Maracanã river, from 1850 on the city's water supply expanded considerably. In turn, more supply made for better distribution, so that water now reached districts hitherto little attended, such as Saco do Alferes, Praia Formosa, Gamboa, Saúde and Prainha. In 1851 the pipeline of Andaraí Grande started operations, carrying the waters of the Joana river to the neighborhoods of São Cristóvão and Ponta do Caju. Finally, in 1854 the waters of the Papagaio and Caveira rivers were caught and sent to the Maracanã pipeline, and the work on the catchment of the Cabeça river in the Jardim Botânico district was concluded, allowing the waters of this new source to be transported to the Botafogo neighborhood, which was then going through a period of great expansion.

Although better supplied with water, the city of Rio de Janeiro saw this advantage come to no avail by the outbreak of yellow fever and cholera epidemics that destroyed a great number of lives, especially in the central areas. It is not surprising that mortality was higher in the urban districts. Ever since colonial days, foreign travelers laid emphasis on the brutal contrast between the grandiosity and natural beauty of the city's surroundings and the poverty and filth of its constructed environment. Dense and tight, surrounded by mangroves and marshy land, sliced through by sewer gutters always clogged up by waste thrown there by the population, a not very clean city of ill-paved or uneven streets, Rio de Janeiro offered the yellow-fever carrier a highly propitious atmosphere for reproduction. Another contributor was the proliferation of collective housing all over the city, where the poorer people lived packed tight together in precarious conditions of hygiene.

The yellow-fever epidemics that chastised Rio as of 1850 cost not only many human lives but also bore terrible effects on the city landscape. On the one hand they gave rise to endless medical reports and a heated scientific debate between defenders of the swamp theory who believed that the plague was transmitted by the poor environmental conditions of the city, especially the "pestilent" emanations that sprang from the swamps and gutters, and those who claimed that the epidemic was transmitted by a specific and as yet undiscovered carrier. On the other hand, they introduced hygienist ideas to the country, which both currents subscribed, and after this a series of urbanistic measures spread that caused quite a change to Brazilian cities from then onward. These measures included the requirement that streets should be wider, houses further apart from one another, windows in all the rooms, urban waste to be properly disposed of, etc.21

Due to the epidemics, an imaginary opposition also spread, placing at opposite ends the "city," now considered as anti-hygienic and pestilent, and its "outskirts," now seen as healthy environments. Leaving the former behind thus became a common objective for those who could afford to love outside the central area. Consequently, there was a strengthening of the tendency to occupy the areas situated on the foot of the Carioca sierra, such as Botafogo and Tijuca, which witnessed their old farms being cut up into pieces. In turn, the areas close to the center and raised from the swampy lowland also began to rise in value because of their healthier conditions. The division of property into lots spread all over the slopes of Santa Teresa, and this was the beginning of a new form of rapport between the city and its orography, now based especially on the demand for the environmental qualities that the mountains now offered to urban rather than rural life.

This relationship is still true today, as we shall discuss further ahead. However, in order to for it to be better understood, another process has to be discussed, one that preceded it. This was the occupation of the Tijuca massif by coffee, a cycle that was as quick as it was devastating and which paradoxically robbed from and then returned to the city much of the beauty that it now boasts.

COFFEE, MOUNTAIN AND FOREST

As shown by old scholars of the city, after being originally planted in 1760 in a convent garden, coffee soon spread fast all over the Rio de Janeiro territory; as early as 1779 the city was able to export 57 arrobas of coffee (an arroba was approximately 15 kilograms) and it was probably around this time that the coffee plant began to scale the slopes of the Tijuca massif.22 When the Royal Family reached the city in March 1808, coffee already occupied a good part of the Carioca range, especially the area of Alto da Boa Vista, where it acclimatized perfectly. In January 1810, for example, a small farm with a coffee plantation and many other attractions was already up for sale in this neighborhood, close to Cascatinha.23 In turn, reading the classified section of the Gazeta do Rio de Janeiro and Diário do Rio de Janeiro newspapers in the 1810s and 1820s reveals that there were coffee farms and plantations all over the place: in the Alto da Boa Vista, in "upper Gávea" (that is, near Pedra Bonita), on the banks of the Rodrigo de Freitas Lagoon, in Rio Comprido, Laranjeiras, Jacarepaguá, Cascadura, Barra da Tijuca, Rio das Pedras, Mendanha, and even on the other side of Guanabara bay.

Despite the spread of this crop all over the Rio landscape, it was in the heights and hills of the Tijuca massif that the coffee plantations were most predominant. In Gávea Pequena, for example, were to be found the farms of Louis François Lecesne, who had abandoned Haiti due to a slave uprising, and Dutchman Charles Alexander Moke, who had 50,000 and 40,000 coffee trees, respectively. There were many others, as can be seen in the richly detailed announcements published in the late 1820s. In 1827, for example, one rental announcement was for "a farm in Tijuca ... just beyond the rise to Boa Vista, with the following features: a good, elegant farmhouse, 13,000 coffee trees ... untouched woodland, a spring of ferric water, a waterfall over 200 feet in height on the Maracanã river, which cuts through the property, air as fresh and healthy as São Paulo."24 The following year, coffee farms were up for sale "in the place called Cachoeira," "in the district of Gávea, just after the descent of the Boa Vista hill," in Jacarepaguá, and in the vicinity of Rodrigo de Freitas Lagoon. In 1829 an announcement

informed the readers that "in the Cachoeira da Tijuca" there were openings for "people [that is, wage-earning slaves] to pick coffee for one pataca clear a day, or half of that with lunch, dinner and supper."25 There was also a farm for sale "in the district of Gávea, at the foot of the Pedra, measuring 363 lengths in front and 290 in the back, with lots of untouched woodland ... 20 thousand coffee trees ... good drinking water ... to be sold with all the accoutrements of the property, such as slaves, beasts of burden, and much more."26

In the 1830s the coffee plantations became even more predominant in the massif, both on the north and south slope. In 1832, for example, "in Alto da Boa Vista ... a farm with more than 30 thousand coffee trees" was announced for sale, and "in Engenho Novo, at the foot of the Jacarepaguá sierra ... a small farm with 20-25 thousand coffee trees, which yield 400-500 arrobas." In 1834, "a farm in the vicinity of Rodrigo de Freitas Lagoon, with 50 thousand coffee trees, 3,000 orange trees ... a running river, banana trees and some slaves" was put up for sale. In 1835 "a small farm at the foot of the Engenho Novo sierra, on the road to Jacarepaguá ... with 20-25 thousand coffee trees" was offered for sale. The same year saw the sale of the important farm that the Conde de Gestas owned "in the Tijuca sierra, Alto da Boa Vista ... with a large coffee plantation, extremely lovely waterfalls, untouched woodland ... a farm manor, mills for shelling and grinding coffee, and a greenhouse for drying it." In 1837 there was "a small farm on the way to Gávea, just before the Botanical Garden, with a driveway for carriages ... a largegrass meadow crossed by two rivers ... with about 50 thousand coffee trees, a pottery, an oven for flour ... and up to 20 black men can work here."27 "A farm in Gávea, with a tile roof ... three rivers close to the house ... with 10-12 thousand coffee trees and a great deal of untouched woodland" was being sold in 1842, as well as "a large farm in Tijuca, at the foot of the Cascata Grande, with a mill for grinding coffee and making flour ... with lots of untouched woodland and over 30 thousand coffee trees."28

There are many other examples, but these should suffice, for they show quite clearly that coffee spread all over the Tijuca massif at the beginning of the 19th century. As an inevitable consequence of this spread, the clearing of the hills also progressed at an alarming pace. The travelers who were in Rio de Janeiro at this time are tireless in emphasizing this fact. Luccock, for example, writing in 1813, relates that "on all sides the forest was felled by the axe."29 Maria Graham gives details of her visit to the Tijuca massif a decade later, witnessing that immense coffee plantations had replaced the woodland, principally in the farms belonging to Lecesne, Moke, the Conde de Gestas, Taunay and mademoiselle de Roquefeuil.30 The iconography

left by the this author, as well as by other travelers who visited the place in the 1810s and 1820s, like Carl Wilheim Theremin, Adrian Taunay and Emeric Essex Vidal, also report on the destruction of the original forest, a process very well described by Hippolyte Taunay and Ferdinand Denis in 1822. According to these authors, the very first task that the owner of a piece of land ordered to be performed in the Alto da Tijuca was to transform the virgin forest to coal, to be sold in the city, and then to plant his coffee plantation in the land that had been cleared.31

The newspapers offer proof of this rapid destruction. The classified sections of the 1810s still regularly announced the presence of the Atlantic forest. For example, in 1813, "a farm in Tijuca, called Taquara, with ... a house, trees and untouched forest" was being sold. In the 1820s and 1830s the forest is also announced, either to indicate the sale of "a small farm in Andaraí Pequeno, almost reaching Águas Férreas ... where there are virgin woods with many good trees for building, as can be seen from those already cut down and prepared for different workshops ...," the offer of a "small farm in Gávea, the area called Ponta Grossa, with 8 thousand coffee trees... and a great deal of untouched woods ...," a farm "in Alto da Boa Vista, in the Tijuca sierra ... with more than 30 thousand coffee trees ... a great expanse of virgin forest with good hard woods ..., "or the sale of "a place in Andaraí Grande ... with a great amount of virgin woodland that is highly suitable for making coal ... ."32

From the 1840s on, however, the announcements that claimed the existence of "virgin woods" become increasingly scarcer. Despite the offer in 1841 of "a large, good farm in Gávea, with lots of coffee, manioc and wood for coal ...,"33 the truth is that these attractions were already much rarer, unless the property was located considerably farther from the city.

The emergence of the environmental question

In 1843 the history of the expansion of coffee all over the Tijuca massif began to undergo some changes. On the one hand, this is the year that the coffee plantations suffered the effects of a violent blight that drastically shrank productivity, which had already been decreasing for some time. Planted without any care for the maintenance of the fertility of the soil, the coffee plantations accelerated the process of land depletion. Furthermore, by climbing the hills vertically instead of following the contour curves, the plantations contributed towards accelerating erosive processes and facilitating the degradation of the top layers of the soil by the action of the rainwater. Finally, as we have already seen, it was also in 1843 that the problem of the scarcity of

water reached critical levels in the city, forcing the government to take a series of measures to preserve the fountainheads. This would also affect the area in question, since that is where all the sources that supplied the city were located.

The drought of 1843 can be considered an important mark in the environmental history of Rio de Janeiro. So great were the difficulties faced by the cariocas that year that the Imperial Government decided to set up a commission to study the problem of water supply and suggest definitive measures to preserve the city against future calamities of this kind. The conclusions reached by this working group could not be any clearer:

"It is the understanding of this Commission that the perennial and eminently potable waters of the Paineiras and Tijuca mountains can supply this City, even in times of great drought, and even supposing its population twice or thrice the present size, but in order to for this to be workable, the Commission proposes that steps be taken as soon as possible to conserve the woodland both in Paineiras and Tijuca, along the entire length of the headwaters and watersheds of the Carioca and Maracanã rivers, that it be effectively prohibited to fell trees in these places, and that, if deemed necessary, properties acquired without stipulations ... be expropriated."34

Other conditions were presented in the report, all of them depending on the principal clause being adopted. In fact, the work to expand the water mains system would be to no avail if energetic steps were not taken with regard to tree-felling and land-burning, which continued to take place all over the massif. Gardner, for example, saw the whole virgin forest on the top of Pedra Bonita being cut down and transformed into coal - all in the space of a single year (1836).

The recommendations of the Commission bore an important effect. As early as 1844 the government issued orders "to punish the people who cut down trees and burn land in the headwaters and watersheds of the Carioca and Maracanã rivers, high in the sierras and their hillsides, and alongside the respective pipelines." It was also determined that the Inspector of Public Works should make a thorough survey to indicate the particular terrains that should be expropriated, and the government announced that it had ordered that "the existing forestland that has been affected should be newly planted and amplified with other artificial specimens, alternating trees of rapid growth and short life with those of long life and slow growth, so that when the former die the latter are able to replace them."36 At the same time as these late measures were taken, Engineer Pedro Taulois was asked to present a plan for the definitive piping of the waters

of the Maracanã, a task that was accepted at once, with the engineer forecasting that the work - designed to take advantage of two-thirds of the waters of that river and transport them to the city in iron pipes - would be ready in three years.37

While these works were underway, the government proceeded, albeit timidly, with the work to preserve the sources of the Carioca river. To this end, the government ordered the Inspector of Public Works to prepare a reforesting plan, which led to drawing up a "geodesic forest system" that divided the region of the springs "into blocks measuring a hundred braças each (a braça was 2.2 meters)," where hard-wood saplings should be planted, respecting the contour curves.38 In 1846 the first hydrostatic survey of the Tijuca massif was concluded, listing all the aqueducts, pipelines, springs, fountains, streams, rivers, mines and sources to be found there, and also indicating the amount of water supplied and used, and its specific weight.39

With more funds available for its conclusion, the new pipes for the Maracanã project were finally inaugurated in 1850. This was really a double pipeline composed of 5,650 tubes measuring 10 inches in internal diameter and stretching from the purifying boxes built in the Tijuca sierra as far as the reservoirs in Barro Vermelho and Catumbi.40 The beginning of operations of this new system brought relief, even if only temporary, from the hardships suffered by the population. Nevertheless, as far as the other measures recommended by the Commission were concerned, little had been done: the reforesting of the areas close to the sources was slow and almost exclusively limited to the vicinity of the sources of the Carioca, while the land expropriations, which would make the whole plan to preserve the springs workable, was still only on paper. Beginning in 1855, however, this began to become concretized, with several terrains being expropriated near the sources of the Carioca, as well as the property located in the "Cova da Onça" (Puma's Cave) and the "Bico do Papagaio" (Parrot's Beak) in the springs of the Maracanã.

In spite of the greatly reinforced supply, the city suffered another water scarcity in the 1860s. Affected by the deforesting of the previous decades, the fountainheads failed to correspond to the expectations of the 1843 Commission. Again recognizing the gravity of the problem, the government proposed that a new "general plan for water supply" be drawn up, and accordingly appointed a commission made up of Councilor Pedro de Alcântara Bellegarde and Engineers Antônio Manoel de Mello, William Ginty, Charles Neate and Henry Law. The Commission was also to deliberate on the numerous proposals being offered to solve the problem of water supply.41

This was the beginning of a great polemic. On the one hand stood the General Inspectorship of Public Works of the Court Municipality, which considered that the fountainheads close to the city were no longer enough for the required supply. Accordingly, they warned of the need to adopt a definitive solution for the problem and defended the immediate catchment and canalization of the rivers that flowed down from the Serra do Mar, beyond the borders of the Court Municipality. Disagreeing with this analysis, some engineers held that the rivers of the Tijuca massif were still able to supply the city's needs, all that was needed was to preserve the sources. The Commission's final decision ended up favoring the latter position. They further understood that preserving the sources was a fundamental condition for solving the city's many other problems, including the floods caused, among other things, "by making roads through the mountains and the streets that have been opened up there."42

Once the matter was decided upon, a plan was drawn up to orient the work to preserve the sources. The objective was to be pursued from two work fronts advancing at the same time. The first was to reforest the hills, to which end the government passed a directive in December 1861 containing provisional instructions for the planting and conservation of the Tijuca and Paineiras forests. On the same date, Major Manoel Gomes Archer was appointed to coordinate the work in the Tijuca forest, and Tomás Nogueira da Gama was to proceed with the work being done on the Paineiras side. The dedication of these two men, plus the considerable help of the slaves who worked with them, was responsible for the rebirth of the Tijuca forest as early as the 1870s. Many years were still to pass, however, before it reached the exuberance that it shows today.

The second front was in charge of expropriations. Without the acquisition of the land that bordered on the springs, it would be impossible to guarantee the fountainheads, for the young forest had to preserved from any danger. For these reasons, from the 1860s on, the work to make the land at the top of the massif part of the national heritage was speeded up. Then began the long process of territorial consolidation of the area that now belongs to the Tijuca National Park, a process that would only come to an end in the middle of the 20th century.

THE FOREST REAPPEARS, BUT THE CITY HAS CHANGED

With the exception of the work concerned with reforesting and land expropriation, which were making rapid progress, the following years

were characterized by the old practice of seeking new sources at each drought. So it was that in 1861 the waters of the Taylor river in Alto da Boa Vista were caught, and in 1863 it was recommended to urgently direct towards the pipes of the Maracanã the waters of the Trapicheiro river, the Soberbo stream, and the Cascata Grande.43 The drought of 1868, in turn, called for the catchment of the Cachoeira and Macacos rivers. In the 1870s, the waters of the affluents of the Gávea river were finally canalized, as well as small streams that ran through the present neighborhood of Tijuca, and the waters of the Três Rios and Covanca rivers. These efforts to gather new fountainheads were complemented by a feverish activity to replace the old, smaller-sized pipes by wider ones.

None of this, however, alleviated the lack of water. Even considering that a great amount of the liquid was lost due to the precarious state of the distribution systems installed, the truth is that concern with preserving the fountainheads of the Tijuca massif had come too late. In fact the benefits of reforesting the Alto da Tijuca and Paineiras hills could only be enjoyed in the long run with the recomposition of the vegetal cover that protected the river sources. Until that should happen, it was more likely that the supply of water would actually diminish, which eventually happened later on. Nonetheless, the city grew more and more thirsty: the development of tertiary and manufacturing activities demanded robust supply and demographic growth was intense: in 1872 Rio de Janeiro already had 228,743 inhabitants in the urban neighborhoods alone.

The spread of the city out towards the periphery from the 1870s on also aggravated the problems of water supply. The carting companies that began to operate in Rio after 1868 played a fundamental role in this expansion: streetcars drawn by mules connected the central area with Botafogo, Laranjeiras, Jardim Botânico, Tijuca, Rio Comprido and São Cristovão. In turn, the greater supply of trains circulating in the Dom Pedro II Railroad Station after 1870 also contributed to the railroad suburbs growing more densely populated. In both cases the incentive to chop up the old farms was significant, with small lots proliferating on all sides.

Contrary to what might be expected, the growing exodus in the direction of the outskirts bore little impact on the high density of the central districts. The fact is that only those with some revenue or at least had some sort of stable remuneration were able to opt to reside in the suburbs. This, however, was not the case of a great portion of the population who depended on living in the center to be able to survive. As a matter of fact, living in the center of town meant far more than not having any expenses with transportation. For many workers,

whether free or wageearning slaves, work had to be sought each and every day in the city streets, since that is where they could sell their services or find some odd job to do. The struggle for survival was daily and was only guaranteed by being actually present in this dense center that concentrated laborintensive activities.44

With so much demand for cheap housing in the downtown area, it should come as no surprise that collective accommodation enjoyed tremendous popularity in this period. Through considered to be foci of insalubrity, they were also sure sources of revenue, and many even belonged to individuals who were influential in municipal policy, which explains why they bravely resisted against all the efforts of the Government to clear them from the carioca landscape. Another factor that contributed to their permanence was the uninterrupted arrival of swarms of immigrants who not only bolstered the income of the landlords but also intensified even more the daily struggle for survival in the city.

The demands of a central area that grew more and more dense, together with the urban expansion towards the periphery, soon placed in check the policy of water supply adopted up to then, based exclusively on the use of the fountainheads of the Tijuca massif. On the one hand, the need to guarantee a proper level of water for the center of town, a requirement of the public-health agencies, made it indispensable for a decision to be taken quickly. On the other hand, the horizontal growth of the city multiplied the need for the distributing system to expand, which in turn meant that the sources should be generous. Well, it was precisely this deficiency, joined to the irregularity of the supply, which affected the devastated fountainheads of that massif.

In the search for a solution to a seemingly permanent problem, a new commission was set up by the government in 1870, now headed by Engineer Antônio Rebouças. The suggestion was again presented to find the water that the city so badly needed in the Serra do Mar, but only five years and several dry seasons later was the government finally to adopt it. Englishman A. Gabrielli was contracted to carry out the work of catchment and distribution of the waters of the Ouro and Santo Antônio rivers in Tinguá, which began on 12 September 1876 and was provisionally inaugurated in the presence of the Emperor in May 1880.

The start-up of the operations of this new water-supply system was providential. Despite the advances made in the reforesting of Paineiras and the Alto da Boa Vista (in 1877, 68,000 trees had already been planted), the truth is that the old fountainheads were no longer capable of meeting the needs of a city in constant geographical, economic and

populational growth. The allotments were by now all over the place, even in the mountains! The case of Santa Teresa is in this sense quite illustrative, since its occupation, though begun in the middle of the 19th century, only took hold after the street-car lines were extended as far as there in the 1870s. With the surging of this new neighborhood in the acropolis, the process of conquering the mountains began once more. Now, however, the process was driven forward not by the search for potable water, nor even by the search for conditions favorable to the development of export cultures. Even though the natural factor remained present (after all, the "healthy climate" helped to sell lots), it was the prospect of gaining revenue from the urban soil - that is, obtaining substantial real-estate profits for the landowners - that lent the impulse at the close of the 19th century to the proliferation of allotments in Santa Teresa and later on the slopes of Rio Comprido and Glória.

The arrival in Rio de Janeiro of the large textile industries in the late 19th century also revitalized, albeit from another prism, the locational attributes of the mountains, or more precisely the areas at the foot of the mountains. Given the characteristics of the official supply and the large demand for water that characterizes this sort of industry, the nearness of river flows became a highly desirable factor. Oddly enough, it was on the banks of the rivers that descended from the Tijuca massif that the supply could be minimally assured, which was explained by the precariousness of the water-mains systems that existed upstream, which only caught part of the fountainheads. For this reason, many of the textile factories headed in that direction, special mention being made of the Aliança company (set up in Laranjeiras in 1880), Carioca (installed in Jardim Botânico in 1884), Confiança Industrial (founded in Vila Isabel in 1885), São Félix (inaugurated in Gávea in 1881), and Corcovado (opened in 1894 in Jardim Botânico).

It was also in the last quarter of the 19th century that the mountain began to take on a new important role as a place for cure and leisure. The salubrity of the Alto da Boa Vista had long been recognized. However, access to this area had always been a problem, since it depended on a quite steep path that was not fit for carriages. To solve this problem, in 1866 a variant was inaugurated that ascended the mountain more smoothly, known as the "Estrada Nova da Tijuca" (New Tijuca Road). This better access then led to the São Cristóvão Carriage Company to reactivate the old concession of the Tijuca Railroad company (which had gone bankrupt in 1867 without having accomplished its objective of stretching its tracks all the way to the Alto) and prolong its lines as far as Usina. Other initiatives followed this, such as the Serra Car Company which in 1872 began to connect

the last stop of the São Cristóvão Company streetcars to the Alto da Boa Vista, thus making access easier for those in search of the healthy mountain air. Finally, in 1898 the Tijuca Railroad started operations, linking the Alto da Boa Vista to Usina by means of electricity-driven engines. This new connection, later incorporated into the transportation system monopolized by the Rio de Janeiro Tramway, Light and Power Company, made access to the Alto all the easier, turning it into a very sought-after spot for summer homes, hotels and sanatoriums.45

In addition to appreciating the mountain as a healthy location, the close of the 19th century also witnessed the institutionalization of tourism, which would prove fundamental to the city's economy during the incoming century. Already indirectly present in the pursuit of the "good airs" of Alto da Boa Vista, from the 1880s on tourism began to justify some investments made in the massif, special mention being due to the improvement of the roads and paths and the building of the Corcovado Railroad, a concession granted to Engineers Francisco Pereira Passos and João Teixeira Soares, the first stretch of which was inaugurated in 1884.

So, at the end of the 19th century a new relationship was established between the city and the Tijuca massif, quite unlike what had had been predominant up to then. The new century would nevertheless redefine this relationship. While tourism enjoyed strong growth, regularization of the water supply and appreciation of the land situated at the foot of the mountain range had an opposite effect on industry, which actually even disappeared from many neighborhoods. Meanwhile, residential occupation of the mountains reached its high peak, only to undergo a significant change both in form and content. Another side of the same coin, accelerated urban growth also made it inevitable for the mountains to be occupied by the poorer classes, especially after the urban reform undertaken at the beginning of the 20th century redefined the uses and functions of the central area by removing from that space the responsibility of sheltering the proletariat.

THE 20TH CENTURY: THE NEW RELATIONS BETWEEN CITY AND MOUNTAIN

Unlike the centuries before, where the relation between the city and the Tijuca massif was almost always based on a natural element (the massif provided the water, stone, wood, coal, ideal climate for coffee, the healthy climate for a city stricken by epidemics), eminently social factors were to dictate this relationship in the 20th century. Among

such factors, a relevant role was reserved for questions relating to housing. For a better understanding, however, we must return once more to the past.

Around the last decade of the 19h century, the housing crisis in Rio de Janeiro was extremely aggravated. On the one hand, demographic growth reached very high levels (for example, in 1890 the city already had 429,745 inhabitants in the urban districts alone); on the other hand, not only did the rhythm of construction of new houses lag behind this population growth but also, to make matters worse, a deliberate policy of destroying collective housing was adopted at this time on behalf of public hygiene.

The urban reform under the command of Mayor Francisco Pereira Passos in the first decade of the 20th century made this situation all the more difficult. The demolition sledge-hammers were mostly directed at the working class districts in the center of town, now to be transformed into a symbol of urban modernity. To reinforce even more the pursuit of this image, a wide assortment of decrees, laws, regulations and regimes was also enacted with the intention of prohibiting reforms being carried out in the still existing collective housing and regulating all the civil construction in the Federal District. This regulation began, on the one hand, to make it difficult to occupy the suburbs beside the railroad, which until then had benefited from less strict urban norms. Swarm after swarm of immigrants still poured into Rio de Janeiro. Attracting a great amount of labor force but unable to offer them options of legal residence in the city, it was inevitable that Rio de Janeiro would witness from then on a new form of housing whose precarious construction represented a challenge to urban control and constituted a veritable negation of the aesthetics of modernity that the city was being offered. This form of housing was the favela, the shanty town.

Already embrionically present in Rio since 1897, when authorization was given to the soldiers back from the Canudos campaign to occupy Providência and Santo Antônio hills provisionally, this form of occupation soon proved to be the ideal solution to the problem of popular housing in the city. From being a temporary place of residence, these hillside areas quickly changed into an option for permanent residence, also attracting those who were expelled by the urban reform work and recent immigrants. In the 1910s the flow of poor people towards the mountains grew intense. On the one hand, the suppression of external supply due to the First World War stimulated industrial growth in the city, which in turn acted as a stimulus to immigration. On the other hand the dislocation of the more wealthy classes towards the neighborhoods in the southern zone

(Botafogo, Laranjeiras, Copacabana, Vila Ipanema) and the northern zone (Tijuca, Rio Comprido, Andaraí) also generated a series of jobs in civil construction and services, again stimulating immigration. As far as unoccupied hillsides were concerned, there was no lack of these in the city, which is why the process of "favelazation" became irreversible from that period on.46

Some attempts were made to evict these new "urban squatters," some of which were effective. But the speed with which the shanty towns sprang up was far greater than any eviction order could impede. Besides, the slum-dwellers who were evicted from one hillside shanty just ended up settling in another. Finally, since no other housing policy alternative was proposed, the consolidation of the favela in the Rio de Janeiro landscape was only a question of time. Little time. Around 1920 the slums had already reached Botafogo, Copacabana, São Cristóvão, and even Madureira. They had also scaled the slopes of the Carioca sierra on the Catumbi side, Tijuca, Engenho Novo and the districts of the southern zone. The decades to come would see this form of occupation of the hillsides become even more assertive.

Another contribution to the occupation of the slopes of the Tijuca massif, legalized allotments were also leaving their mark. In the first decade of the century they had already outgrown the 50-meter high limit on the side of Tijuca, Vila Isabel, Riachuelo, Engenho Novo, Méier, Lins de Vasconcelos and Água Santa The 1910s saw this process become all the more intense, chiefly in Engenho Novo and Tijuca. However, it was from the second quarter of the 20th century onwards that this process accelerated, when the "north front of expansion" represented by the abovementioned neighborhoods was joined by a "southern front" that climbed the hills of the mountain range on the side of Cosme Velho, Jardim Botânico, Leblon and Gávea. In this case the lots were meant for the segment of the population with more buying power, automobile owners who sought for pleasant microclimates or else simply the chance to live in exclusive locations. The first lots opened in the Alto da Boa Vista date from this time too.47

The increasing occupation of the hillsides of the Tijuca (by the rich and the middle class and the poor) revived an old environmental problem of the city. It was no longer the trees being cut down: the hillsides being occupied had long ago lost their vegetal cover, and the national forest created high on the massif was still far from the urban web and was therefore preserved. The problem now faced had to do with the floods.

This was an old problem. In February 1811, for example, it was already so serious that the Prince Regent even ordered General João Manuel

da Silva to make a study of the causes. The conclusion reached by this military engineer at once pointed to the role played by the city topography, which presented brusque changes of gradient (from steep slopes to flat, sea-level terrain), thus contributing to the rapid running off of water down the banks to be dammed up on the prairies.48 Over a hundred years further ahead, this was exactly the problem that bothered French urbanist Alfred Agache, contracted by the City Government in the 1920s to draw up a municipal Director Plan. Agache's suggested solution was to build on the slopes of the massif a complex system of ditches and reservoir-dams that would retard the water draining towards the prairies. In order to protect the forest created the century before, the Plan also proposed the creation of the "National Park of Rio de Janeiro," which would serve as a "perpetual reservoir of air, water and vegetation."49

Like other recommendations made in the Agache Plan, those referring to the prevention of floods were soon forgotten. The document, concluded at the same time that the Revolution of 1930 broke out in the country, was viewed with extreme mistrust by the new government, who furthermore alleged that never in fifty years would it be feasible. Consequently, the process of occupation of the hills of the Tijuca massif not only kept on advancing but actually accelerated after 1940, when the city's rates of economic and demographic growth attained even higher figures.

In fact, the industrial development experienced in Rio de Janeiro in the period of the Second World War, allied to the dizzying horizontal and vertical growth of its urban web, multiplied the opportunities of employment in the city and this was immediately reflected in the increase of immigration. If in 1940 the city's population stood at 1,759,277 inhabitants, ten years later this figure was 2,375,280, a total that soared to 3,300,431 in 1960. Reflecting this demographic dynamism, the process of urban expansion gained even more impetus with the multiplication of lots in the municipalities located beyond the limits of the Federal District, with the rapid process of verticalization in the southern zone and even more intense occupation of the Tijuca massif.

As regards the legalized occupation of the mountains, the 1940s witnessed the "northern front" advance considerably, principally in Andaraí, Vila Isabel, Sampaio, Lins, Rio Comprido and Tijuca, this latter case being substantially stimulated by the opening of the Edson Passos Avenue, a new thoroughfare to the Alto da Boa Vista district. As for the "southern front," this spread into Jardim Botânico, Gávea and Leblon. The shanty towns in turn presented fantastic growth both in number of communities and inhabitants. In 1950, for example, the

hills of the massif alone were home to 60,934 dwellers, that is, 36% of the slum population of Rio de Janeiro. Estimates in 1960 indicated that this figure had already passed the 100,000 mark.50

As of the mid-1950s, the contradictions of the occupation of the city soil intensified a lot, above all in the southern zone. On the one hand, the possibility of making profit from property began to diminish as a result of the saturation of an urban space that was already densely occupied and in some cases - such as Copacabana - considerably verticalized. On the other hand, the concentration of a large measure of the car-owning population in this zone of the city caused constant traffic jams that called for a solution. The presence of slums also began to be questioned more vigorously, because the shacks brought down the value of buildings close by and/or occupied land coveted by the civil construction industry. And what can be said about the ever increasing demand for sea-side residences, if the Tijuca massif, projecting itself towards the Leblon coastline, obstructed physical expansion in the direction of São Conrado and Barra da Tijuca?

Such contradictions would be resolved as of 1964, when an income-concentrating economic model, allied to suppression of certain civil rights, was imposed on the country. The reflexes of this new order on urban space were many, but for our purposes here, only two need be mentioned. First, this resulted in a process of forced removal of a great deal of the slums from the south zone, these being replaced by de-luxe apartment buildings, or else the hillsides were left free and kept unobstructed, which was a necessary condition for them to be sold as having "a view" or as possessing "green areas." Secondly, and on account of the priority given to individual transportation and the intense land speculation seen in the ocean-side areas beyond Leblon, the new order directed public investments towards the transportation sector, which led to the building of the Lagoa-Barra Highway, which made it possible for the city to spread out more in the direction of the Jacarepaguá valley.

Once the problem of access was resolved, a property fever took hold of the Jacarepaguá valley, with lots multiplying there from the 1980s on, designed for the middle and upper-middle classes, shopping centers and - inevitably - slums too. The process became all the more powerful in the late 1990s when the municipal government opened the "Yellow Line" to traffic, this being an express road cutting through the Tijuca massif by means of several tunnels and joining the Barra da Tijuca neighborhood to the city's old railroad-bordering suburbs, to the Avenida Brasil and to the "Red Line."

Together with the accelerated occupation of this new area of the city, there arose a "western front" of penetration of the Tijuca massif. With

its main axes the old Grajaú- Jacarepaguá and Covanca roads and the "Yellow Line," this front is advancing fast. The pursuit of "green," "views," a "new way of life," or simply status, has been driving ahead an intense and lucrative real-estate activity that reaches as far as the slopes of the Pedra Branca massif. The search for employment, or just a place to stay, also accompanies this flux, which gives rise to new favelas. Consequently, in this new area of the city the same social and environmental questions arise that have for some time been present in the other sectors of the mountain range.

CONCLUSION: THE ENVIRONMENTAL QUESTION AND THE SOCIAL QUESTION

Mirroring the deep social inequality that is generally true of Brazilian society, the city of Rio de Janeiro has been showing more and more an urban structure that spatially separates rich from poor. This model obviously is not perfectly demarcated. If concentration of income favors the appearance of noble, exclusive neighborhoods, it can just as well generate an infinity of jobs (in civil construction, services and so on) and it is the search for these job opportunities, together with the eternal lack of an urban policy that privileges mass transportation, that impels the poor to try to live close to the job, just as they did in the past. The proliferation of slums and irregular lots quickly becomes reality, by the crises of recession and economic re-structuring that affected the level of employment and quality of life of most of the population.

Given these conditioning factors, it is not surprising that even without presenting the demographic growth rates of the past, Rio de Janeiro has lately been experiencing an exacerbation of the old problem of housing. New slums appear on the scene while old ones swell in population, without mentioning the growing contingent of people who cannot afford to pay rent even in the slums and simply go and live in the street.

It is in this context of intensified social crisis that the rapport between the city and the Tijuca mountains gains importance. On the one hand, the need to preserve the green area reconstituted in the past and finally transformed into a National Park in 1961 is unquestionable. On the other hand, the increasing occupation of the massif hills, whether by the wealthy who segregate themselves in noble areas that are almost impenetrable, or by the poor who perpetuate the process of "favelazation" that is already over a hundred years old, poses endless questions of an environmental and social nature.

This intensified occupation of hillsides accelerates erosion processes by potentializing the action of the water running off on the surface, with the consequent inevitable occurrence of landslides and flooding. If both poor and rich contribute to this situation, there can be no doubt that the former suffer more from the effects of destabilization of the hills. According to the census of 1980, over 90 slums already occupied the Tijuca sierra and housed more than 160,000 people. The data for the decade also show that the situation has become even worse: the slum population has not only swollen but also the slums have advanced fast on the green areas of the massif. This situation don't manece the Tijuca National Park that has its area totaly protected. Unlike the past, today's forest has only a residual importance for the supply of water. Still, situated as it is in the heart of a large metropolis, it goes on playing a fundamental role in the life of Rio and its inhabitants. Its mere presence, for example, guarantees not only a more agreeable microclimate for a city located in the tropics but also attracts an important flow of tourists, which generates jobs and revenue.

The great challenge that is posed at the moment is how to conciliate the need to preserve this all-important environmental system with the various demands made by such a disparate population as far as access to social resources - including the basic ones - are concerned. In this sense, the inclusion of part of the Tijuca mountain range in the list of places of world heritage protected by Unesco can be of inestimable help.On the one hand it would grant the necessary approval for the ongoing work of preservation to be continued. On the other hand it would lead to the causes of the conflict also being tackled, thereby forcing the public powers and civil society to organize better and find the legal means and the necessary conditions to foster a better relationship between city, mountain and forest.

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TIJUCA NATIONAL PARK - General Characteristcs

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Tijuca National Park – IBAMA

General Characteristics

The Tijuca National Park, created in 1961, is comprised of various forests, the result of more than a century of expropriations and administrative changes. Nevertheless, one symbolic date does stand out: the 1861 appointment of Major Archer as administrator of the Tijuca Forest, strictly speaking (not to be confused with entire National Park, since it is but a small part, albeit the best known).

1 - Origins of the park

1861-73: Major Archer

Under Decree No. 577 of December 11, 1860, the Imperial Government ordered the reforestation of the slopes of the Tijuca Massif. The task began in early 1861 in the Tijuca Forest, under Major Manuel Gomes Archer, and in the Paineiras Forest, under Tomas Nogueira da Gama.

During the next 13 years some 100,000 seedlings of various native species were planted.

1874-88: Baron d'Escragnolle

Reforestation was continued in 1874, under the administration of Baron d'Escragnolle, and with the collaboration of the French botanist and landscapist Auguste François Glaziou. When their work was completed, the Tijuca Forest contained around 130,000 trees planted and growing. During this time, reforestation and expropriation policy was rounded out by work aimed at beautifying the area with bridges, belvederes and lakes, along with making the forest a recreation and promenade area for the imperial court and wealthy families. In 1884, with the opening of the Corcovado Railroad, the Hotel Paineiras and the Corcovado Belvedere, the first tourist complex in Rio had been created.

1889-1943: Relative abandonment

Little was done following the Proclamation of the Republic in 1889. The area lay forgotten for almost half a century, although the expropriations continued and the Vista Chinesa Pavilion was built. As the population of Rio rose from 270,000 in 1872 to 450,000 in 1890, the government was obliged to search for water away from the Tijuca Massif, which placed development of the city on a new path with the subdividing of Santa Teresa (1872); drilling of the Old Tunnel into Copacabana Beach (1890-92); installation of factories on each side of Alto da Boa Vista to take advantage of the power furnished by the Tijuca rivers; reorganization of the Centro, the downtown area, and the opening of Central Avenue (1905); and using a landfill to create a new district, Urca, at the foot of Sugar Loaf Mountain (1908).

The only major work during this period - nonetheless a very important one - took place between 1929 and 1931, when the statue of Christ the Redeemer was built atop Corcovado.

Until 1941, the forests in the Massif were managed by the Water and Sewage Department. The land and woods located in this area were declared a natural heritage under government ownership, with no exploitation of any type allowed, with the springs on its inalienable land protected to ensure their water would remain pure.

Based on the Decree Law of December 5, 1941, the Forestry Service under the Ministry of Agriculture was charged with "protecting and safeguarding government-owned forests", with a Forest Protection Division created within the Forestry Service. Forests were divided into three groups:

- the Tijuca forests (Tijuca, Andarai, Trapicheiro, Gávea Pequena)

- the Paineira, Silvestre and Sumare forests

- the Tres Rios and Covanca forests

1943-45: Raimundo de Castro Maia

In June of 1943, the mayor of Rio, H. Dodsworth, appointed Raimundo Ottoni de Castro Maia to give a facelift to the Tijuca Forest. On December 31, 1944, administration of this forest was placed in the hands of the Federal District Water and Sewage Department, though the land and water still belonged to the Central Government. Recovery of the Tijuca Forest, with an overall reshaping under the supervision of Castro Maia, took place between 1943 and 1945, during which time the Forest was given its current form. Under the guiding hand of the architect Wladimir Alves de Souza, its boundaries were laid out

and its accessways built to include the design of the entrance portals. Roberto Burle Marx, the landscape artist, assisted in laying out the new access routes, remodeling the old dam as well and transforming it into an enchanting nook, with the added attraction of the old Campo de Santana railings that had been built there. After the fall of Vargas (late 1945) and the reorganization of the Federal District Forestry Service (November 21, 1946), Castro Maia resigned.

1961-67: Creation and Demarcation of the Tijuca National Park

Decree 50,923 of July 6, 1961, created the National Park of Rio de Janeiro, which consisted of grouping the forests owned by the Central Government - Tijuca, Paineiras, Corcovado, Gavea Pequena, Trapaceiro, Andarai, Tres Rios and Covanca. The intention was to place them under special protection and care, not only due to the natural beauty of their landscape, but also because they protected the springs existing in the area.

Act 4,771 of September 15, 1965, created the New Forestry Code.

On February 8, 1967, the Park was declared a public monument by IPHAN, along with its protective forests and including the areas of the Tijuca Massif above the 100-meter level, and above the 80-meter level for the forests.

Decree 60,183 of February 28, 1967, changed the name of the park to the Tijuca National Park, with the same dimensions and other characteristics it now has. The new boundaries did not include areas considered to be unrecoverable, such as the Covanca Forest and part of the Andarai Forest, while other areas were added, such as the Pedra Bonita-Pedra da Gavea complex, and numerous areas on Mount Dona Marta and Corcovado. These areas comprise the only national park in Brazil located in an urban area, and is the largest urban park in the world.

1967-2001: The Park Undergoes Transformations

1967-92: Archaeological Dig Project at Historical Sites in the Tijuca National Park (Brazilian Foundation for Nature Conservation).

In 1970, the State Environmental Engineering Foundation (FEEMA) began repopulating the forests, reintroducing animal species that had long before disappeared, mainly primates.

After a series of misunderstandings, the Governor's Office of the State of Guanabara handed over the Tijuca Forest to the Brazilian Institute of Forest Development in 1973, which incorporated it into the Tijuca National Park.

Municipal Decree of March 3, 1976, which approved zoning regulations for the city of Rio de Janeiro, prohibited all construction above the 100-meter level.

Decree 84,017 of September 21, 1979, approved the regulations for Brazilian National Parks.

1987: Agreement with the Brazilian Foundation for Nature Conservation.

1989: Second Brazilian Conference on Environmental Protection (at the Botanical Garden).

1991: UN includes the Park in its Biosphere Reserve.

1992: Approval of the Master Plan for the city of Rio de Janeiro, and creation of an APARU (environmental protection and urban renewal area) in Alto da Boa Vista. Conference Rio-92.

On March 23, 1999, a Shared Management Agreement for the Park was signed between IBAMA and the Rio de Janeiro Mayor's Office. This Agreement also calls for creating Sector D of the Park, and expanding the already existing Sectors A, B and C. The objective is to carry out a series of studies in order to add the Park to other characteristic ecosystems in the city (mangrove swamps and lakes), facilitate the preservation of species, widen the Atlantic Forest corridor, and bring the National Park closer to the city. Priority areas of the study include City Park, Lage Park, Alto da Boa Vista, Catumba Park, the APAs (Environmental Protection Areas) of the hillside areas known as 'morros' (Morro dos Cabritos, Morro de Saudade, Morro da Babilonia, Morro de Sao Joao, Morro da Urca, and Morro dos Dois Irmaos), Leme, Rodrigo de Freitas Lagoon, and the Grajau Forest Reserve.

2 - Flora and Fauna

2.1 Flora

The flora in the Tijuca National Park, based on the elevations of the Tijuca Massif, have been classified as a dense, submontane and montane umbriferous forest by the Brazilian Institute of Geography and Statistics (IBGE).

Vegetation coverage is secondary, in an advanced state of regeneration in many areas. Long ago, the flora consisted of dense, tropical rainforest growth, characteristic of the Atlantic Forest Ecosystem. Early in the 19th century, a great part of this forest was replaced by monoculture. Over a period of time, the forest has gradually returned, due to joint efforts by humans as well as the forces of nature.

Reforested as of 1861, with some 130,000 seedlings, it was the first heterogeneous reforestation in Latin America. By and large it has been repopulated with species native to the Atlantic Forest Ecosystem. Nowadays the vegetation reflects a forest in full regeneration, a result of replanting and secondary succession, with species that have reached a height of 20 to 25 meters. They include rare native species such as the black rosewood (*Dalbergia nigra - Leguminosae*), laurels (*Ocotea spp and Cryptocarya spp - Lauraceae*), trumpet trees (*Cecropia spp - Moraceae*), cedars (*Cedrela spp - Meliaceae*), and mimosas (*Tabebuia spp*).

Non-native flora, subsequently acclimatized, have been introduced by the landscaping that began in 1874, in secluded areas and alongside the roadways. Owing to the use of non-native species and those from other regions of Brazil, the Atlantic Forest in the Park and its surroundings does not have a highly characteristic phytosociology, as there was prior to deforestation for monoculture or for timber cutting and charcoal-making.

A canopy of emergent trees has been formed, consisting of trees such as the carinianas (*Cariniana legalis and C. estrellensis - Lecythidaceae*), threatened with extinction; the sapucaia (*Lecythis pisonis - Lechthidaceae*); the ironwood (*Caesalpinia ferrea var. leiostachya - Leguminosae*), and the flosssilk (*Chorisia crispifolia - Bombacaceae*).

Just below these can be found a huge variety of arboreal species forming a roof: **non-native**, such as the jackfruit (*Artocarpus heterophyllus - Moraceae*), mango (*Mangifera indica - Anacardiaceae*), and loquat (*Eryobotria japonica - Rosaceae*); and **native**, such as the black rosewood (*Dalbergia nigra - Leguminosae*), threatened with extinction; laurels (*Ocotea spp and Cryptocarya spp - Lauraceae*), also threatened; trumpet trees (*Cercropia spp - Moraceae*), cedars (*Cedrela spp - Meliaceae*), and mimosas (Tabebuia spp - *Bignoniaceae*), among others.

Many epiphytes and lianas proliferate on the branches, such as bromeliads (*Billbergia spp, Vriesea spp, Tillandsia spp and Aechmea spp*), Carib heliconia (*Heliconia spp - Musaceae*),

Orchidaceae (*Cattleya spp, Pleurothallis spp, Octomeria spp and others*), Cactaceae (*Rhipsalis spp*), pteridodophytes and bryophytes, among others.

The ground is almost always covered with a dense and highly decomposed layer of litter, with scattered gneissic boulders. In this dark and damp environment, mainly alongside waterways, grow a variety of herbs and bushes, for example the spleenwort (*Asplenium sp - Felicinea*), orchids (*Oeceoclades maculata, Sobralia sp and Cyclopogon*

spp - Orchidaceae), and torus herbs (*Dorstenia spp - Moraceae*), which are threatened with extinction.

In certain areas, owing to landslides from the slopes of hills and road shoulders, the resultant clearings lend themselves to what is known as the "**border effect**", the rapid growth of various species of vines and bamboos on and over the tree tops, suffocating them and leading to the death of individual trees and bushes. Proliferation of paspalum grass and other invasive weeds create conditions for forest fires, to which the border effect also contributes.

Among the anthropic factors that compromise the floral diversity of the Tijuca National Park are people who gather its various plants, strip its palm leaves and harvest its varieties of wood.

With the spread of both mansions and shantytowns over the hillsides in the Park's area of influence, its vegetation cover is gradually shrinking, increasing the likelihood of landslides. In addition to impoverishing the biodiversity of flora - and consequently fauna – these problems increase the geomorphologic risks of the slopes of the Tijuca Massif, especially during the heavy rain seasons (early spring and late summer), with grave consequences for the surrounding human population.

In addition to the cooling effects of the high altitude and the pleasantness of having the ocean nearby, the climatic consequences of the Tijuca Massif, with its lush forest cover, serve to make it an outstanding moisture attracting barrier, with heavy, lengthy rainfall measuring more than 2,000 mm annually, especially between September and April.

The forest mass in the Park and surrounding areas aids in reducing pollution and makes the climate of the city more agreeable, as well as helping to contain the slopes of the Tijuca Massif, while its water resources contribute to the water supply for city residents. These water resources are important to the city, with a vast number of pure, crystalline springs that produce rivers, creeks and waterfalls that have supplied Rio de Janeiro since colonial times.

2.2 Fauna

The fauna have suffered greatly from the devastation and establishment of monocultures, virtually reaching extinction. Following reforestation, many species have been able to reproduce, although there are no more large animals. During the 1970s, the Park management fostered the repopulation of certain species by reintroducing certain animal species that had disappeared.

Insects constitute the largest number of representatives of the local fauna, in particular the green locust (*Zamara tympanum*), blue butterflies (*Morfo achilles, M. anaxibia and M. laertes*), the owl butterfly (*Caligo eurylochus*), the praying mantis (*Stagmatoptera supplicaria*) and the Natal locust (*Chromacris miles*).

No mammals of the larger species or specialized predators are found in the forests of the Tijuca National park. Instead, there are margays (*Felis yagouaroundi, F. wiedii and F. tigrina*), the wild dog (*Cerdocyon thous*), tayras (*Eira barbara*), the sloth (*Bradypus variegatus*), the ferret (*Galictis vittata*), the crab-eating raccoon (*Procyon cancrivorus*), the tapiti (*Sylvilagus brasiliensis*), the capuchin monkey (*Cebus apella*), the star marmoset (*Callithix jacchus*), mouse

opossums (*Marmosa cinerea and M. incana*), and the coati (*Nasua nasua solitari*). There are also rodents (*Akodon sp, Coendou sp*), squirrels (*Sciurus aestuans*), and various species of bats of the Artibeus, Desmodus, Sturnira and Phyllostomus genera, and others.

There is also an abundant and varied avifauna, with flocks of tanagers (*Thraupis cyanoptera, T. palmarum* and *T. sayaca*, of the genus Thraupis, and *Tangara seledon* and *Tangara multicolor*, of the genus Calospiza); parrots of the genus Pyrrhura (*Pyrrhura leucotis* and *P. cruentata*), both threatened with extinction, and of the genus Pionus (*Pionus maximiliana*), native to the region; and other birds (*Cothrophaga ani* and *Guira guira*).

Representative birds include two hawks threatened with extinction (*Leucopternis lacernulata* and *Spizaetus tyrannus*), and other more common species (*Rupornis magnirostris, Buteogallus meridionalis* and *Falco sparveridus*). Also included are the naked-throated bell-bird (*Procnia nudicollis*), threatened in the Rio de Janeiro municipality; Desmarest's manakin (*Manacus manacus*); tanagers (*Dacnis cyana, Tangara spp* and *Thraupis spp*); the red-rumped cacique (*Cacicus haemorrhous*), also on the brink of disappearing; woodpeckers (*Picumnus sp, Colaptes spp* and others); the tinamou (*Crypturellus tataupa*); the ant shrike (*Tamnophilus spp*); the sulfur-and-white-breasted toucan (*Ramphastos vittelinus*), threatened with extinction; and the aracaris (*Selenidera sp* and *Baillonius sp*), also threatened with extinction. There is also the Maximilian's parrot (P*ionus maximiliani*), native to the region.

Herpetological fauna is comprised of reptiles, such as two species of pit vipers (*Bothrops jacaraca* and *B. jacaracu*), the green snake (*Phylodryas olfersii*), the vine snake (*Chironius bicarinatus*), the boa constrictor (*Boa constrictor*), the tegu lizard (*Tupinambis teguixim*), the

ameiva (*Ameiva ameiva*), and the calango lizard (*Tropidurus torquatus*). Others include tree toads (*Hyla spp, Phyllomedusa spp* and others), and common toads (*Bufo spp, Oocormus sp, Proceratophrys sp* and *Brachycephalus sp*, threatened with extinction).

Arthropods make up the largest number of representatives, including arachnids, insects and both freshwater and land crustaceans. Among them are butterflies (*Morpho spp, Hamadryas spp* and others); spiders (*Staptocosa sp, Leucage sp* and *Nephila sp*); the green locust (*Zamara tympanum*), the praying mantis (*Stagmatoptera supplicaria*), the Natal locust (*Chromairis miles*), the river crab (*Trichodactylus sp*) and the fresh-water shrimp (*Macrobrachium sp*), together with many other types.

The fauna is less diversified than in the past, owing to a history of human predatory action in the region, which has reduced and/or changed the habitats of countless species. Various efforts at reintroducing species were made during the 1970s and 1980s, though without much success. Hunting still goes on inside the boundaries of Tijuca National Park, mainly by people living nearby. The targets are small mammals, and especially large birds, parakeets, parrots and manakins, to name a few.

The proximity to other Conservation Units (City Park, the Botanical Garden, Lage Park, and so forth) allows species to move about, consequently increasing the gene flow among populations. Nevertheless, the growing isolation of these forest areas, with the spread of housing, has been affecting this flow.

3 - Human occupancy

3.1 Remains of the past

The legacy of its significant past history has left the Park with a cultural heritage of 116 archaeological sites. Research is being carried out at these sites and their ruins by archaeologists from the National Museum at the Federal University of Rio de Janeiro, with work presently being consolidated and which should become part of the tourist itinerary in the future.

Of the 16 historical structures still standing, some have been restored and are being used as restaurants (A Floresta and Os Esquilos) and the administrative headquarters of the Tijuca National Park (the Barracao). Soon to come are the Archaeological Site Museum of the 1st Coffee Cycle, a Cultural Center, and an Environmental Research Center.

Informational markers have been placed along the 20 historical roads and the many trails remaining from the past, providing orientation for ecotourism.

A Visitors Center inaugurated in July of 2000 offers its users an environmental library, video room, multipurpose room, exhibition space and other cultural services.

HISTORICAL SITE IN SECTOR A (see Map 4 of the Tijuca National Park, by Carlos Manes Bandeira)

Santa Ines Forest

Menezes Cortes Ranch- Alto da Fortaleza, ruins of blockhouse walls - 52

Santa Ines Valley - Road to stone cistern and large and small walls - 88

Santa Ines Valley, crest along Ciganos River, old dam and channel - 89

Ciganos Dam - Ruins of house 2 and reservoir - 90

Ciganos Valley - Ruins of house, Cantagalo Farm - 09

Ciganos Dam - Ruins of one of houses on Cantagalo

Plantation - 21

Andarai Forest

Elephant Valley

- Maria Devel Plantation

Ruins of house and façade - 07

Ruins of Maria Devel house - 08

Walls along Pedra da Coruja road - 91

Shelter of the "Invincibles", ruins of Baldrame Wall - 102

Ruins of storehouse and walls - 103

- Murumbi Plantation or Vila Rica - 43

Grajau, forest reserve, ruins on face of Pico do Perdido ['Lost Peak'] - 123

Grajau, forest reserve, ruins of plantation house - 01

Ruins of Murumbi Plantation house (Vila Rica) - 25

Ruins of two stone ovensRuins of wall, Rio Perdido - 27

Boundary marker on cliff - 42

Ruins of house - 116

Cachoeira Valley

- Viscondessa Plantation

Grajau, ruins of plantation house - 16

Mount Redondo, ruins of house on slopes - 118

Ruins of stone door - 26

Ruins of a house, no. 1 - 31

Stone bridge - 53

Ruins of three-story house - 73

Ruins of stone cistern - 74

Side walls, Gruta do Serpente - 75

Ruins of plantation slave quarters (Widow Borges) - 136

Mount Felizardo

Ruins of Felizardo farmhouse – 12

Andarai Maior Peak

Muralhas Farm

Ruins of coffee storehouse - 70

Storehouse tank - 71

Walls along country road - 72

Ruins of Muralhas house - 77

Country road on Western Slope - 78

Road halfway up slope, ruins of a dam reservoir - 85

Ferreira dos Santos Farm

Ruins of Ferreira dos Santos house - 141

Ruins of farmhouse - 10

Excelsior, ruins of gateway on Ferreira dos Santos Farm - 11

Excelsior Valley, ruins of a wall - 28

Excelsior area, ruins of house - 40

Excelsior Valley Meadow, ruins of creek house - 81

Excelsior Highway Raul Fountain, ruins of Cupertino Farmhouse - 83

Excelsior Entrance

Caveira Farm

Ruins of house - 15

Caveira Plaza, ruins of house - 22

Serrilha Road, ruins of coffee storehouse - 101

Mount Redondo Crest - Ruins of Alves de Brito house - 06

Mount Redondo - Ruins of a dam, Alves Brito Farm - 32

Mount Redondo - Alves Brito Farm, rock stairs carved in stone - 36

Slope of Mount Redondo Four stone boundary markers - 87

Las Almas Valley - Midosi Farm

Midosi Plaza, ruins of Midosi house, Major Archer's residence - 04

Ruins of a coffee storehouse - 14

Ruins of a coffee storehouse, no. 2 - 23

Ruins of a stone oven - 35

Cascata Road, ruins of a house and walls - 67

Old slave quarters, "A Floresta" restaurant - 34

Fadas Lake - Remains of a building - 24

Count Gestas and Mayrinck Plantation

Site of Councilor Mayrinck house - 02

Site of Councilor Mayrinck house - 135

Ruins of Count Gestas house - 03

Former stud farmhouse of Count Gestas, "**O Barracão**" [The Storage House] - 50

Site of Councilor Mayrinck house - 47

Viscount Souto Plantation, **Mayrinck Chapel**

Bela Vista Plantation, Conde River, ruins of pilasters - 48

Bom Retiro

Bamboo Farm

Ruins of coffee storehouse and oven - 13

Ruins of house 2 - 58

Ruins of channels and tank - 59

Ruins of house 3 - 61

Cascatinha

Taunay Farm

Site of Taunay house - 17

Walls and rural roadbed, Taunay - 46

Mount Bandeira, engraved stone boundary marker on edge of Taunay property - 41

Close to Grutas da Tijuca [Tijuca Caves].

House known as "**A Fazenda**" [The Plantation] - 18

Almirante Farm

Ruins of Almirante House, Eleuterio Road - 38

Mateus Road, ruins of Francisco Fernandes house - 37

Visconde Mountain, stone boundary markers - 39

Visconde Mountain, ruins of storehouse - 62

Casa dos Esquilos [‹Squirrel House›], former residence of Col. Escragnolle

Fernandes Crest

O Cruzeiro das Almas and an altar - 60

Humaita Farm

Ruins of Humaita farmhouse - 05

Historical site of Pedra dos Macacos ['Monkey Rock'] - 121

Historical site of Gruta do Bom Retiro ['Bom Retiro Cave'] - 122

Açude [Dam] Valley

House, "**A Fazendinha**" ['The Little Plantation'], owned by Baron of Bom Retiro - 49

Açude Farm

Solidao Dam, remains of a building - 19

Solidao Dam, ruins of old dam and canals - 63

Solidao Dam, ruins of Chave storehouse - 64

Ruins of cistern house - 65

Ruins of farmhouse - 66

Sao Miguel, ruins of house of Antonio Joaquim d›Almeida - 44

Jaqueiras Farm

Ruins of Jaqueiras farmhouse - 68

Bridge and stone channel - 69

Jaqueiras Mountain, ruins of water tanks and channels - 98

Jaqueiras Mountain, ruins of rural road, halfway up hill - 99

Mount Archer: Hillside: ruins of walls - 100

Papagaio Road: Vestiges of ruins of a shelter

Jacarepagua Slope

Quitite Plantation, ruins of rural road - 30

Mount Cocanha

Walled bed of Cocanha rural road - 20

Ruins of a coffee storehouse, stone tank - 29

Taquara Farm

Ceu Plateau, ruins of a house - 57

Sertao Farm

Ruins of a house on Sertao Road - 84

Cova da Onça ['Puma Grave'] Road

Cova da Onça, hiding place for parts - 120

M. Nome Road, ruins of water reservoir - 45

Ruins of house 1 - 54

Ruins of house 2 - 55

Pedras Mountain

Walls of Pedras Mountain Road - 119

Boa Vista Street - **House of Viscount of Itamarati** - 51

Boa Vista Street - Ruins of wall of house of V. of Itamarati - 56

Soberbo Road - Ruins of a (demolished) house, outside of the TNP - 79

HISTORIAL SITES IN SECTOR B (see Map 3 of the Tijuca National Park, by Carlos Manes Bandeira)

Furnas de Agassiz [Agassiz Caves]

Ruins of Furnas Plantation house - 80

Bridge Road, Stone House - 97

Cascata Grande Plantation

Ruins of house on Pedra Bonita Road - 82

Ruins of house on Pedra Bonita Valley Crest - 94

Ruins of house 2 on Pedra Bonita Valley Crest - 95

Ruins of dam and water reservoir - 95

Western slope of Pedra da Gavea

Ruins of platforms and channels - 117

Pedra Bonita Crest

Ruins of house - 86

Gavea Pequena

Sao Luis Plantation, Vista Chinesa Highway - 125

Nassau Plantation, ruins of house - 124

Cochrane Valley, 1876 dams

1, 2, 3, 4, 5, 6, 7, 8, 9 - 104 to 112

Ruins of house on Velhos Manaciais Road - 142

Macacos Farm

Ruins of house 1 - 131

Ruins of house 2 - 132

Ruins of stone cistern - 133

Rainha River

Macacos Plantation, ruins of Canto and Mello house – 127 Botanical Garden

Rainha River farm, ruins of house - 137 City Park

Marquis of Sao Vicente Plantation Center - 130 City Park

Macacos Plantation

Solar da Imperatriz, Pacheco Leao Street - 127 Botanical Garden

Chapel of Nossa Senhora da Cabeça - 128

Ruins of buildings at Nossa Senhora da Conceiçao da Lagoa

Plantation, Botanical Garden - 113

Ruins of Gunpowder Factory, Botanical Garden - 114

Paineiras

Paineiras Aqueduct - 129

Sao Silvestre Chapel, Corcovado Highway - 140

Count Dirk von Hogendorp house, slope of Ascurra - 92

Bica da Rainha public fountain

3.2 Ground use and occupancy

When the Park was created, 150 people still lived in unregulated conditions within its boundaries. Part of the forest, along with trails, facilities, isolated areas and bodies of water have been damaged by bad weather, the effects of urban pollution and the lack of care by authorized and other users, by the unauthorized use of its waterways, gathering of ornamental plants, and hunting, with the most attractive hunting sites being the Gavea Pequena, Santa Ines and Paineiras Forests.

The Management Plan embodied in the agreement between the former IBDF (now IBAMA) and FBCN, published in 1981, laid down the conditions for use and occupancy of the Park. Some 12 businesses for visitors were established, such as bars, restaurants and souvenir shops.

Urban Services

- Water supply: The countless local springs are used for

supplying water.

- Sewage: The Park has no sewage system. Most of the buildings located in it have only primary water treatment, with some of them discharging untreated sewage directly into waterways.

- Urban drainage: Along the routes with the heaviest traffic within the Corcovado, Sumare and Gavea Pequena group - routes considered to be public parks - this service is the responsibility of the Drainage Division of the Municipal Public Works Secretariat.

- Urban Cleaning: Along the routes with the heaviest traffic within the Corcovado, Sumare and Gavea Pequena group - routes considered to be public parks - this service is the responsibility of the Municipal Urban Cleaning Company (COMLURB). Because two groups - Andarai-Tijuca-Tres Rios and Pedra Bonita-Pedra da Gavea – are located in closed areas, since 1999 they have also been served by COMLURB. The Tijuca Forest management and COMLURB are negotiating so that urban cleaning services can be provided for the Tijuca and Corcovado Forests.

Activities: The main activities undertaken in the Park are recreation and ecological/cultural tourism. Visitors are attracted to the belvederes, the agreeable climate, the Tijuca Forest and the various natural and cultural features. Of note among the more popular places are the Tijuca Forest and Corcovado, with more than a million visitors every year. The statue of Christ the Redeemer is considered to be the symbol of the city and country, and one of the leading tourist sites in Rio de Janeiro.

4 - Environmental zoning

A new Management Plan is currently being worked out, owing to the innumerable urban and environmental conflicts and changes that have taken place during these recent decades since the Park was created. Present zoning is defined in the original Management Plan (1981), which established six zones:

Wilderness zone:

This is the one that has suffered the least from the human presence. It includes two different areas:

1. The most central and highest part of the Tijuca Forest, comprised of the Tijuca, Papagaio and Archer Peaks and Pedra de Sao Francisco, the source of various rivers and streams, and which is totally covered by dense forest vegetation.

2. The Serra da Carioca range, where the spring from which the Macacos River flows is located.

Its regulations:

- prohibit any buildings that could block the natural landscape.

- prohibit visitors from remaining overnight.

- limit administrative activities to inspections only.

- allow use for authorized scientific purposes, environmental education and basic outdoor recreation.

- restrict public use to hiking.

- foster the elimination of non-native animal and plant species.

Extensive-use zone:

Mainly comprised of natural areas, with two different parts:

1. The belt surrounding the intensive-use zone, where hanggliding at Pedra Bonita takes place.

2. The area where Pedra da Gavea is located, and its access trail.

Its regulations:

- prohibit the opening of new trails, maintaining those that provide access to the hanggliding ramp and Pedra da Gavea.

- prohibit visitors from remaining overnight.

- allow a low-level public use, while creating facilities for educational, research and recreational purposes.
- foster the elimination of non-native animal and plant species.

Intensive-use zone:

Formed of natural and modified environments, bordered by a belt approximately 50 meters wide along the shoulders of public roadways. Located in the Corcovado area, which includes the Dona Marta Belvedere and the railroad.

Its regulations:

- prohibit vehicle parking close to the Pedra Bonita hanggliding ramp.

- prohibit the dumping of waste water into waterways.

- prohibit buildings and parking areas not included in the Plan.

- prohibit the use of automotive vehicles along the Corcovado Highway, other than those needed for inspections.

- prohibit driving-school vehicles from entering the Park area, and buses in the Tijuca Forest and Pedra Bonita.

- restrict educational activities to those involving nature in the area, such as hiking, picnics, photography, etc., so as not to conflict with the goals for protecting Park resources.

- allow the construction of small buildings for implementing management programs.

- allow scientific, cultural and sociological research, upon prior authorization from the agency's central management.

- establish information centers and subcenters (places with explanations of significant environmental characteristics, for environmental education purposes) in this area, and carry out informational and educational activities.

- encourage visits while allowing limited use of vehicles, with speed bumps on roadways to curtail speeding.

- foster the elimination of non-native animal and plant species.

Historical and cultural zone

This is where historical, cultural and archeological remains can be found. It is comprised of the Vista Chinesa and Emperor's Table belvederes, the Mayrinck Chapel, the Esquilos and Floresta restaurants, and the Vila Rica ruins, among others.

Its regulations:

- allow access to visitors.

- foster the elimination of non-native animal and plant species.

- encourage public environmental education activities regarding the area and its treasures.

Recovery zone:

This is intended for environmental rehabilitation, including devastated areas in the Tijuca Forest and along the entire Serra da Carioca, other than highways and areas for public use; in particular includes the

entire Pedra da Gavea area, other than parts for public use.

Its regulations:

- prohibit visits.

- foster the elimination of non-native animal and plant species.

- allow for species to be reintroduced only after specific research.

- require periodical inspection of entire area.

Special-use zone:

Intended for Park management, and comprised of five separate areas:

1. Sumare, with a vast number of radio and television towers.

2. Serra da Carioca, the area where towers and other facilities of EMBRATEL, the Brazilian Telecommunications Company, are located.

3. The area of the Tijuca Forest currently known as "A Fazenda" [The Plantation].

4. The area of the Ciganos Dam, with facilities pertaining to CEDAE, the State Water and Sewage Company, in the northwestern part of the Park.

5. The area comprised of a strip where the power transmission line belonging to the power company LIGHT

- Serviços de Eletricidade S.A. runs.

Its regulations:

- require that construction and other activities have the least possible impact on ecosystems, and blend in with the natural environment.

- require that garbage incineration or landfills are carried out in the appropriate place, with sufficient waste treatment so as not to pollute waterways.

- allow only Park officials to have access to existing facilities.

- establish the responsibility for maintaining and revitalizing these areas among its users.

Park Sectors

The Park covers an area of 33.58 km2, or one-quarter of the entire Massif (120 km2, including the Pretos Forros Forest), i.e. one-third of the part located beneath the Menezes Cortes Highway (95 km2). It is divided into three sectors:

- Sector A (1454 hectares): The Andarai-Tijuca-Tres Rios area, in the Serra da Tijuca range or Tres Rios, known as the Tijuca Forest.

- Sector B (1641 hectares): The Corcovado-Sumare-Gavea Pequena area, on the northern and southern slopes of the Serra da Carioca.

- Sector C (263 hectares): the Pedra Bonita-Pedra Gávea area, on the southwestern slope of the Serra da Carioca.

The three sectors of the TNP all share the Alto da Boa Vista district.

A - SECTOR A: Andarai-Tijuca-Tres Rios (see Map 2 of the Tijuca National Park, by Carlos Manes Bandeira)

a - The Tres Rios or Tijuca range

Lying along a SE-NE axis above the 600-meter elevation (4 km/1.5 km), this is the highest part of the Massif (Tijuca Peak, 1021 m).

It is comprised of three groups of peaks (Taquara, Papagaio and Tijuca) above the 750-meter elevation, separated by roads that follow the gorges. Starting in the south, they are:

- Mount Sao Miguel (630 m), Mount Cipo (688 m), and Mount Taquara Castle (814 m). The latter is accessed by a trail from the Cova da Onça, splitting off onto the Sertao Road up to the Ceu Plateau. From this point, a trail goes up to the mountain peak, until reaching a series of extremely steep cliffs that resemble towers, hence the name Mount Taquara Castle.

- the Sertao Road, which runs between the Paz Highway (Alto da Boa Vista) and Jacarepagua.

- The Cocanha (982m) and Papagaio (939 m) Mountains, the Serrilha do Papagaio range (983m, 957m, 922m, and 905m), Archer Peak (817m), and Pedra Joao Antonio (908m). The Papagaio Peak features an imposing array of cliffs in the shape of a parrot's beak. At the Alto da Ponta do Urubu (983m) in the Serrilha, there is an immense slab of gneiss projecting over the abyss, as well as a large rock "column" on which it rests. Mount Archer takes its name from the fact that Major Archer enjoyed climbing up to its top. Pedra Joao Antonio, with its impressive rock walls, is a virtually hidden mountain in the center of the Park, rising out of the Santa Ines Valley. Its main slope is one of the most difficult to scale in the entire Park. The interior of the Park can be viewed from atop the Peak.

- end of Peak highway and beginning of Ciganos Road.

- the Tijuca (102 m), Tijuca-Mirim (917m) and Andarai Maior (961m)

Peaks. The Tijuca Peak has an imposing steep slope and a long ascending staircase carved out of the gneiss, with a chain handrail supported by iron bars. It was installed in 1928, at the suggestion of King Albert of Belgium while he was there. The climb to reach the Peak is not considered difficult. There is a 2600-meter trail leading up to the Largo do Bom Retiro. The Tijuca-Mirim Peak stands as a huge rock cliff, in front of which there is a prominent spur. The Andarai Maior Peak, with its front graced by an immense cliff, is one of the most beautiful mountains in the Park.

On the southern slope of the Andarai Maior Peak are found Mounts Excelsior and Pedra do Conde, together with the Tijuca and Andarai Forests. On the northern extension of the Peak, Mount Redondo separates the Cachoeira River Valley from the Elephant Valley.

The northern slope of the Tijuca range, with Ciganos Valley (a one-day hike), comprises the Santa Ines Forest, actually one of two forests.

The eastern slope, with the valleys of the Quitite, Papagaio and Pedras Rivers, descends to Jacarepagua.

b - accesses and highways

There are two major access gateways:

The **Cascatinha Gateway**, the best known, in the Afonso Viseu Plaza (Alto da Boa Vista), with access to the Estrada do Imperador ['Emperor's Highway'].

The **Solidao Dam Gateway**, at the meeting point of the Paz Highway and the Dam Highway, with access to the Bom Retiro Highway.

The sector can also be accessed through the Ciganos Dam and the Menezes Cortes Highway (formerly the Grajau-Jacarepagua Highway). Visitors, however, are not allowed to use this access since it is in a special-use zone.

Its main links to the city are:

- through the northern area of the city, along Conde de Bonfim Street, continuing along Edson Passos Avenue and on to Afonso Viseu Plaza in Alto da Boa Vista;

- through Santa Teresa, along Almirante Alexandrino Street, continuing along Paineiras and Redentor Streets (in the Corcovado-Sumare-Gavea Pequena area), and on to Boa Vista Street and Afonso Viseu Plaza.

- through the Botanical Garden, along Pacheco Leao Street, continuing along Dona Castorina and Vista Chinesa Streets (in the Corcovado-

Sumare-Gavea Pequena area), and on to Boa Vista Street and Afonso Viseu Plaza.

- through Itanhanga, along the Furnas Highway, and on to Boa Vista Street and Afonso Viseu Plaza.

It can be visited on foot, by bicycle, motorcycle and car. Buses are not recommended.

c - Tijuca Forest (elevations 350 to 700 m) Indications (...) correspond to the 1:10,000 scale map for the Tijuca Forest (IPLANRio 92).

The southern slope of the Serra da Tijuca is where the Tijuca Forest is found. It is the most "culturally-oriented" part of the Park, with remains of 19th century buildings (a café and aristocratic residences), remains of subsequent developments (Glaziou, Castro Maia), and modern-day facilities (standard tourism and ecotourism).

There are two major gateways: (80) Cascatinha and (82) Solidao Dam.

The Tijuca Forest can be entered over 6 highways (Excelsior, Picos, Major Archer, Baron d'Escragnolle, Bom Retiro and Imperador), leading to points of interest. In addition to these asphalted and reasonably-preserved routes, there are twenty accessible historical roads and 86 trails into the Forest, many that go to special isolated areas, thus requiring knowledge of the land in order to be used. There are also a number of bicycle paths and hiking trails in the sector.

Attractions: caves (46 Paulo and Virginia), waterfalls (79 Cascatinha being the most famous), lakes (70 Fadas Lake), a dam (83, Solidao Dam), and belvederes (37 Vista do Almirante, 30 Excelsior).

Mountain climbing can also be practiced. Papagaio Peak (elev. 989 m) and Tijuca Peak (elev. 1,021 m) are easy to scale, with beautiful views of the city from the latter as well as from Conde Peak.

The Tijuca Forest has a number of sites for picnicking, children's recreation and relaxation. There are also places for private gatherings; restaurants and steakhouses; garbage cans, tables, benches, public restrooms and parking lots in designated areas; gatehouses with security equipment at the gateways; forest rangers and municipal police.

Emperor's Highway:

80 **Cascatinha Gateway**

a) The Taunay Farm

The painter Nicolas-Antoine Taunay, a member of the French Arts Mission, arrived in Brazil in 1816. The following year he bought the adjacent land

of Cascatinha, which today bears his name, and the plantation belonging to another Frenchman, the Count of Gestas. Taunay built a rustic wattle-and-daub home, which was later replaced by a more elegant residence. He returned to France in 1821, leaving his children, Auguste-Marie and Felix, to take care of the property, which was in exactly the same place as where the Cascatinha restrooms and a small souvenir shop are presently located.

The Taunay Plaza: borders the (79) **Taunay Falls**, a pleasant and easily-accessed spot 500 meters from the Gateway. Here is where the Taunay residence was located.The site offers a beautiful view of the waterfall, a souvenir shop, restaurants, fountains, tiled benches, and tables with benches alongside the Maracana River. The lush vegetation imbues the place with a feeling of an amphitheatre, with its multihued green framing the beauty of the landscape.

78 Job de Alcantara Bridge. In 1860, the Imperial Treasury contracted Felix Taunay to open a new road into the first part of the forest. At the same time, the old Cascatinha bridge was rebuilt by the engineer Job Justino de Alcantara.

b) Boa Vista Plantation

The French Count Aymar de Gestas (1786-1837), an adept of coffeegrowing, came to Brazil in 1810. He purchased 56 hectares of land on the slopes of Pedra Redonda (which would come to be known as "Pedra do Conde"). Gestas was the true pioneer of coffee in the region. Owing to his commercial success, in February of 1822 the Count was selected by the future Pedro I to bear a personal letter to King Louis XVIII in which Pedro requested protection from the threats of the Portuguese Crown. The King appointed Count Gestas as the French consul-general in Rio de Janeiro. In 1835, Gestas sold his plantation to the banker Antonio Alves, the future Viscount de Souto. Business at the Boa Vista plantation was lucrative until 1843, when the Tijuca coffee plantations were struck by the "butterfly" disease (coffee rust). During this same time, the financial crisis bankrupted the Viscount in 1864, and he was forced to sell the plantation to Jose Francisco de Mesquita, the Count of Bonfim.Dividing his duties between statesman and country gentleman, the Count of Bonfim managed the plantation until his death in 1873, leaving the property to his son, the Baron of Mesquita. The plantation remained productive, with maize, manioc and other vegetable crops. Following the Baron's death in 1886, his daughter sold the plantation to Councilor Francisco de Paula Mayrinck, who totally remodeled the old manor and converted it into an elegant mansion. In 1897, Councilor Mayrinck granted the property to the Secretariat of Agriculture for use as a water impoundment area. A few months later, the government demolished the mansion, leaving only the chapel and one building (the 'Barracao'), on the edge of the Alto do Mesquita plateau.

The (19) **Mayrinck Chapel**, initially built in 1850 by Viscount Antonio Alves Souto, was reconstructed in 1860 by Councilor Mayrinck. During the 1930s, the chapel deteriorated considerably, almost falling into ruins. A press campaign led the Mayor's Office of the Federal District to rebuild the chapel, which was reopened in 1938. From 1943 to 1945, Raymundo de Castro Maia placed the architect Waldemir de Souza in charge of a complete renovation, with decoration in the hands of the painter Portinari.

<u>Peaks Highway:</u>

A colonial-style building known as the (71) **Barracao** [Storage House], renovated in 1996, which was in succession a slave quarters (with Count Gestas' stud farm and stables in back), a residence, a school and the administrative headquarters of the Castro Maia Museum. It is currently the Park administrative headquarters.

(70) **Fadas Lake**

(36) **Midosi Plaza**. Wide area located on a leveled plateau, where an elevated dry-rock and pebble wall joins another higher terrace, the site of the Midosi farmhouse.

Guilherme Midosi, a Frenchman and coffeegrower on the island of Martinique, came to Brazil in 1824. He named his plantation "Forest Farm", and built his home on a small hillside that he terraced to create a wide patio for drying coffee beans. He also built quarters for housing his slaves. Midosi was the coffeegrower who stayed the longest in the forest, remaining on his farm until February 8, 1856, when the land was appropriated for the Imperial Treasury. The object was to protect the sources of the Maracana River by reforestation. Major Archer then went there to live, and in 1862 created the first tree nursery to grow seedlings for reforestation. The locale thus became the seedbed from which the Forest sprang.

A walled fronting, a row of palm trees along with hundred-year-old trees. On one end, the site of the former slave quarters in a beautiful building with its porch ringed by Tuscan columns - this is the location of the restaurant "**A Floresta**". Here is where Major Archer and his first six slaves lived, who created the pioneering nursery for reforestation of the Tijuca National Park.

Road to (34) Cachoeira das Almas

On the left: Major Archer Highway.

c) Bamboo Farm

(17) **Bom Retiro Plaza**, the starting point for roads up to the Tijuca and Papagaio Peaks, the Santa Ines Forest, and Mount Archer. In

the center there is a monument in honor of Dr. Luis Pedreira do Couto Ferraz (1808-1886), deputy, coffeegrower, and a man with a passion for the Forest. He was one of those who fought the hardest for appropriating the Forest lands and for its reforestation.

On the right-hand side are the ruins of the (18) **Bamboo Farm**. In 1850, the Viscount of Bom Retiro built two houses and slave quarters, along with a tank and channel system, where he manufactured indigo in the shape of cones. Appropriated by the Imperial Treasury in 1859.

Excelsior Highway

At 4500 meters from the gateway, (30) the **Excelsior Belvedere**. A place to enjoy a highly scenic view, with a columned balustrade and tiled benches. The panorama includes Guanabara Bay and the northern part of the city, seen from an elevation of 611 meters.

(31) ruins of the **Caveira Farm**.

Imperial Princess Highway

(74) **My Nook**, or the Painters Nook.

Baron d'Escragnolle Highway

The former residence of the Baron d'Escragnolle now contains the (67) **Esquilos** restaurant. The building is wide and roomy, with a beautiful patio garden where there is a fountain dating back to 1624, during the Dutch occupation of Pernambuco. In front of the building is the "Theater of Nature", a site of rare, scenic beauty, grass-covered and with a simple stage with ivy-covered stones where countless folkloric concerts have been held.

(68) **The Manacas Gardens**, a small garden corner with the Wallace Fountain. This was the favorite place of the Empress Leopoldina, who used to gather here with her friends from royalty and their ladies-in-waiting.

Major Archer Highway

A garden on a small terrace that can be reached by a short stairway. Here is where the road to the Forest (39-48) **grottos** and caves begins (Mount Archer group). Under the terrace is the (46) **Paulo and Virginia Cave**. A side road leads to the Gabriela and Diamantina Waterfalls.

One of the most scenic views in the Forest can be enjoyed from (37) the **Almirante Belvedere**, on the Gavea Peak 600 meters from the fork with the Peaks Highway.

(61) Isabel Plaza fountain.

(60) Road to the **Humaita Farm**.

The (59) **Plantation** road or **Luis Fernandes house** (18th century?). An old, yet still well-preserved building from the early 19th century, with rustic staircases and a large basement. In front of the house stands the **Eucalyptus Grove** and the old coffee-drying patio for the plantation. The movie "Innocence" was shot here, based on Alfredo Taunay's novel of the same name. There was once a tree nursery in the rear of the plantation, built in 1945.

Viscount of Bom Retiro Highway

(72) The **Little Plantation or Solidao** [Solitude]. Formerly the residence of the Baron of Bom Retiro, it has a small, French-style chalet built by the Baron, where he lived. A garden with many ornamental plants and flowers stands in front of the house, which is entered through a small canopied porch, with two old lanterns on the sides. It was appropriated in 1868. The site, which was the country headquarters of the Brazilian Equestrian Society during the Castro Maia government, has been selected as the future Museum of Natural History of the Tijuca National Park.

The **Açude [Dam] Farm** was owned by the Viscounts of Assecas and sold during the 1830s. There are houses on the end close to the Açude Gateway, along with a rustic dam, a small tool shed and a residence, all now in ruins. Partially appropriated in 1870 by the Imperial Treasury.

(83) **The Solidao Dam**: A beautiful lake landscaped by Burle Marx, with ornamental vegetation and an island, colorful fish and wild ducks. The (82) **Açude Gateway** is in the rear, decorated with bronze statues of natives in the New World. The decorated railing is from Campo de Santana.

For the **Açude Museum**, formerly owned by Raymundo de Castro Mayo, see the chapter "The Surrounding Area".

B - SECTOR B: Corcovado-Sumare-Gavea Pequena (see Map 1 of the Tijuca National Park, by Carlos Manes Bandeira)

7 km east-west, 3 km north-south

a - Serra da Carioca

Lying at the 500-meter elevation, with three groups of mountains and peaks above the 600-meter level.

- Mount Queimado: (719 m). A mountain located almost alongside the Redentor Highway, 500 meters from the (12) Boa Vista Belvedere. Its trail begins with a wide road for some 500 meters, followed by a

rugged, steep trail that first passes through the forest, and then second-growth land. The soil is virtually mineralized, consisting of sand and pebbles, the result of repeated burn-offs during the 'coffee cycle', hence the name of the mountain. From the summit, visitors can enjoy one of the most picturesque views of the southern part of the city.

At the southern extension of the mountain, a rather extensive plateau connects it to two other peaks: Boa Vista Mountain, at a distance of 450 meters, and Freira Mountain, at around 600 meters. It is an easy hike to Boa Vista Mountain (716 m), along a trail that at times lies under a canopy of dense woods. The view from the summit includes the Gavea and Tijuca Massifs. The mountain lies parallel to the Redentor Highway, at the elevation of the junction of the railroad that used to pass through the area. Although it is covered by a thick forest and bamboo groves, Freira Mountain (622 m) offers a beautiful view of the Gavea Massif, and can be hiked with little difficulty.

North of Mount Queimado, Moganga Mountain (554m) stands on one of the faces of the Serra da Carioca, whose base lies along Edison Passos Avenue in the area of the CEDAE dam. It can be scaled along various routes.

- The Serra da Carioca, strictly speaking, with the Carioca Peak and Sumare Crest. The Carioca Peak (784m) is the highest point in Sector B. A very popular visiting place in the past, it can no longer be visited owing to the presence of EMBRATEL (Brazilian Communications Company) and other organizations and television companies. Although covered by dense vegetation, it has a belvedere platform built of tree trunks, which provides a scenic view of the city and the Tijuca Massif. The peak could be scaled with little difficulty. Hiking on the Carioca-Mirim or Carioquinha Peak (648 m), an extension of the low Carioca Peak, has also been prohibited by EMBRATEL, other than over a difficult trail. The crest of the southern slope of the Serra da Carioca, or the Sumare Crest, is occupied by retransmitting towers: the (**20**) Embratel Tower (682 m), and (**19**) retransmitting towers (from 747 to 774m).

The northeastern extension of the Serra da Carioca consists of the Serra do Sumare: The Da Gama Crest (624m), named in honor of the reforestation specialist Tomas Nogueira da Gama, a companion of Archer who was in charge of the Paineiras Forest, and Mount Sumare (557 m), which faces Saenz Pena Plaza, with a large triangular wall descending from the crest to halfway down the slope of Salgueiro Mountain. On the northern slope of the massif, between the Serra do Sumare and the Serra da Carioca, lies the Trapicheiros Forest. Mount Formiga, with an elevation of 623 meters, borders the Rio

Comprido section of the city, with a facing of massive walls more than 200 meters high. It can be accessed by the Sumare Highway, and can be climbed over a route less than 3 kilometers long, and another 6 kilometers to reach the Paineiras Crest.

- The Corcovado Bluff (702 m), separated from the Serra da Carioca by the (15) Paineiras Crest (539 m) at the front end of the range, overlooking Guanabara Bay, towers over the entire city.

It was climbed for the first time by a team of engineers under the command of the young Emperor, Pedro I, who had the following inscription carved into a tree trunk: I.P. 2-18-24 (Imperator Petrus, February 18, 1824). The Emperor ordered a type of telegraph (semaphore) installed on the summit, which signaled the climb with flags, linked up to other stations. The climb was popular with the royal court, who went up to the peak several times. This practice was halted when a group of army deserters, escaped slaves and bandits began hiding out in the woods at the base of Corcovado. Pedro was advised not to climb up to the peak again, in case he should run into the bandits. Consequently, the 'telegraph' was abandoned.

On January 7, 1882, the Imperial Government granted the engineers Francisco Pereira Passos and Joao Teixeira Soares the right to build a cog railway between Cosme Velho Street and the Corcovado Peak crest. (Pereira Passos would later become the Mayor of Rio de Janeiro, who in 1905 reorganized the entire center of the city and opened up Rio Branco Avenue.) The railroad up to the Paineiras Crest was inaugurated on October 9, 1884. On July 1, 1885, the second stretch was inaugurated, which went up to the Peak crest, and is still there today. A large pavilion was built on the crest, where a restaurant was opened up.

In 1929, the French sculptor Paul Landowsky and the Brazilian engineer Heitor da Silva Rocha began constructing the huge statue of Christ the Redeemer, which was unveiled on October 12, 1931. Its electric lighting was turned on by a signal transmitted directly from Italy by the engineer Marconi, using Hertzian waves.

The **(15)** Paineiras Crest stands between the Carioca River and the Cabeça River basins. It is the meeting point of a Corcovado train station and the Redentor, Paineiras and Corcovado Highways. A hotel (currently closed, but scheduled to reopen) was built at the time the station was opened. Starting from the Corcovado Highway, a 600-meter road leads to Mount Dona Marta (362m), with an (17) admirable view of the city, Sugar Loaf and the Christ on Corcovado.

On the southern slope of the Serra da Carioca we find Pico do Sapo (351m), the Cabeça River valley, Pedra do Cao (517m), Sete Quedas Mountain (549m), the Pai Ricardo Woods (one of the best preserved

in the National Park), and the Macacos Forest. With its vast walls plummeting into the Humaita Valley and its rocky cliffs projecting into the Paineiras Highway roadbed, 500 meters from the Hotel Paineiras, Pedra do Cao is a training site for mountain climbing.

In the southern area of Sector B of the National Park are the Cochrane, Andorinhas and Laboriaux Mountains, separating the Macacos and Vista Chinesa Valleys from the Gavea Pequena Valley.

Cochrane Mountain (718m), overlooking Cochrane Valley, stands on the edge of the Emperor's Table. Seldom visited, the heavily-forested Cochrane Mountain offers a beautiful view of Rodrigo de Freitas Lagoon and the southern area of the city. It can be climbed somewhat easily, beginning at the Vista Chinesa Highway, over a 1-kilometer route.

The Andorinhas Mountain or Peak (678m), i.e. a mountain with a high peak, can be reached via Cochrane Mountain or Caputi Street.

Macacos or Laboriaux Mountain (476m) is located on the Cochrane Mountain projection. It can be reached from Cochrane Mountain or the Rocinha shantytown, over a well-opened trail.

b - Accesses and Highways

Sector B of the National Park can be entered over five routes:

- through Rio Comprido, along Bispo Street, from Dr. Del Vecchio Plaza, from the Sumare Gateway, continuing along the Sumare Highway. At the same entry point to Rio Comprido, the Dom Mamede Highway can be taken up to Almirante Alexandrino Street.

- through Santa Teresa, following along Almirante Alexandrino Street, the Caboclos Gateway, proceeding to the Paineiras Highway; the end of Almirante Alexandrino Street can also be reached through the Laranjeiras and Cosme Velho areas.

- through the Botanical Garden, along Pacheco Leao Street, until reaching the Dona Castorina Highway (Macacos Gateway).

- through Alto da Boa Vista (by the Canoas or Furnas Highways, or Edison Passos Avenue), until reaching the Vista Chinesa Highway (Passo das Pedras Gateway), or the Redentor Highway (Sapucaias Gateway).

It can be reached on foot, by bicycle, motorcycle and car. Another option is the **train to the Corcovado Belvedere**, a route that begins at the Corcovado Railway Station on Cosme Velho Street, passing through the Paineiras Station and ending at the Corcovado Station.

Tickets are required to visit Corcovado, which are sold at the access point to the Corcovado Highway.

The Dona Castorina-Vista Chinesa, Redentor, Paineiras and Sumare Highways (asphalted, with some stretches in concrete) comprise the entry routes that cross the sector lengthwise.

One road runs crosswise through the sector, linking the Emperor's Table to the Redentor Highway.

Traffic by city dwellers is heavy along the Paineiras and Redentor Highways, as well as along the Dona Castorina and Vista Chinesa Highways, albeit it to a lesser degree for the latter two. This situation has hampered activities aimed at achieving the objectives of the Park.

Redentor Highway: Begins at the small Amado Nervo Street, crosses Boa Vista Street, passing through the Sapucaias Gateway, through Railway Junction Plaza (the end of a railroad that once operated there), through (12) the Bela Vista Belvedere (above the northern part of the city, including Maracana Stadium), along Mount Queimado road, through the entrance to the Sumare Highway, continuing alongside the Serra da Carioca, passing through two belvederes - (13) Passo do Inferno and (14) Andaime Pequeno (a platform suspended on piles with a dazzling view of the southern part of the city) - and coming out onto Paineiras Plaza.

Sumare Highway: Begins at the Redentor Highway, close to the junction with the Vista Chinesa Highway, continuing at an elevation of approximately 550-600 meters lengthwise along the Serra da Carioca, passing through a high belvedere, through the entrance to the telecommunication towers terrace, then going down to the Sumare Mountain Crest, and then on to (18) the Barro Branco Belvedere (550m) and the Sumare Gateway, afterwards passing through the Episcopal Palace and on down to Dr. Del Vecchio Plaza in Rio Comprido.

There is still a highway going up to the television towers (for retransmission) at the Serra da Carioca Crest, although there is no public access to the dazzling view from the towers. **Corcovado Highway**: The Corcovado Highway begins near Paineiras Plaza, at the Paineiras Highway, passing through the IBAMA Toll Booth and going up to a parking lot near the access steps to Corcovado Peak (704m). On the top deck, reached by climbing a lengthy set of steps and passing through the train station, taxi stand, luncheonettes, souvenir shops and a restaurant, stands the imposing statue of Christ the Redeemer (30 meters high, with an 8-meter base) and its indoor chapel (Nossa Senhora de Aparecida). With special authorization, the inside of the statue can be visited, making it possible to climb up to the shoulders

and head. The front part of the deck is the (16) Corcovado Belvedere, with the most breathtaking of all views of the city, along with the end-of-line train station and a taxi stand.

Paineiras Highway: Begins at Paineiras Plaza, then descends and passes through the accessway to the Dona Marta Belvedere, afterwards going by the Silvestre Chapel, the Paineiras Aqueduct (18th century), and the Caboclos Gateway, coming out on Almirante Alexandrino Street. The Paineiras Highway is a popular place for hiking and jogging, with exercise equipment and showers at its waterfalls, mainly on Sundays and holidays when the road is blocked to vehicle traffic.

In Paineiras Plaza, there are the (15) Paineiras Belvedere, train station, water fountain, a small parking lot and the Paineiras Hotel (20th century).

A road goes up to the (17) Dona Marta Belvedere, which provides a view of virtually the entire city, along with a heliport for taking flights over the area. Directly in front is an outstanding view of Corcovado Peak, with the statue of Christ the Redeemer.

Silvestre Chapel.

Paineiras Aqueduct (18th century)

Dona Castorina-Vista Chinesa Highways: The former begins at the Botanical Garden, the latter in Alto da Boa Vista, a little before the end of Boa Vista Street at the "Lampiao Grande" ['Big Lamp'], continuing through the Passo das Pedras gateway. The two highways meet at the Vista Chinesa Belvedere.

Along Dona Castorina Highway: the Quebra-bunda Falls, interesting stretches of forest that include Macacos Plaza and Tres Bicas Plaza, the Curva dos Bonecos Belvedere (giving partial views of Pico da Agulha, Pedra da Gavea, Cochrane Mountain and Mount Queimado, which surround the vast Gavea Pequena Valley).

Along Vista Chinesa Highway: the (10) Vista Chinesa Belvedere (413m, with an oriental-style pavilion; its name goes back to the early 19th century), and the (11) Emperor's Table (500 m; its name taken from the frequent visits by Emperor Pedro II, who enjoyed lunching in this rural spot).

C - SECTOR C: Pedra Bonita and Pedra da Gavea

The smallest sector of the Tijuca National Park, with two outstandingly beautiful scenic peaks, and which is undoubtedly the most impressive grouping, owing to its geomorphologic characteristics.

The Pedra da Gavea (842m) is a mountain steeped in legend, fantasy and many fatal accidents. The shape of its front part resembles a human face with a long beard, leading to the name "Emperor's Head" (Pedro II). The name of the mountain comes from its "crow's nest" ('cesto de gavea') shape, as seen on old ships. In the figure formed by the famous mountain group known as the "Sleeping Giant" (cf. section on Sugar Loaf), the Pedra da Gavea is the head, and its front part the nose.

It can be climbed over a number of routes of varying difficulty. Trails to the summit start at the Gavea Pequena Highway, with another one beginning at Sao Conrado, and yet another at the Joa Highway. All of the trails require little effort, though there are rocky obstacles or stretches that must be scaled. The exception is the Barra Trail, which has no points where climbing is necessary, though at some 3000 meters, it is longer.

Pedra da Gavea has geological flutings caused by wind and chemical-thermal erosion, giving rise to the idea that they were "Phoenician inscriptions", though such is not the case. This mountain, which some hermetic sects consider to be sacred, has been the scene of fatal accidents, with several climbers having lost their lives on it. In short, the mountain should be climbed only with experienced guides who are familiar with its trails and scaling points.

The Quatro Peak (678m), a southern extension of Pedra da Gavea, although it comprises a separate mountain, is difficult to climb and should be scaled only with the assistance of an expert mountain climber.

Bandeira Mountain (601m) is located on the northern front projection of Gavea.

Pedra Bonita (696m) lies alongside Pedra da Gavea, with the same access as to Pedra Aguda, though veering off the trail toward the side opposite to the hangglider ramp, climbing southward to the ruins of the Dona Maria Plantation, then climbing eastward to the summit over a easily traversable trail. Standing on the rather large summit *Pedra da Gávea, Tijuca Forest. Photograph by Pedro Oswaldo Cruz* - partly rocky, partly covered with woods and grasses – one can enjoy the marvelous view of the ocean, Pedra da Gavea, Barra da Tijuca and Jacarepagua. In the midst of the local greenery, delicate wildflowers abound.

Pedra Aguda (Agulhinha da Gavea) is a 610-meter mountain surrounded by granite walls that offer several options for climbing. Despite its various scaling routes, Pedra Aguda can also be easily climbed by hikers, beginning at the Canoas Highway, along the crest of

Gavea Pequena, coming close to the hangglíding ramp from where a short, 400-meter trail leads up to the top.

Neighboring mountains, Mount Chapeco (554 m) and Pedra Agassiz (550m) complete Sector C of the National Park. Mount Gavea Pequena (551m) lies outside the Park. The (9) hangglíding ramp is located between Pedra Bonita and Pedra Aguda.

Access is by the Pedra Bonita Highway, either from the south by the Canoas Highway, or the north, on the Furnas and Gavea Pequena Highways. The Gavea Pequena Highway begins at the Furnas Highway, one kilometer below Alto da Boa Vista, going up to the Pedra Bonita Highway, passing through the IBM Gateway, which leads to the hangglíding ramp deck (hangglíding and parachuting). From the IBM Gateway, the Pedra Bonita Highway drops down to the beginning of the Canoas Highway, which goes down to the Gavea Highway in Sao Conrado. A narrow road, paved with concrete blocks, provides access to the hangglíding platform. In addition to this route, there are trails leading to a number of sites in the sector, including Pedra da Gavea.

It can be reached by automobile (for those wishing to hang glide), bicycle, motorcycle or on foot.

4 - The surrounding zone

The case of the Tijuca National Park is of particular importance: "To maintain the forests preserved at each of their successive growth phases, it is necessary to keep the areas covered by these formations from coming into direct contact with areas having harmful vectors. In this way, geobiophysical alterations can be held in check, such as the declining humidity associated with an increase in temperature and light, following which species characteristic of degraded areas invade the better preserved areas. Specific studies of forested mountain areas by GEOHECO (at the Federal University of Rio de Janeiro) and other research groups have shown that vegetation in mountain forest areas must also be maintained at ground-level distances from 200 to 250 meters from the boundary of the area to be preserved." (Ana Luiza Coelho Netto, II, p. 48)

For this same reason, when IPHAN declared the Park a national monument in 1967, it extended the boundaries of the monument up to the 80 to 100-meter elevation, thus creating a wooded area for protecting the forests of the Park, a transition belt between the urban area and the Park.

In 1976, the Mayor's Office banned all construction above the 100-meter level. Based on the Master Plan, created by the City in 1992, this protection was reinforced by the creation of APAs (environmental protection areas) and an APARU (environmental protection and urban renewal area).

a - The Alto da Boa Vista APARU

Created by Municipal Decree 11,301 of August 21, 1992, and modified by Decree 12,242 of August 30, 1993, the APARU includes the entire Alto da Boa Vista area and part of Itanhanga. Accordingly, its boundaries include a large part of the Tijuca National Park: 70% of its 3,183 hectares are inside the Park, and 30% (955 hectares) fall within the three Park sectors, serving as a centralized point.

The main purpose of the APA is to protect and renew the environmental heritage of the area around the Park. Creation of the APARU was the result of a citizens' initiative, more specifically the Alto da Boa Vista Residents' Association, who saw the measure as a way to render urban development compatible with environmental protection by the rational utilization of the natural and historical-cultural heritage.

Occupancy of the area has followed a predominantly linear pattern along the axis formed by Edson Passos Avenue, the Old Tijuca Highway and the Furnas Highway. Of note with regard to the population of 11,000 is its low density (3.36 people/hect.).

The area is by and large residential, highlighted by its beautiful mansions built in the early 20th century, many of which are located on property measuring 10,000 m2 or more. Businesses and services are few, concentrated around Afonso Viseu Plaza and the polygon comprised of Itapicuru Street and the Macarai and Furnas Highways.

Alto da Boa Vista enjoys a rich history, as reflected in its buildings and monuments that date back to the aristocratic presence of the 19th and early 20th century.

The main monuments are:

On the highway to Dam 764, the **Dam Museum** (Raimundo de Castro Maia Foundation). Declared a public monument by IPHAN. It houses important historical and artistic treasures, in particular a collection of ceramics and furniture from the 18th and 19th century, together with Portuguese tiled panels that embellish the architecture.

In the center of Afonso Viseu Plaza, a **fountain** (declared a public monument by IPHAN), created by the French architect Grandjean de

Montigny. Designed for Onze Plaza (torn down in 1943), it was moved to Alto da Boa Vista.

At no. 12 Boavista Street, the **Count de Itamaraty Mansion** (a state monument), and at no. 154, the Menezes Vieira Municipal School (a municipal monument).

On the Old Tijuca Highway: a chalet (a state monument) at no. 466; the **Old Tijuca Water Reservoir** at no. 1170, formerly a watering trough (declared a public monument by IPHAN), and at no. 1251, the bridge over the Sao Joao River (a municipal monument).

At no. 1338 on the Gavea Highway, the central chalet (a municipal monument).

At no. 574 on the Furnas Highway, the former Alto da Boa Vista Rest Home (a municipal monument).

In Gavea Pequena (accessed by the Vista Chinesa Highway), ruins of the Nassau and Sao Luis Plantations (privately owned).

The APAs

Grajau Forest Reserve

Located at the foot of the northeastern slope of the Serra do Mateus in the Tijuca Massif, with Mounts Bacia and Cachoeirinha to the northwest, and Mount Redondo to the southeast, in direct contact with the Tijuca National Park.

The area now known as Grajau was untouched by any subdividing into the residential plots known as chacaras, common around the periphery of Rio de Janeiro during the 19th century and which gave rise to several of the city's districts. This subdivision would not take place until the 20th century, spurred by real-estate funding by two companies. From the beginning, the two parcels that evolved into Grajau resulted in a standard of occupancy characterized by its middle-class population. Concerned about the growth of lower-income population centers, during the mid-1970s the residents of Grajau started a movement to change these areas into a forest reserve. The Reserve was created by decree on June 22, 1978, and was designated an APA in 1992.

This area, measuring 55 hectares and under the protection of the State Forestry Institute Foundation, comprises a zone of systematic reforestation, along with an environmental education program (fighting to ban the fireballoons from the June Festival, with their

risk of fires). Open to the public, with ecological trails (the main one leading to Perdido Peak, at an elevation of 444 meters), and mountain climbing classes given by the Special Forces Battalion and the 26th Airborne Battalion.

Santa Teresa

The Santa Teresa APA pertains to the area of the same name (570 hectares, pop. 45,000). The Tijuca National Park includes the southwestern part of the APA, which abuts the Alto da Boa Vista APARU, the Cosme Velho/Laranjeiras APA, and the Sao Jose APA in Laranjeiras. The area of the National Park included in the western part of the Santa Teresa APA includes three belvederes: Paineiras (539m), Dona Marta (362m) and Corcovado (704m).

Created by Municipal Law 495 of January 9, 1984 as an environmental protection zone, it was made an APA in 1992. It is classified as a Special Zone 3 (ZE-3), broken down as follows: ZR 1 (below the 100-meter elevation, with permanent, single-family residential use); ZR 3 and ZE-1, with the owners of areas above the 100-meter elevation required to maintain and preserve the existing plant cover. Building permits are granted only upon prior consultation with IBAMA (Brazilian Institute of the Environment and Renewable Resources).

Almirante Alexandrino Street, one of the main accesses to Corcovado and which begins at the Arcos da Lapa National Park and crosses the entire area, is the former route of the aqueduct that conveyed water from the Carioca River to the arches. In 1896, the Carioca Aqueduct was abandoned and its bed converted to use by the Santa Teresa streetcars, which still run from the arches up to Silvestre.

The main historical monuments, as registered by IPHAN, are:

The Santa Teresa Church and Convent (1750) and the Chacara do Ceu (1957), built by Raimundo de Castro Maia after he stepped down from managing the Tijuca Forest.

Cosme Velho and Laranjeiras

The APA (112 hectares) coincides with the Cosme Velho area (91 hectares) and one part of Laranjeiras (232 hectares).

(112 hectares, Municipal Law 1784 of October 29, 1991). An access to Corcovado. Place of departure for the Corcovado train.

Lage Park (52.2 hectares, protected since 1977) and **City Park** (47 hectares).

THE RIO DE JANEIRO BOTANICAL GARDEN

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1. HISTORY AND DEVELOPMENT

The Rio de Janeiro Botanical Garden Research Institute is one of the 10 most important Botanical Garden in the world and the first in the Latin America. Pioneer in Botany and sciences related to the conservation in Brazil, this alive museum is a privileged retreats for learning, observation and contemplation.

Today it has being considered as one of the principal tourist points of Rio de Janeiro, by the beauty of its scenery and agreeable retreats. Completely integrated to the culture of the city and full of references of istinctively Brazilian character, the Botanical Garden is, above all, a Science House, developing Research Programs, Environment Education, Teaching, Nature Preservation, Scientific and Cultural Diffusion and Protection of the Landed Legacy.

During its almost 200 years of existence, the Rio de Janeiro Botanical Garden Research Institute is appointed as one of the main institution of reference about the Brazilian flora knowledge. The withholder of the most expressive national herbarium, whose collection represents the flora of different regions in the country and in the world, it owns one of the most beautiful tropical alive collections, exposed along its arboretum, preserving historical collections dated since its creation.

The history of the Rio de Janeiro Botanical Garden Research Institute initiates with the arrival of the Portuguese Royal family in Brazil. In the face of the imminence of Portugal been invaded by the French troops, D. João, then the regent prince, in the beginning of the year 1808 transfers the headquarter of the Portuguese monarchy to Brazil. Installed in the city of Rio de Janeiro, it was necessary to create a substructure that would support the court solicitations, modifying definitely the profile of Brazil Colony. With the objective of assuring the supply of

gunpowder to the whole Portuguese empire and the safety of the new government headquarter, D. João, through an administrative rule dated as of May 13th 1808, established a gunpowder factory in the domain of the city, dispossessing the Nossa Senhora da Conceição da Lagoa sugar plantation mill lands, which belong to Rodrigo de Freitas. Even today, it can be seen inside the Botanical Garden, buildings and ruins

that sheltered the gunpowder factory, such as the Pestle House and the stonewalls of the shops.

According to João Barbosa Rodrigues in his study named Hortus Fluminensis, in the same lands of the gunpowder factory, the regent prince told to be prepared a garden for acclimatization of the exotic plants brought from other continents. Due to this act, the Botanical Garden was created, initially as an Acclimatization Garden, remaining closed to the public visitation.

In an administrative rule dated as October 12th 1808, the foreman of Treasury of Rodrigo de Freitas Lagoon is appointed to, with the responsibility of taking care of the cultivation and administration of the lands. In a License dated as March 11th 1811, the regent prince effectively

created the function of President of the Royal Council of Treasury of the Arsenal, Factory and Fusion of the Province of Rio de Janeiro, that had among its attributions the responsibility to administrate a Botanical Garden of exotic plants, promoting the cultivation of spices and stimulating the agricultural and forest activities.

In 1815, D. João changed the legal situation of Brazil, passing it from colony status to the Union Kingdom of Brazil, Portugal and Algarves.

In 1816, with the dead of D. Maria I, the regent prince became the king, with the title of D. João VI.

In 1821, D. João VI return definitely to Portugal, leaving as the Regent Prince his son D. Pedro. Keeping on with his father's projects, one of the first act taken by D. Pedro in 1822 was to open the doors of the royal garden to the public visitation.

The year of 1822 was marked by the independence of Brazil and on December 1st of the same year, D. Pedro was crowned emperor of Brazil, with the title of D. Pedro I.

In 1824, the first Botanical director was appointed: Fra Leandro do Sacramento, Carmelite and botanical professor, who impelled the Royal Botanical Garden. The new director enlarged the patrimony of the Garden introducing new sorts such as the mango trees, the walnuts and the pitombeira (a variety of soapberry), besides others that enhanced the alive collection of the Royal Botanical Garden. He revitalized the plantation of the tea – whose cultivation has been introduced in 1810 with the help of Chinese manpower - supplying the city market. He accomplished several works, among them, the creation of new alleys and the creation of a lake, which today has his name, the construction of a sun clock and the Cedar House.

Since that administration, the Garden has passed through systematic improvements and enlargements, with focus into the development of the botanical study and to the excellence of its installations and its scenic collection. With the dead of Fra Leandro in 1829, Bernardo José de Serpa Brandão took over the Garden administration, and he was in charge of accomplishing and maintaining the works of his antecessor. It was him who told to plant, in 1842, scions of the Royal Palm in the main alley of the Garden.

The following administrator, Cândido Batista de Oliveira, handled the improvements related to the built of a new doorway and to the water drainage and canalization system to the Garden, finishing with the built of the Levada Aqueduct in 1853. Carmelite Fra Custódio Alves Ferrão (1859-1861) has dedicated himself to classify the vegetables cultivated in the Garden and prepared a big reconstruction plan, which, however, was not implemented due to the transfer of the Botanical Garden to the private sphere. As Fra Custódio did not agree with the join of the Garden to the Fluminense Institute Imperial of Agriculture, he resigned.

During the period of 1861 to 1890, the Botanical Garden was subordinated to the Fluminense Institute Imperial of Agriculture whose action was much more spotted by the agricultural and agronomic researches than to the attention given to the botanical science. Thus, in the park area started to run a practical school of Agriculture, the Normal Farm and the Agricultural School. The Normal Farm made such a progress that in 1864, it had an agricultural chemical analysis laboratory, vivarium of plants, silkworm creation, shops of locksmith, shops of carpenters and a very fine Panama hat's factory. In 1869 it has been inaugurated the Agricultural Asylum, where 9 to 24 year old orphan were received, sent by the Santa Casa de Misericórdia. They learnt the agricultural work, besides elementary subjects, receiving moral and religious education.

With the advent of the Republic, the Garden became to be named as Rio de Janeiro Botanical Garden. In the administration of João Barbosa Rodrigues, according to the administrative rule number 518 as of June 23rd 1890, the Botanical Garden was reorganized, being returned to it its scientific character, incorporating to its activities the botanical studies, in general, and the Brazilian flora studies, in particular. During the nineteen years of his administration, the institution passed through deep transformations. Besides the work in the Arboretum, he started the organization of the herbarium and the library, he built a stove for the orchids, he reorganized the scion vivarium, he labeled and identified the plants in the Park, he restored the ruins of the old

Gunpowder Factory, he published scientific articles and propagated the Garden.

From 1906 till the end of the XX century, the Botanical Garden passed to the administrative jurisdiction of the Department of Agriculture.

From 1909 to 1911, João Barbosa Rodrigues Filho took over his father's work and created the Botanical Sections, the Vegetal Phytopathology, the Agricultural Chemistry Laboratory and the Seed Research Laboratory, creating, also, the Visitor Naturalist category. He enlarged the herbarium and promoted courses of gardening.

In the period from 1915 to 1931, the Botanical Garden was administrated by Antônio Pacheco Leão - doctor and professor of the Medicine and Surgery School. As soon as he took over the Garden, he revitalized the alive collection when he introduced species of the Amazonian flora, which has been gathered during the several expeditions to the North of the country. The scientific area has been reorganized, the herbarium was enlarged with the assessment of plants and dry fruits and the scientific magazine Botanical Garden Files (Arquivos do Jardim Botanico) started been published, till current days.

In 1932 the Vegetal Biology Institute (IBV) was created and the Botanical Garden has been subordinated to it till 1938.This Institute was an entity of pure research, compounded by a Board of Directors, the Garden Superintendence, the Library, the Botanical, Phytopatology, Genetic and Entomology Sections. The main officer was Campos Porto who has dedicated himself to several services of the park improvement and the Garden development as a scientific institution, starting the project of creating the regional gardens and editing, in 1935, the first exemplar of the "Rodriguésia" magazine which was destined for publication of small scientific notes, naturalist reports and bibliographic notes, being active till current days. During his administration, it has held in the Botanical Garden the first Botanical South American Meeting, which had 232 participants from 26 countries with presentation of 126 seminars.

In 1938, a new change in the Ministry of Agriculture extinguished the Vegetal Biology Institute and it incorporated the Garden, in a condition of Superintendence Service, to the Forest Service of Brazil, institution that created and administrated several Forest Farm all over the country.

However, with the new changes that occurred in 1944, the Garden returned to the position of Department, been appointed to be its director a naturalist named João Geraldo Kuhlmann, who remained in the position till 1951. In 1971 it is added to the Garden the Gavea Forest

Farm with all its collection, enlarging thus the physical area of the Botanical Garden.

During the time being, many administrators took over the Botanical Garden administration, keeping on its alive collection and maintaining its scientific technical collection. During that term, this collection has been enlarged through researchers' expeditions and institutional scientific project's scholarship holders.

After 1995, the revitalization of the Rio de Janeiro Botanical Garden demanded a special register. Being its director by the third time, Sergio Bruni impressed in the history of this house the mark of a glorious dedication of services, which made this one of the most dynamic periods of realizations. Among the work of this administration we can detach the Arboretum revitalization through the enrichment of the alive collection under the orientation of the Guardianship of Alive Collection, to which the main role is to execute and implement the Handling Plan of the green area; the removal of sand left as refuse and the floristic rearrangement of Fra Leandro lake; the settlement of the grid that surround the Botanical Garden and the new signal plates. Relating to the enlargement of the Botanical Garden researches it was been done works such as: the repair of the Empress Mansion and the creation of the National School of Tropical Botany as an unit of the Botanical Garden; the construction of the new Herbarium building according to the international technical standards to properly shelter the institution collection. Another conquest, following other international similar institutions, was the inauguration of the Researcher's House, destined to attend the demand of technical researchers and students from other States and countries, who would come to do researches, congress, lectures and other events, in this Institute.

In 1998, the Botanical Garden, as a part of the Ministry of Environment, was changed to Rio de Janeiro Botanical Garden Research Institute.

In 2001, the Rio de Janeiro Botanical Garden Research Institute passed to be an Autarchy tied to the Ministry of Environment.

Finally, the Botanical Garden has the strategic objective of being transformed in an Excellence Center about Brazilian flora research and in the maintenance of its biodiversity, accomplishing its mission that is:

To promote, accomplish and divulge the scientific and cultural education and researches about floristic resources of Brazil, ensuring the knowledge and the preservation of the bio-diversity, as well as to maintain the scientific collections under its responsibilities.

2. The Arboretum

The total area of the Rio de Janeiro Botanical Garden Research Institute is 137 hectares, being 54 hectares of cultivated area of the Arboretum and the 83 hectares remnant of the Atlantic Forest and parts reconstructed. The Arboretum cultivated area aggregates 192 beds of alive plants collections, organized in 40 botanical sections; a circulation system compounded by 122 alleys; 5 stoves sheltering the insectivorous, ornamental, cactus, bromeliad and orchid plant collections; 2 thematic gardens: the Japanese and the Sensorial; medicinal plant ollections; 7 artificial lakes (3 big and 4 small); 2 artificial cascades; grotto; lookout; childish park; monuments, historical and contemporary buildings; bridges; a small barrage of water capture; the Macacos River and the Iglesias creek.

Beds

The Arboretum shelters in its 192 beds a botanical collection having about 8,200 species, from many parts of the world, historically acclimated in areas in the Botanical Garden. Two important collections call attention: the palms, bounded by the Karl Glass and Custodio Ferrão Alleys, considered the major in Latin America and the Amazonian trees introduced by the botanist Adolfo Ducke at the end of the years twenties. Besides this, arborous species from the Brazilian flora and exotic plants of an historical value to the alive plant patrimony are seen, like the Brazil Nut (*Bertholletia excelsa*), the jequitibá-rosa (*Cairiniana legalis*), the silk-cotton-tree (*Ceiba pentandra*) and the Brazil wood (*Caesalpinia echinata*).

Some of the 122 alleys impress by their beauty. The Barbosa Rodrigues Alley presents two magnificent colonnades of royal palm trees - *Roystonea oleracea* - considered a symbol for the institution. In spite of being exotic it is a palm tree normally found in our avenues, parks and gardens because of its beauty, elegance and fast growth. Its introduction in Brazil was made by a Portuguese named Luiz de Abreu Vieira e Silva, who, once incarcerated by the French in the France Island – currently Mauricio Islands - where it could be found the Gabrielle Garden, he had success in escaping away, carrying some seeds and scions, which were offered to the regent prince, D. João. Among them there was this palm tree originated from the Antilles and Central America, which has been planted by the prince himself. The plant became object of care by the administrators, flourishing by the first time in the administration of José Serpa Brandão, who wanted to preserve the monopoly to the Garden, thus he ordered to collect the fruits and burned them under his sight. In spite of this surveillance, the slaves confronting the ire and the punishment of the administrator,

stole the seeds during the night and sold them by one cent each. Been disseminated, it spread out all over Brazil, being sometimes, much more known than the native ones.

The mother plant was named "Palma-Mater" (Mother Palm tree), by the reason of, in fact, it had been the origin of the others in Brazil. In order to honor D. João VI (1767- 1826) it has been located in front of the palm tree his bronze bust, fused in 1908 by the sculptor Rodolfo Bernadelli who was inspired by the Debret engravings. The palm tree had 40 meters high and its stipe was around 1.50 meters of diameter, when it was hit by a ray that killed it on October 25th 1972, after it had been an attraction in the Garden by 163 years. In 1973 the Garden direction decided to plant in the place another exemplar of the palm tree, called "Palma-filia" (Daughter Palm tree), which was surrounded by other two palm trees.

The Barão de Capanema Alley is compounded by mango trees - *Mangifera indica*. The centenary plants were introduced in the Arboretum under the administration of Frei Leandro do Sacramento (1824 -1829), being extended with the planting of new exemplars in 1978.

The Guilherme Guinle Alley, next to the Orchid hothouse, is compounded by jambeiros (a variety of myrtle) - *Syzygiun malaccensis*. In the flourish period it is one of the most beautiful retreats of the Arboretum, when the fall of their flowers recovers the ground as a pink carpet.

The Custódio Serrão Alley has beautiful samples of cannonball tree (abricó-de-macaco) - *Couroupita guyanensis* - a tree originated in the north region of the country, with a singular beauty due to its flower size and fruit shape. The cannonball tree are widely cultivated in public squares and streets in Brazil.

The Karl Glass Alley, cultivated with grab wood (andiroba) - Carapa guianensis - and the Campos Porto Alley formed by - *Calycophyllum spruceanum* - (pau-mulato) delimit the region where it has been introduced the Amazonian species in the Arboretum. Magnificent trees reach more than 30 meters high. The grab wood (andiroba) is used in the civil and naval constructions and from their seeds it is obtained an essential oil, which was used as insect repellent by the aborigines. The *Calycophyllum spruceanum* impresses by its elegance and by presenting a thin bark, very smooth and shinning.When it is new its color is green, becoming of the mulatto color, almost bronze, assuming the color that gave it the name mulatto.

The Frei Leandro Alley started in the Hillock going ahead till the Amazonian Region, being all cultivated with cloves- *Syzygium*

aromaticum - trees that reach till 15 meters high. The clove is used in the medicine, the culinary, the industry of perfumery and liqueur. This alley was planted by Frei Leandro and it has been rebuilt through the following administrations.

Between the Guilherme Guile and the Alberto Loefgren Alleys it is found actively, since 1913, an Auxiliary Climatic Station that supplies daily information to the Garden and to the National Institute of Meteorology, fundamental to the activity of the weather and climate forecasts.

The Stoves

Some important botanical families, because of their ornamental value, are cultivated in stoves. Those special places, destined to shelter and to cultivate plants, are special attractions to the Arboretum visitors.

Cactus Bed:

Around 1910, Alberto Loefgren organized the first collection compounded by epiphytical cactaceous. The others were obtained through exchange of seeds and scions with institutions, societies, collectors and scientific expeditions. The current cactus place was created in the administration of Paulo Campos Porto (1934-1938), under Otto Voll care that initiated the collection of exotic species, *"Palma-Mater" (Mother Palm tree)* with the collaboration and assistance of C. Backeberg. In 1992 the collection was added of numerous samples of the

flora from Brazil, Mexico and other countries of the American continent. The cactus place presents several samples of succulent plants cultivated by their exotic of their shapes. The stove is located in the Pedro Gordilho Alley.

Orchid Hothouse:

During the administration of Barbosa Rodrigues (1890 - 1909) a wooden stove was built in an octagonal shape. It sheltered the "Saloon Plants" and, in an attached area, the very brand new orchid collection. In the 30's decade, the big stove, idealized from a British model, was redone in an iron and glass structure. In 1950, in the Orchid hothouse, it was built the paling, that today shelters around 2000 vases, which compound the collection. The stove is located in the Frei Veloso Alley.

Insectivorous Plants:

The stove is located in the Pizarro Alley, near to the Frei Leandro Lagoon. The first scions of insectivorous plants were received and

introduced in the Arboretum in 1935. The cultivated species provoked the curiosity of the public because of the peculiar shapes of their leaves, in tubes or urns, proper to the capture of insects. The main samples cultivated in the stove are the Dionea, Sarracenia, Nepenthes, Drosera and Utricularia. The collection is compounded, also, by several exotic species that only flourish in their native country and, when cultivated in the Arboretum, they flourish very seldom.

Bromeliad Place:

The first records of the collection are dated from 1920. With the years passing by, the collection grew with samples introduced by botanists of the institution such Sampaio, Brade, Santos Lima Kulhmann, Pereira and Duarte. In 1976 Dr. Felisberto Camargo did a donation to the bromeliad place of 52 species of the Ananas kind. Since this date the collection was incremented through scientific expeditions done by researchers from the Botanical Garden as Pedro I, S. Braga, Dimitri Sucre, G. Martinelli and many species collected by the artist Margareth Mee, during expeditions in the Amazon. In 1996 it was inaugurated with the name of Roberto Burle Max Stove, located in the Frei Veloso Alley, sheltering 1700 cultivated samples in beds and vases.

Thematic Gardens

Sensorial Garden: inaugurated in March 1995 it has been elaborated specially for deficient people. It has a special floor to the sensorial deficients and height of the beds, both proper to the circulation of wheel chairs. The selection of plants for this garden was idealized with the goal of transmitting sensation, which looks for awaking the senses. The sensorial deficients can identify the plants through the plates written in Braille. The diversity of fragrances, shapes and colors stimulate and benefit all, in special the children. In this garden, located in Pedro Gordilho Alley, we can find aromatic plants used in the culinary such as rosemary (*Rosemarinus officinalis*), mint (*Mentha piperita*) and oregano (*Origanum vulgare*); medicinal plants like ginger (*Zingiber officinalis*), guaco (*Mikania glomerata*) and chambá (*Justicia pectoralis*); aromatic plants such as clove (*Dianthus cariophhyllus*) and mini-gardenia (*Gardenia radicans*) and plants of different textures such as the kalanchoe (*Kalanchoe laxiflora*), the Donkey ears (jacaré) *(Kalanchoe gastonis-bonnieri*) and the snake plant (lança-desão-jorge) (*Sansevieria cylindrica*).

Japanese Garden: it represents the refinement of the Japanese culture and is located between the Candido Batista and Karl Glass Alleys. This garden has as the structured elements: AZUMAYA - Arbor, TYUMON - Gate, TOOROO - Stone Lighthouse, TAIKO BASHI -

Bridge, ISHINIWA - Garden made of sand and stone, TAKI - Cascade, SHISHI ODOSHI - Tube of Bamboo and YATSUBASHI - Bridge in board made of wood. In this area of 4.2 square meters in beds boarding a small artificial lake with carps, it can be admired bonsais, cherry trees and bamboo.

Medicinal Plants

The collection is formed by around 100 grassy species among exotics and Brazilians such as the espinheira-santa (*Maytenus ilicifolia*); the chapéu-de-couro (*Echinodorus grandiflorus*) and the jaborandi (*Pilocarpus microphyllus*). They are cultivated in beds located behind the gate of the old gunpowder factory. The RJBG Arboretum still counts with many arborous species also used to medical subjects, which 28 of them compounding the trail divulged in the folder Medicinal Plants - A trail of Surprises (Plantas Medicinais - Uma trilha de surpresas).

Frei Leandro Lagoon

It was built in the administration of Frei Leandro. The lagoon has 1200 square meters and is also known as the Victoria Regia Lake (Lago das Vitórias-Régias). In 2001 it was revitalized by a project that includes the removal of refused sand, protection of its margins, scenic treatment of its neighborhood and the reintroduction of the Victoria regia.

Artificial Cascade

This region marks the limit of the Arboretum with the Atlantic Forest that recovers the surrounding hillside, in continuity to the Tijuca National Park. The cascade was built in the administration Frei Leandro do Sacramento with the goal of creating an environment to represent the aquatic flora.

Karl Glass Grotto

The grotto name is to honor the Agronomic professor and scientific director of the Agriculture Fluminense Institute. It was built to allow the growth of species which be developed in humid environment and of rocky substratum such as the moss, the brackens and the ferns among others. Close to the grotto, there is a small lake with the presence of water lily and papyrus from Egypt.

Childish Park

The area is delimited by stonewalls, built with whale oil, with its entrance through the fabulous doorway with the seal of the Portuguese Crown that had belonged to the old gunpowder factory created by D. João in 1808.

Nowadays it shelters playthings of the Childish Park with the local available for snacks, since food is not allowed in the rest of the Arboretum.

MONUMENTS CULTURAL PATRIMONY

The Rio de Janeiro Botanical Garden Research Institute holds an artistic, architectonic and culturalscientific patrimony of greatly valuable.

Architectonic Patrimony

Home office of the Nossa Senhora da Conceição de Lagoa Sugar Plantation Mill: Built in 1596 and enlarged after the Gunpowder Factory creation to be used as a residence to its director. Presently it is installed there the Visitor Center which constitutes the first reference point to be visited in the Botanical Garden.

Pacheco Leão's residence: Built at the end of the XIX century, in eclectic sense of Normandy inspiration. Its present name is in the honor of Antonio Pacheco Leão, director of the Botanical Garden, doctor and professor, who lived in it from 1915 to 1931, when he died.

Doorway and Ruins of the Gunpowder Factory: By decision of D. João, on May13, 1808, the Royal Factory of Gunpowder of Lagoa Rodrigo de Freitas was created. That important manufacturing complex was installed in the area, which had been used by one of the oldest sugar plantation mills in the city. It played very important role for keeping Portuguese domination. In 1831 it was inactivated after a big explosion. Until the present moment there is a big doorway with the seal of the Portuguese Crown and of the Brazil Colony and ruins of the walls form the architectonic patrimony of the Institution.

Museum - Archaeological Ranch "Casa dos Pilões": the Sugar Plantation Mill factory was one of the producing units of the Lagoa Rodrigo de Freitas Royal Factory of Gunpowder. In 1984, the building restoration was started. The objects and fragments found there, by

means of archaeological prospecting became part of a permanent exhibition.

The Art Academy doorway by Henry Victor Grandjean de Montigny: The old Royal Art Academy of 1826, was the first work by the architect Grandjean, member of a French artistic mission responsible for introducing the Neo Classic style in the Brazilian Architecture. The Academy building was demolished in 1938, and only the work in the

front doorway was left and it was rebuilt in the Botanical Garden in 1940 by initiative of the National Historic and Artistic Patrimony Service.

Empress's Mansion (Solar da Imperatriz): The house, old headquarters to the Monkeys' Farm (Fazenda dos Macacos), was built in 1750 and later on became known as the Empress's Mansion because it was believed that the Emperor D. Pedro I might have given it as a gift to his second wife, D. Amelia de Leuchtemberg. Presently, after the building restoration it has become home for the National School of Tropical Botany.

The Levada Aqueduct: built in 1853, in the Margarida Valley, brings water from the source in the Rio dos Macacos Valley to the water supply of the arboretum in the Botanical Garden.

Master Valentim Memorial: place, which previously contained the African violet collection. Between the beds of ornamental plants in these building gardens, Master Valentim's valuable pieces of work are exposed. He is certainly the most important architect and sculptor from Rio de Janeiro in the second half of the XVIII century. The Memorial opened in 1977 was built to protect and preserve pieces sculptured by the carioca artist. The first sculptures made in Brazil can be seen in this place by visitors to the Arboretum. The herons or Long-legged birds, the nymph Eco and the hunter Narciso were brought from the Public Sidewalk (Passeio Público) to the center of Rio de Janeiro in 1905 according to Barbosa Sobrinho's request, as the director of the Botanical Garden at that time. In the Campos Porto alley two reproductions of the sculptures Eco and Narciso standing side by side on a pedestal charm people passing by and cultivate the legend, everlasting the moment when Eco still hoped to obtain Narciso's love.

Artistic Patrimony

Statues

Thetis (1862), a statue in bronze created by Louis Savageau, represents the Greek sea and waters deity and is located in the Frei Leandro lake.

Ceres (1887), made of marble and created by Merzio, represents the harvest and fertility Goddess, and is located at the end of João Gomes alley.

Diana (1888), made of marble by Merzio, Goddess of deity, hunting and forests and located at the end of João Gomes alley.

Fountains and Water fountains

There are four fountains and seven water fountains altogether in the Botanical Garden, among which can be especially pointed:

Central Fountain: from British origin, it is carved in fused iron, with two basins. The biggest one has in its center four female figures, being each one representative of Music, Art, Poetry and Science, respectively. It has been brought to the arboretum by the director João Barbosa Rodrigues in 1895 and put in the center of the alley of palm trees, which were a remarkable symbol of the institution.

Il Putto Col Delfino Fountain, is a fountain made of iron with the statue Il Putto Col Delfino and it represents an angel holding a fish in bronze, a reproduction of one existing in the Vechio Palace in Florence.

Woman with a Cornucopia, made of bronze, it completes the scenery of the lake located in the ruins of the gunpowder factory walls.

Water Fountains: from French origin (1878), made of fused iron with iconography of the Greek goddess Thetis, a water deity, mother of the rivers and fountains. In the Botanical Garden there are seven pieces, six of which installed under the direction of João Barbosa Rodrigues (1889-1909) and another one during the direction of Oswaldo Bastos de Menezes.

SCIENTIFIC COLLECTIONS

The BGRJ (The Rio de Janeiro Botanical Garden) includes in its patrimony pieces of great historic, scientific and cultural value, which have major importance for the knowledge and studies of the Brazilian flora.

Herbarium: It constitutes the basic patrimony for botanical research and supplies elements for the taxonomic and flowery studies. It can be described as a collection of dried identified vegetable species (exsiccates), identified, with representative species of various countries from the European, Asian, African and American continents, but having a bigger number of items from the national flora. The BGRJ herbarium is recognized by the initials RB according to the Herbarium Index. The collection contains about 380.000 dried plants, including the historic collections acquired by D. Pedro II when traveling in Europe. The oldest collection belongs to Hebier Geral de Fée (1705-1872), and it is worth mentioning Rabenhorst's (1861), J. Kuntze's (1876), Herb. Kamerling's (1892). It is also worth highlighting the importance of plant samples collected by both European and Brazilian botanists such as J. Barbosa Rodrigues, A. C. Brade , L. B. Damazio,

A. P. Duarte, A. C. Ducke , A. Engler, M. Gardner, A. F. M. Glaziou, E. Goeldi, F.C. P. St. Hilaire, F. C. Hoehne, J. Huber, J.G. Kuhlmann, G. F. J. Pabst, E. Pereira, C.T. Rizzini, C.A. W. Schwacke, R. Spruce, D. Sucre, J. Kuntze, A. Saint Hilaire, A. Glaziou among others who played outstanding roles because of scientific works published and because of numerous patrimony of new samples described to science. As years passed the scientific patrimony with the collecting of botanical material registering new facts has continuously increased the Botanical Garden Herbarium and plants supposed to be extinct. It constitutes one of the biggest reference collections of the Brazilian flora, including registers of the evolutionary history and the composition of Brazilian ecosystems, which have been modified by the urban occupation. The Herbarium keeps both national and international interchange with similar institutions by means of its scientific patrimony. The Herbarium owns important collections of Nomenclature Types, Photograph and Preserved Fruit Collections.

Nomenclature Types: they are plants considered new species to Science, unknown to scientific community until the present moment. The collection is formed by Brazilian species and some rare exotic types are represented by cryptogams and phanerogam. The cryptogams group type collection has 171 samples of algae, 23 samples of Bryophytes and 451 Pteridophytes. The biggest collection belongs to the phanerogam estimated in 6713 samples of nomenclature types. The Dicotyledonous are represented by 114 families, 854 different kinds and 2933 species, while the Monocotyledons are represented by 19 families, 127 different kinds and 339 species. All the patrimony expresses Brazilian plants collected in the XX century, with few samples of the XIX century.

Photograph Collection: The collections includes about 9112 samples representing 106 Angiosperm families. They represent herb plants of the Brazilian flora collected in the XIX century and photographed for botanical studies. They constitute documentation of plants used in the description of new species (nomenclature types) and of species of flora from the various ecosystems, mentioned in the plant original description and in the classic monograph of XIX and XX centuries. By means of scientific interchange with foreign herbaria it has been possible to exchange exsiccates identified by photos of Brazilian plants, enlarging more the collection that way.

Preserved Fruit Collection: It is a dried fruit collection created in 1915. The patrimony is considered one of the best and more complete in the world and has presently about 6000 fruit samples including rare, historic collections, nomenclature types and species of the Arboretum. The most numerous botanical families represented in that collection

are Leguminous, Apocynaceous, Bignoniaceous, Lecytidaceous, Sapotaceous and Palmaceous. That collection has been important to give support to studies, which depend on morphology for identification of a species.

Wood collection: The oldest registers of scientific wood collection come from data collected by first half of XX century famous researchers of Botanical Garden, such as A. Ducke, J. G. Kuhlmann, A. C. Brade, P. Occhioni and others. Presently it has about 7.655 samples referring to 160 families and about 25.000 histology slides. The collection informatization which began in 1997 shows that the Leguminous family is the most representative with 1612 registers, corresponding to 21% of the total collection. The patrimony present growth is due to the studies developed on remnant of the Atlantic Forest of Rio de Janeiro State by the institution researchers. Another important collection is from 1948 and is made of wood samples collected by Campos Porto.

Based on the sample data of its patrimony, one may notice that the wood collection presents bigger representative characteristics for the Brazilian North Region States, which mirrors the institution researchers' interests in studying that region. Presently, the collection tends to continue turning regional the register of data coming from trips to the country, the ones referring to Rio de Janeiro State and the different vegetable formation which are part of the Atlantic Forest. That regionalism is in a way softened by the exchange of samples with both national and foreign similar institutions.

BARBOSA RODRIGUES LIBRARY

Founded on June 23, 1890 to assist researches made by the Botanical Garden, the Barbosa Rodrigues Library started with the works of D. Pedro II. Nowadays, the Library's patrimony has nearly 66.000 titles, including 13.000 volumes of single titles, 50.000 samples of periodicals and also around 3.000 rare works.

Still, there are some XVI century publications, which are a part of D. Pedro II's Botanical Collection, moreover, there are Barbosa Rodrigues (the founder) unpublished works and documents that contributed to create the Library's History.

The patrimony is directed mainly to researchers and to the vegetation specific compounds: its morphological, taxonomical and physiological aspects and also to the Environment.

The Botanical Museum

The Botanical Museum is responsible for the diffusion of the scientific production of the institution and for decoding the technical language,

arousing the interest for environmental subjects. For the time being, the Museum is being rebuilt in order to accomplish the institution's requirements.

3. The Tree Farm and the National School of Tropical Botany

The Tree Farm on Pacheco Leão street, 2040 is a zone for the growth of scions specially extinction-threatened and native species, emphasizing the ones from the Atlantic Forest. The Farm is opened to the public for the purchase of scions, technical guidance about their growth and for the recovery of devastated zones, urban forestation, etc. The scions are grown and destined to replace the Arboretum species. The Farm also promotes scientific interchange with the support of some institutions. Besides, it works as a laboratory for research programs in the Botanical Garden through workshops on how to grow native species.

National School of Tropical Botany

Inaugurated by the Minister of the Environment on June 6, 2001, the school is located on Pacheco Leão street, 2040. One of a kind in Latin America, the School's strategy is to organize activities in Human Resources and to diffuse Botanical knowledge, establishing regular pos-graduation programs of extension and diffusion. The School complements the story of this Brazil unusual institution, that gathers a title from the Researches Institute and a scientific patrimony, recognized as one of the most complete alive and dehydrated collection.

The Botanical Garden owns a property named The Researcher's House located on Major Rubens Vaz street, 66. The Researcher's House lodges researchers, technicians, students and gardeners from other states or countries who come to do researches, to attend congresses, conferences and other events in the institute.

4. Forest Reserve

FLORA

Although it is a zone destined to the growth of native and exotic plants, to scientific research in botany and many other purposes, the Botanical Garden presents a vegetal covering characteristic from the Sub-montane Atlantic Forest (Rizzini 1979).

The hillside wood presents a high regeneration rate where identified 431 species distributed in 283 different kinds and 94 families. The most common are the species from the Leguminous, Meliaceous, Lauraceous families among others. The arborous dossel presents

emergent trees with more than 20 meters like for example, Lecytis pisonis, Cariniana estrelensis and Guarea guidonea. In the wood are also found rare species and/or extinction-threatened species: Heliconia angusta and Clusia lanceolata (cebola da mata) accordingly to Ferreira da Silva & al. (1994).

The Botanical Garden whole zone represents a large cover zone, a contiguous strip of vegetal covering among urban zones of high demographic depth and the preserved zone of Tijuca National Park.

The wood is relatively well stratified with thick formation of leaf, soil and branches and well decomposed under the ground. The species of the trees, typical from secondary woods are young and varied with diameter as large as a human chest (DAP) around 30 cm like the following ones: the carrapeteira (*Guarea guidonea*), the camboatá (*Tapirira guianensis*), the cinnamons (*Ocotea bahiensis, Ocotea pretiosa* e *Ocotea velutina*) and the ipê (*Tabebuia obtusifolia*).

The shrubby and the herbaceous extract present species from the family of the Araceous (*Anthurium coriaceum, Philodendrom laciniatum*), Begonia (*Begonia arborenses*) Musaceous (*Heliconia angusta*) Moraceous (*Dorstenia hirta*) and the Orchidaceous (*Cattelya forbesii, Vanilla bahiana*) and many Rubiaceous like Psychoria nuda and Rudgea decipens.

FAUNA

In the restored part of the Atlantic Forest and even in the Botanical Garden Arboretum is easy to find groups of common marmoset (mico-estrela) (*Callitrix jacchus*) in search for food like fruit, insects and other animals (tree frogs and small lizards). The small squirrel (caxinguelê) (*Sciurus ingrami*), a rodent mammal, can be seen climbing trees, jumping from branch to branch or running on the ground. The small squirrel usually live inside the trees where they give birth and raise their babies. Still, there are capuchin (macaco-prego) (*Cebus apella*), the sloth (*Bradypus variegatus*), the ourico-caicheiro (*Coendou insidiosus*), the opossum (*Didelphis marsupialis*), the armadillo (*Dasypus novemcinctus*) and the bush dog (*Cerdoncyon thous*).

Between 1940 and 1980 the ornithologist Augusto Ruschi registered 138 species belonging to 34 bird families. Among them there were the white-necked hawk (gaviãopombo) (*Leucopternis lacemulata*), the roadside hawk (gaviãocarijó) (*Rupomis magnirostris*), the channel-billed toucan (tucano-de-bico-preto) (*Ramphastos vittelinus*), the maritaca (*Pionus maximiliani*), which is only found in Rio de Janeiro, the parrakeets (*Pyrrhura spp, Brotogeris spp*), the saíras (*Tangara spp, Dacnis sp, Tersina sp*), the sanhaços (*Thraupis spp*), the song-thrush (sabiá)

(*Turdus spp*), the owls (*Otus sp, Athene sp*), the rolinha (*Columbina talpacoti*) (a variety of dove), the Humming-Birds (*Thalurania sp, Amazilia spp*) and field dove (juriti) (*Leptotila spp*).

The amphibians and the reptiles were not well observed but some of them were founds: the Tupinambis, Ameiva, Tropidurus, Phyllomedusa, Hyla, Leptodactylus, Philodryas, Bothrops Micrurus.

In the rivers and lakes there are fishes like the acará (*Geophagus brasiliensis*), the barrigudinhos (*Poecilia vivípara and Phallocerus caudimaculatus*), the exotic tilápia (*Tilapia melanopleura*) and the carp (*Cyprinus carpio*); moreover, there are the sweet water mollusks like the caramujo (*Pomatia sp*) that lay their eggs in the lakes, close to the stones and plants.

The identified insects are: the dragonflies (*Orthemis sp,Erythemis sp*) and the butterflies (*Morpho spp, Caligo sp, Colobura sp, Papilio spp*).

5. Programs and Projects in the Research Field

The scientific programs in progress are an integral part of the Brazilian policy for the environment and the scientific and technological development. In the Botanical Garden four great programs are under development, involving and integrating the major research lines of action and zones, capable of furthering the scientific knowledge required to lay the foundations for the plans, policies, strategies, development and preservation of the biological diversity, as well as two special projects as part of the "Improvement of the Rio de Janeiro Botanical Garden Research Institute Actions in the Monitoring and Preservation of Priority and Subject to Impact Areas in the State of Rio de Janeiro" project. The goal is to promote, carry out and divulge technical and scientific studies and research works on Brazil's floristic resources, aiming at the knowledge and preservation of the bio-diversity. The Botanical Garden scientific potential has provided for its involvement in the formation and evaluation of national scientific policies, such as the Provisional Act on the Access to the Genetic Heritage, the National Policy on Scientific Collections, and on the international level, the guidelines for the Access to the Genetic Resources.

The priority that has been afforded in this administration to the structuring for the qualitative xtension of the JBRJ (Rio de Janeiro Botanical Garden) research works, as targeted to its effective consolidation as a Scientific Institution, has generated the accomplishment of works such as: the creation of the National Tropical Botany School, as a unit of the Botanical Garden, for conducting formal activities of human resource training in Botany on a postgraduate

level and the divulging of this science; the construction of the new Herbarium building, with a capacity to store twice the present volume of its patrimony, including the Preserved Fruit Collection, the Photograph Collection and the Wood Collection and rooms for guardianship, material preparation and Botanyrelated research work, as well as the construction of the building that will shelter the laboratory network, with the implementation of a Molecular Biology Laboratory and an DNA Bank of taxons considered to be biologically essential.

Research Support Units

The research lines are being supported by units conducting experiments related to vegetal anatomy and ultra-structure, in the Structural Botany Laboratory, of seed eco-physiology in the Seed Laboratory and phylogenetic studies, which at present, have been conducted with the support of the Molecular Biology Laboratory of the Federal University of Rio de Janeiro (Universidade Federal do Rio de Janeiro - UFRJ).

In 2002, the Laboratory Network, the Herbarium and its related collections, and in a later stage, the Library will be joined within the same physical space, thus consolidating the Institute Research Center.

5.1. Preservation Program

Its object is to conduct investigations to assist the implementation of rare and extinction-threatened species preservationist actions, as well as to establish strategies for the preservation of such species by means of Botanical Garden. The Program is made up of two projects complementing each other, since they integrate multidisciplinary studies directed to the preservation of ative species.

Projects:

. In-situ preservation

. Ex-situ preservation

In-Situ Preservation Project

The in-situ Preservation Project studies provide information contributing to assure the survival of the species in their occurrence sites, allowing for their interaction with the environment and thus, the progress of their evolutionary process and the maintenance of the intra-specific genetic variability.

Specific Objects

. To conduct integrated ecology and genetics research, for the purpose of establishing strategies for the preservation of native species.

. To define the genetic structure of natural populations

. To learn about the strategies of establishment and development of the species in their natural habitat.

. To propose the suitable handling of the species on the basis of this knowledge.

Research Lines in Progress

Studies of the genetic structure, crossbreeding and genus flow of extinction-threatened species by utilizing molecular markers.

. Ecology of the Brazil Wood (Pau-Brasil) (*Caesalpinia echinata Lam*) populations.

Acting Areas

. APA of Capoeira Grande - Guaratiba Stone - Rio de Janeiro (RJ) Municipality

. Formosa Bay, Armação dos Búzios (RJ) Municipality .

Biological Reserve of Poço das Antas, Silva Jardim (RJ) Municipality.

Ex-Situ Preservation Project

Object

The main purpose of this project is to conduct research in native species seed biology and technology, aiming at the production of practical information for the species' preservation in germ plasm banks.

Specific Objects

. To define the best conditions for the germination of native species in seed laboratories.

. To identify species as to their sensitivity to desiccation.

. To establish protocols for seed storage.

Research Lines in Progress

. Studies on germination methodology, seed and seedling morphology.

. Studies on longevity with desiccation-sensitive native species.

5.2. Taxonomic Diversity Program

Its object is to promote the advancement in the knowledge of the Brazilian vegetation composition and diversity, by the lines of

taxonomic research on representative plant groups and the native flora elaboration, to ensure the testimony of the current composition of the Brazilian flora in the institutional botanical patrimony and to act in human resource training and qualification.

Projects

Taxonomic Advances and Botanical Collections Anatomical and Ultra-structural Advances. Taxonomic Advances and Botanical Collections

Specific Objects

To contribute to the advance of the taxonomic investigation of the Brazilian flora native species by updating the nomenclature of the botanical collections of the Rio de Janeiro Botanical Garden patrimony (herbarium species and live collections)

To implement taxonomic research lines meeting the scientific demand.

To expand the institutional botanical patrimony with samples of species significant to the Brazilian flora context.

Anatomical and Ultra-structural Advances

Specific Objects

To contribute to the advance of the anatomical and ultrastructural investigation of the Brazilian flora native species by updating the botanical collections of the Rio de Janeiro Botanical Garden patrimony (wood collection specimens).

To implement anatomical and ultra-structural research lines directed at the knowledge of the Rio de Janeiro flora's composition and diversity, by primarily focusing investigations on the remnants of the original plant cover and in little explored zones, on its botanical potential.

To expand the institutional botanical patrimony with samples of species significant to the Brazilian flora context.

5.3. Atlantic Forest Program

The Atlantic Forest Program was created in 1989 and its basic mission is to further knowledge about the plant communities of the Atlantic Forest remnant, by carrying out academic and applied research for the purpose of its preservation, as well as fomenting human resource training and qualification.

Goals:

. To promote the knowledge of the Atlantic Forest floristic resources.

. To identify endemic and extinction-threatened species.

. To organize and maintain a database on the Atlantic Forest flora.

. To identify remaining areas of the Atlantic Forest, suggesting the creation of Preservation Units.

. To provide aid for drawing up handling plans for existing Preservation Units.

. To carry out integrated actions for promoting a preservation policy for the Atlantic Forest.

. To divulge its results by means of Environmental Education practices.

Action Areas

. Ecological Reserve of Macaé de Cima

. State Ecological Reserve of Paraíso

. Biological Reserve of Poço das Antas

. Itatiaia National Park

Projects in Progress

. Floristic and Environmental Surveys

. Re-vegetation

. Information and Service Center

Actions such as drawing up the Atlantic Forest Remnant Map in the Brazilian Southeastern Region, participating in discussion and information forums to support preservation actions for the areas of this formation; divulging of the technology generated in ecological restoration models of Atlantic Forest areas, for implementing vegetation islands and corridors; divulging of the "500 Years on the Atlantic Forest" CD-ROM, have been receiving important cooperation from national and international partnerships.

The Muriqui Award

The Muriqui Award, granted by the Atlantic Forest Biosphere Reserve National Council, is the acknowledgement of the research activities conducted at the Rio de Janeiro Botanical Garden, by virtue of the outstanding actions and products generated on the Atlantic Forest ecosystem.

5.4. The Coastal Zone Program

The Brazilian coast extends for about 7,400 Km, and a major part of the Brazilian population concentrates on the *The book of The History of the Herbarium* strip named Coastal Zone. As a consequence, anthropic activities generate ever increasing pressures on the coastal ecosystems, leading to the progressive destabilization of their biological, geomorphological and landscape components. Thus, regional and national measures are becoming a priority, for the purpose of the knowledge, preservation and management of their resources.

The Rio de Janeiro Botanical Garden Research Institute has been conducting research on the terrestrial and marine flora of coastal ecosystems, such as strips of wooded land bordering the seacoast, mangrove swamps, rocky wild coast stretches and coral reefs. During those years, qualification of researchers has been achieved, through graduate courses of study for master and doctor degrees, both in Brazil and abroad, in different fields of learning. Within this period, information on the flora (with emphasis on the Rio de Janeiro coast) was generated, made available mainly by scientific papers, master degree dissertations, doctorate theses and technical reports. As of 1996, those research groups acting on coastal ecosystems have become integrated, to constitute the Coastal Zone Program.

Object

The Coastal Zone Program's general object is "to promote the knowledge of the continental and marine ecosystems of the Coastal Zone, by supporting preservation and handling actions". The chief activities of the Program are directed to the knowledge of the diversity, structure and dynamics of Brazil's coastal sandy plains and marine ecosystems. At present, two Projects comprise the Coastal Zone Program: Marine Ecosystem and Wooded Coastal Land Strips (Restinga).

The Marine Ecosystem Project

Specific Objects

. To learn about the floristic diversity of Brazil's marine ecosystems.

. To study the structure and dynamics of marine plant populations and communities.

. To study natural economic interest species banks, by assisting the handling and marine culture of these species populations.

. To select, indicate and use plant species for monitoring areas prone to environmental impacts.

. To further human resource training and qualification.

The "Restinga" Project

Specific Objects

. To learn about the floristic diversity of Brazil's coastal sandy plains.

. To study the structure and dynamics of plant communities.

. To learn about the plant community regeneration mechanisms.

. To retrieve ethnic-botanical information in traditional communities.

. To generate information by assisting the creation of computer databases and information geographical systems.

. To promote human resource training and qualification.

5.5. Special Projects

They form an integral part of the "Improvement of the Actions of the Rio de Janeiro Botanical Garden Research Institute in the Monitoring and Preservation of Priority and Subject to Impact Areas in the State of Rio de Janeiro". They are in the implementation stage and comprise two projects:

Mangrove swamps Project / The Tinguá Project

Publications

Since 1915 the JBRJ disseminates the scientific knowledge and the researchers' works from this and others institutions by means of periodic publications, technical publications and others edited or promoted by it.

Botanical Garden Files

Bi-annual publication, initiated in 1915, to divulge works of scientific characteristic, unpublished, related to the different botanical branches, including segment of thesis and monographs.

Rodriguésia - A Rio de Janeiro Botanical Garden Magazine

A bi-annual publication, initiated in 1935, to divulge scientific works and / or technical works, related to vegetal biology and to the description of new species, besides matters of cultural extension and news connected with the JBRJ'S history and Activities, as well as previous notes, bibliographic abstract and works concerning the environment.

Herbarium Journal RB News

Diffuse data about collections, visitors and respective institutions, the botanical material borrowed and news in general. With a bi-annual

periodicity it is distributed since 1996 to innumerable national and abroad institutions.

Iconography of the Orchids of Brazil

Considered to be the most important register for the Brazilian orchids, elaborated between 1870 and 1885 by the naturalist João Barbosa Rodrigues, it had the originals belonging to the JBRJ and Harvard University Herbaria restored and bounded into two volumes, and published by Swiss institutions in 1996.

Darwin Technical Manual to the Botanical Garden

Translation and Portuguese publication, edited jointly by JBRJ and the Brazilian Network of Botanical Garden, aiming to benefit the countries of Portuguese language. Its publication, in 1999, was made in commemoration to the 191 anniversary of the Rio de Janeiro Botanical Garden Research Institute.

The Rio de Janeiro Botanical Garden – A Memorial to the First Centenary

Commemorative facsimile edition for the 190 JBRJ anniversary, in 1998.

CD-Rom 500 years of the Atlantic Forest – Know to Preserve

Fundamental Instrument narrating the occupation of the Atlantic Forest during 500 years of occupation of the Brazilian territory.

Index Seminun

Through this publication, the Botanical Garden make available to concerned parties its scientific collection, for interchange, with no profit intention. It consists on a main vehicle for distribution and dissemination of vegetal species, assuring by this way its preservation.

International Norms for Botanical Garden Conservation

Published in 2001 in association with the Environmental National Council, the Brazilian Network of Botanical Garden, Rio de Janeiro Botanical Garden Research Institute and Botanical Garden International Conservation, the book comprises the most recent International Conservation Norms for Botanical Garden, addressed to all Botanical Garden in countries of Portuguese language, with the purpose to integrate them in the effort internationally applied for its development.

The Rio de Janeiro Botanical Garden Herbarium - An Exponent of the Brazilian Flora.

This book, whose organizers are Nilda Marquete Ferreira da Silva, Lúcia d'Avila Freire de Carvalho and José Fernando Baumgratz, has its

publication scheduled to 2001, making possible that part of the history of the institution total patrimony be at public disposition.

Ecological Reserve of Mace de Cima: Floristic Aspects of Vascular Species, vol. 1 and vol. 2

The publication above congregates 57 families represented in the Reserve, including 462 species, with figures and analytical clues for the identification of all families.

Macaé de Cima Mountain: Floristic Diversity and Conservation at the Atlantic Forest

Present data obtained during the researches made in Macaé de Cima Mountain, and offering a general view, working in a community level and taxonomic groups, as well as a more detailed vision, describing the studies of events in selected species.

Woods of the Atlantic Forest - Anatomy of the wood existent in the forest remnant in the state of Rio de Janeiro - Brazil.

This is the first woods catalog to the Atlantic Forest. The information and illustrations are based in anatomical studies, which will proportionate subsides for preservation actions and handling of degraded areas and rational and supported utilization of forestall woods.

AGREEMENT PLANS RELATED TO PROPRIETY

Permanent Commission of Genetic Resources The Convention about Biological Diversity – CDB (UNEP/CBD 1994), ratified by the majority of countries, reflects the desire of the signatory nations to properly preserve the components of the biological diversity.

Considered nowadays as a subject of national sovereignty, the preservation of the biological diversity has forced the countries to create a specific legislation for the access to genetic resources, which include clauses for an equitable division of benefits. The CDB recommend that the genetic resources do not be transferred before the benefits are duly explained between the Parties. The transfer procedures become this way a legal contract.

Conclusive to the ex-situ preservation processes because of its capacity and habilitation for the cultivation of rare and extinction-threatened species of the world's flora, the Botanical Garden are responsible for the creation and maintenance of the most important collection in the world, performing for that reason, an important roll in the preservation of the bio-diversity in all countries, as well

as in the divulgation of knowledge of plants. In fact, they represent a large interesting source for the access to genetic resources from their specialists, from their scientific patrimony and even from the knowledge accumulated. Therefore they should search for the best institutional procedures, which reflect mainly the consensus and reality of each nation, to guarantee the effective control and as well as to avoid excessive bureaucratic obstacles.

The Rio de Janeiro Botanical Garden Research Institute, considering the disposed in CDB, has established its "Norms for Collection and Access to Genetic Resources", which has the goal to regulate the representation, the acquisition and transference of genetic resources from the institution scientific patrimony.

One of the instruments for application of the Norms above mentioned is the Permanent Commission for Collections and Access to the Genetic Resources - CPRG, which has as main attribution the analyses of requirements of vegetal material from the JBRJ scientific collections for interchange of knowledge and technology. It is also included in CPRG attribution to deliberate about inclusion and exclusion of copies of live collections and about releases of individuals to be introduced in the mentioned collections, in accordance to the Management Plan of Botanical Garden Arboretum.

Another important instrument is the Compromise Term, which establishes conditions for the interchange of genetic material with the Botanical Garden. The Term varies in accordance to the kind of interchange and kind of requested material and its subscription is a basic condition to effect the interchange.

6. Environmental Education and Cultural Extension

6.1 - Environmental Education Program

The Environmental Education Nucleus (NEA) of the Rio de Janeiro Botanical Garden Research Institute, created on July 1992, develops an Environmental Educational Program and has as objective to develop projects and activities, which promote changes in the behavior and attitudes regarding environmental questions, seeking the preservation of resources and the improvement of life quality, from the utilization of elements of the Botanical Garden Arboretum in Rio de Janeiro. The following projects are developed:

Knowing Our Garden Project

Created to offer the teachers of the formal education network with the necessary information to the implantation of an Environmental Education Practice, by using didactic itinerary through oriented

exercises, transforming and optimizing the visit of school public to the Botanical Garden Arboretum.

Annually, approximately 500 teachers are trained to act as multipliers and partners for the practice of educational activities.

Didactic Laboratory Project

Space reserved to the development of ludicrous, creative and educational activities, using the natural resources found in the Botanical Garden as an incentive for discussion of environmental topics and experience of educational practices, addressed to children and youth. The Project has reached so far 558 school groups, with a total of 15,807 students of the public and private teaching network.

6.2 - Environmental Interpretation Program

The Visitor's Center operates in the old headquarters of the Nossa Senhora da Conceição sugar plantation Mill of Lagoa District. Its goal is to make accessible to the visitor, information regarding the natural and cultural resources from the Rio de Janeiro Botanical Garden, through a development program in the Center itself and in the Arboretum, as a manner to dynamize the public assistance.

Visitor's Center Project

Provides a fast and reaching assistance to the public, making available to them general information trough a direct assistance.

Guided Visiting Project

Assists the visitors using Universitarian guides or "Rio Boys" (Meninos do Rio), within an estimated time of visiting and previous established paths.

Interpretative Plates Project

The new Signaling Project, aiming to modernize the Botanical Garden visual programming, has been made to remain perfectly integrated with the environment, without aggressing the landscape and providing a specific identity to the Park. The plates have been designed in the shape of a little tree, solidly planted in the ground through roots and trunk (pole), opening to the sun its crown and branches (rods to support the plates) and leaves (the plate properly said) in the configuration of Brazil Wood, a tree that symbolizes Brazil. Detailed maps, installed in the two main entrances and in several strategic places provide a large area coverage. The project already implemented has provided the Arboretum with the fabrication and installation of signaling plates to the monuments, signaling poles and maps. The

new signaling has as one of its objectives to improve the visual quality.

Special Paths Project

Enable the visitor to perform unassisted a route previously established, using a leaflet with map and text. Interpretative Data Bank Project Identify, register and describe in suitable language to a diversified public, relevant elements of natural, cultural and historic interest of the Arboretum.

6.3 - Special Projects

The goal of these Projects is to follow and/or execute scientific and cultural projects submitted through other JBRJ units as well as the elaboration of the leaflet regarding the Botanical Garden.

In cooperation with other federal, state and municipal institutions, the JBRJ offers probation periods and provide gardening courses at no cost to poor minors, seeking their productive insertion in the labor market.

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SUGAR LOAF

Claudia Maria Girão Barroso

National Artistic Historical Patrimony Institute

"Rio, you are from january, and from the
whole year, who can deny?"

Nelson Trigueiro & Oscar Belandi

HISTORY: RIO DE JANEIRO IS BORN

The city of Rio de Janeiro is associated with its stunning landscapes. Rio was born and bred amidst exuberant nature that has been a delight to everyone since the first travelers. The close relationship of urban spread with this unique nature continues singularly, in some places achieving the state of perfect harmony in the mix of urban planning and architecture with the sea, mountains and forest. The Sugar Loaf has looked on as this urban landscape was being built.

On 1st January 1502 European civilization first gazed on these lands inhabited by Tamoyo Indians, when the pioneering ships of the Portuguese expedition anchored in Guanabara Bay under the command of André Gonçalves and navigator Amerigo Vespucci. According to some studies of the city that have now become history and verbal tradition, the name *R. Geneure 1* - Rio de Janeiro - may have been given on this first expedition or was, more likely, baptized by the commander Gonçalo Coelho, who landed a year later.

Anyhow, the name of the city seems to originate from the month when land was first sighted - January - and from the impression of these first Europeans, whose travel tales tell us that, when they sailed into Guanabara Bay, they thought they were in a river estuary. The same allusion to a river is found in accounts by other navigators, namely João Dias de Sólis (1508), Ferdinand Magellan (1519) and Pero Lopes de Sousa (1531). But if the impression that the bay was a river did not correspond to reality, perhaps it was caused by nature itself, when it engraved on the landscape signs of its past geology. Millenniums ago, before the Earth's contractions and winds had transformed it, Guanabara Bay - regarded as an "estuary" - had, in fact, been a river 2. And the name stayed.

Arrival to Guanabara Bay has always been a fascinating experience, since Rio de Janeiro, like few sea resorts, has a seductive composition between the plains covering almost half its territory and mountains

rising up at the entrance to the bar. Right there, as sentinels to the entrance to the Bay, almost in front of the Pico Hill with Santa Cruz Fort in Niterói, dominating the landscape is the Sugar Loaf, Urca Hill and Cara de Cão Hill complex, where the city of Rio de Janeiro was founded.

The Sugar Loaf, with its looming rock face, distinguishing site and shape that have made it the unquestionable landmark of the Rio skyline, has since the European reconnaissance trips along the Brazilian coast been a mandatory reference to navigation and safe haven when the strong tides and sea currents ruffle the bay.

In 1531 Martin Afonso de Souza landed on Saudade beach, now Vermelha beach, where on the west slope of Guanabara Bay he built a stronghold with a small shipyard.3 But the city was only to be founded over thirty years later.

The risk of losing the land to the French had already motivated the first governor-general of Brazil, Tomé de Souza, to recommend (1553) the foundation of the city. The arrival of the French under Nicolau Durand de Villegagnon, who settled on Laje island (1555) and occupied other areas of Rio with the intention of founding an Antarctic France, aggravated the situation. After several warnings to the Court in Portugal by the second governor-general, Mem de Sá (based in Salvador, Bahia), on 15th March 1560 he was put in charge of not a completely successful expedition to curb the French, since it did not help towards the final occupation of the lands, which remained under the French with the support of the Tamoyos. New measures were requested from the Court and another expedition was sent headed by Estácio de Sá, the governor-general's nephew.

On 28th February 1565, Estácio de Sá reached Rio with the mission to consolidate the Portuguese occupation and, therefore, had to combat the French strongholds left by Villegagnon, who had already departed. Estácio landed on Fora beach between Cara de Cão Hill and the Sugar Loaf and on 1st March 1565 laid the foundation stone of the city of St. Sebastian on Cara de Cão Hill. The site was ideal for occupation strategy - not only was it protected by the nearby cliffs, but its geographic site at the bay also overlooked most of the bay with easy access to the ocean through the passage between Cara de Cão Hill and Sugar Loaf. The town was now spreading out towards the plain: a stronghold, sentry boxes, support facilities, cabins and a small wattled chapel to the patron saint St. Sebastian, whose emblem – arrows - have become part of the city's coat of arms.

Also on 1st March two years later, Mem de Sá moved the city of St. Sebastian of Rio de Janeiro to São Januário Hill, later called Castelo

Hill. About a month later, Estácio de Sá was killed on 20th January 1567 - coincidentally on the patron saint's date -by an arrow during the battle of Urussumirim. His body was later moved from Cara de Cão Hill to St. Sebastian Cathedral in Castelo, to where the city's foundation stone was also moved. 4

Later, St. Theodosius Fort (1572) and St. John's Fort (built in the government of Salvador Corrêa de Sá and frequently restored and expanded) were built, but when the city moved to Castelo, only a few of the early inhabitants remained. The Urca area, with the ruins of primitive Portuguese buildings, was now called Vila Velha, or the Old Town, and for many years remained in almost total oblivion.

The following words are by writer José Louzeiro: "What is so curious about all this is that such large ships would anchor in the bay where, years later, the smallest neighborhood in Rio was to be built, with only 13 streets and four avenues. But from this tiny place that so many important things were to happen" 5.

Urca neighborhood: background of peace and cultural ado

Gilberto Ferrez comments that Sugar Loaf reached the 20th century almost untouched, "since only a few were brave enough to climb it in the 19th century after 1817, when it was apparently climbed for the first time" 6. In fact, it is more likely that the Sugar Loaf had been climbed for the first time in 1817 by a group of English mountaineers who would have, then, made the first or one of the first rock climbs in Brazil, planting the English flag on top. Some versions mention that it was an English woman who first stepped onto the top of the hill. The unique feat, which attracted a lot of attention and forced the colonial government to send soldiers up the mountain to substitute the English for the Portuguese flag, was the start of mountaineering, one of its main sports.7

The city planning of Urca, however, took a long time. In 1826, immigrant Carl Seidler described Vermelha beach as "the most splendid beach for bathing next to the fort was certainly very pleasant; but it was the only one".

It is found that a Botafogo dweller, Domingos Fernandes Pinto, first had the idea of transforming the retreat in a neighborhood by building a pier to link up Saudade beach with St. John's Fort. The city was then in the midst of technology, allotments and buildings, while the growing desire for progress endangered the balance of the relationship between urban growth and the natural site. Road works, drilling, razing hills to the ground and laying landfills on the shore was changing the urban landscape. The real estate company belonging to

Otávio Moreira Pena - Urbanizadora Carioca -, whose abbreviation was URCA, was awarded the local concession for landfills in Botafogo bay and the surrounding areas. Saudade beach was thus covered over by URCA to open up Pasteur Avenue and the extended pier idealized by Domingos Pinto was built.

The 1906 Census revealed that on Saudade beach - formerly called Martim Afonso beach, Martim Afonso, Santa Cecilia and Suzano harbor - and in the neighborhood there were only "4,107 inhabitants for 137 buildings", most of them built towards Pasmado Hill, except for the buildings of Don Pedro II Hospice (built around 1852 and the seat of the University of Brazil which, since the Federal University of Rio de Janeiro (UFRJ) was built on Ilha do Fundão, now has only a few courses), the military faculty of ESG (now Benjamin Constant Institute for teaching the visually impaired), the Military Academy on Vermelha beach (begun in 1857 and in 1908 when the Academy moved to Realengo was partly demolished and then fully restored to house the National Exhibition's Industrial Pavilion) and the School of Artillery Apprentices (in St. John's Fort)8.

Two years later, the inauguration at Vermelha beach of the National Exhibition to commemorate the first centenary of the opening of Brazilian ports to friendly nations changed the course of the neighborhood. An official event celebrated the 100 years of the Royal Charter of 28th January 1808 which had opened the country up to world trade. Pavilions were open to the public for almost a whole year and works of urban enhancement began. It may be considered symbolic that the site chosen for the event was precisely the place where the city had been founded. Like the rest of the country, it had been hidden from the Europeans by the colonizer fearful of invasions and exploitation of the natural riches. There may well have been a symbolic intent to hold the exhibition between the anniversaries of opening up the ports (28th January) and proclamation of the republic (15th November).

Some buildings still remain from the 1908 NationalExhibition, for example, the Palace of the States designedin 1880 and inaugurated as the seat of the event - to be later occupied by the National Department of Mineral Production-DNPM (1934) and later called the Palace of Brazilian Geologic History.

Urca Casino was another invention to be permanently fixed in the cultural memory of the neighborhood and city. Strange that this quiet neighborhood was to house the crowded gambling and cabaret hall which, between 1933 and 1946, was frequently visited by politicians and the scene of many scandals. Yet, as Louzeiro says, "after the tragedy of the Conspiracy, Urca shook off the dust and lived it up".9

The Casino, installed in a building in front of the wall along Urca, and belonging at that time to Domingos Pinto, was being used as a hotel. The Casino disturbed the peace of the Urca population but enriched the owners on the pretext of increasing tourism and dollars for what was then the Federal District, when censure was in full swing. The Casino became famous for its shows. Carmen Miranda and other stars, namely Grande Otelo, the Marinho sisters and other celebrities, for instance, began their careers on Urca Casino stage.

Four years after the ban on gambling, the building was re-opened, at the initiative of Assis Chateaubriand (head of the newspaper and radio broadcasting chain Diários Associados), as the headquarters of one of the country's newest projects: the pioneer TV Tupy, which was the start of the television era in Brazil and Latin America. The broadcasting station, with improvised resources, eventually made its début on 18th September 1950 from the São Paulo studios amid great celebrations, with the images viewed on "imported" televisions acquired at the last minute and displayed in crowded public places.10

After the installation of TV Tupy and its variety of cultural programs guiding the course of television in Brazil, Urca now became the destination of production crews and countless actors, many of whom moved to the neighborhood and continued there, even after the TV station had closed down.

Television departed but the radios stayed: until today Radio Tamoyo and Antena 1 broadcasting stations operate there. And if the cultural excitement found its point of equilibrium with restored peace in the neighborhood, the fever of progress and modern times assailing the city was also forced to find its balance. The protection laws, among other results, curbed the headlong rush to increase the height and size of buildings, thereby preventing an increase in occupation, and created new setbacks to visibility and the wind currents in Urca, ensuring the continuing charm and welcoming environment which are its main features.

Almost at the entrance to the neighborhood, the Urca "quadrate" - name given to Cacilda Becker Square next to Domingos Fernandes Pinto bridge on Portugal Avenue, also washed by the sea inlet - still safeguards entertaining and fond memories of strolls, children's games, boats and fishing beside the low wall along the seafront.

Perhaps José Louzeiro is the best person to define the neighborhood and its poetic silence of today: "Urca is still, I believe, a kind of transatlantic liner anchored far from the turmoil that has engulfed the city".

Achievement on high: the cable car

In 1890, Carl von Koseritz climbed the slopes of Santa Teresa and, amazed at the improvements to the city, commented: "In the future perhaps we will see hanging bridges from the Sugar Loaf to Corcovado, and stretching from there to Papagaio peak... unless the famous overhead cars have not yet been invented".

It did not go so far. Augusto Ferreira Ramos, general coordinator of the project at the time of the National Exhibition, had the idea of creating an overhead route to the top of the Sugar Loaf. The design consisted of three cable routes: Vermelha beach to Urca Hill, Urca Hill to the Sugar Loaf and from Urca Hill to Babilonia Hill. The third cable was never built since the Army's priority to occupy Babilonia Hill. 11

The first Sugar Loaf cable car concession was granted by mayor Serzedelo Correa on 30th July 1909 for a thirtyyear period. The works began in 1910 and the first stage (Vermelha beach/Urca Hill), 528 meters long, was inaugurated on 27th October 1912. Less than three months later, on 18th January 1913, the second 750-meter stage was completed (Urca Hill-Sugar Loaf). The first cable cars were rectangular cabins with small side windows and – curiously enough - curtains, which were opened during the trip. The hourly capacity was for 115 passengers.

The cable car to the Sugar Loaf summit became one of the most charming excursions to admire the incomparable beauty of the city.

The increase in tourism to Rio in the 1960s demonstrated the need to upgrade the equipment, since the same system adopted at its inauguration was still being used. Between 1970 and 1972, Companhia Caminho Aéreo do Pão de Açúcar/CCAPA (the Sugar Loaf cable car company) finished building the new telpher, considered then to be one of the most streamlined and safe designs in the world and awarded prizes at a number of international congresses, - for example, the Fourth Mountain Exhibition (Turin, 1971). The new cable cars - the first in the world to have totally transparent sides thanks to Plexiglas, also used in aircraft -, were inaugurated on 29th October 1972, and could carry ten times more passengers than the old cars. The old cable cars continued to be used for another two years to carry cargo and material from Vermelha beach to Urca Hill.

Upgrading the transportation system greatly increased the accessibility to the traditional tourist landmark. Each cable car, with capacity for 75 passengers, now takes only three minutes each leg, carrying up to 1,360 passengers an hour. New leisure attractions have also gradually been added. For example, the Concha Verde amphitheater, which

was used for children's theatre and classic musical recitals, became the venue in 1979 for the Noites Cariocas nightclub, later to become Mamma Africa.

Composer, producer and talent scout Nelson Motta comments on the two venues for music and dance: "Even when it was raining, crowds would ascend the hill to see the latest Brazilian rock bands from Rio, São Paulo and Brasilia. Noites Cariocas needed no other attraction than the dancing hits of Dom Pepe, the breathtaking landscape, absolute freedom and the sheltering trees: the live show was actually a bonus for the public ". Mamma Africa, in turn, opened for the summer season, as Nelsinho Motta recounts, "with decoration mixing African elements with the hill's lush tropical forest. The public liked it: they were tired of rock, disdained the lambada and loved the musical negritude. Aside of the two open air dance floors, we turned the glass-sided restaurant into a piano-bar with a view of Guanabara Bay".12

Other events were held at the top of Urca Hill but none has stayed in the cultural memory as long as Noites Cariocas.

Ecotourism and cultural tourism

The Sugar Loaf and Urca Hill are, perhaps, the most popular landmarks in the city for tourists. Companhia Caminho Aéreo statistics between 1912 and 2000 show there have been more than thirty million visitors. Even if the Rio dweller seems to be blasé about the awesome scenery, the tourist is always delighted to discover it for the first time. This charm invites many tourists to return – Rio sights are unforgettable and fondly remembered. Even the Rio native never ceases to rediscover them.

On day-to-day visits, the tourist service infrastructure is housed in discreet buildings and is simple but welcoming; in other words, compatible with the venue. In addition to the boarding/landing stations and administration offices, it offers vistas, three circular platforms for shows in the gardens (discotheques), a small theatre, a few small souvenir stores, cafés/snack bars, a picturesque restaurant and heliport.

Occasionally the facilities are rented out for cultural programs, weddings, new product launchings, meetings, balls for up to 1,500 guests and other events at 400 meters above sea level, but Urca Hill is principally the venue of musical events.

The Sugar Loaf complex is also considered to be the main rock climbing venue in Brazil. Trail walking, jogging and line fishing are other sports that can be practiced at the foot of the hills along the

1,250-meter track called originally Caminho de Sabiás, or Song-thrush Path, and renamed Pista Claudio Coutinho.

There are rustic ecological trails especially from the Claudio Coutinho track to the top of Urca, as well as numerous rock climbing trails on almost every side of the two hills. The Sugar Loaf offers not only the Costão Rockface (eastern face and the original 19th century route to reach the top), but also the cliffs of Santos Dumont (also on the eastern side), CEPI (western side, whose name comes from the Clube Excursionista Pico do Itatiaia which climbed it in 1950), Segundo Costa Neto (north-western side), Austríacos (northern side), Lagartão and the Stop and Galloti chimneys (all on the southern side). The trails on the steep western slope are called Firebirds, Crazy Horse and Cisco Kid.

The eastern and north-eastern scarps of the Sugar Loaf are gentler, with slopes between 450 and 600. On the other sides, the slope is 900 on average (first and second degree in rock climbing difficulty).

Urca Hill has the steep slopes Queixada (southern side), Singra, Restaurant (both on the northern side) and Apocalypse (western side), plus the group of trails on the southern/south-eastern side commonly known as the Colored cliff by the fact that its paths (only one of which reaches the top) have been named by colors - Green, Red, Pink and Rainbow cliffs, among others.

Cintia Adriane, an Urca rock climbing guide, says, “On the Sugar Loaf, in fact, access trails are only at the foot of the rock face where there is climbing. The Sugar Loaf Costão is, in fact, climbing and walking to the top. There is only one trail to the top of Urca Hill, which begins in the same trail leading to the foot of the western side of the Sugar Loaf. The two trails diverge at what is called the ‘cleavage’ between the two mountains, so that the one going to Urca Hill is on the left of the climber”.

Cintia also explains that “this trail to Urca Hill on the western side of the Sugar Loaf is the most popular, not only by anyone going up but also by climbers on the Sugar Loaf and, after going down by cable car to Urca Hill, they take this trail back. I have no idea of the exact figure, but there must be an average of around 50 people a day, if not more. The Sugar Loaf Costão, which many climb thinking it is a trail, is also very popular, mainly by beginners who simply don’t fall because of their strong guardian angel”. She adds that visitors there are between “50 to 100 people at weekends. Fewer on weekdays “. And adds: “I believe most people are Rio and Brazilian tourists. There are always quite a number of foreign tourists but they are generally on guided tours. In the opinion of people who are looking for thrills the best

climb is certainly the Sugar Loaf Costão. It is almost a trail, except for the rock climbing part, which is probably a first degree in the climb rating from 1 to 10. It has a very interesting different views". 13

Besides mountaineering, other challenges have been inspired by the Sugar Loaf and Urca Hill. In 1967, for example, a German drove his motorbike along the cables and, ten years later, the cables in the second stretch were crossed by a North American tightrope walker balancing only a long rod with the Brazilian and American flags.

It is relatively easy to see fauna and flora and this attracts nature lovers, students and researchers.

Cara de Cão Hill, once an area restricted to the Army, can now be visited normally through the gateway to St. John's Fort at the end of the Urca wall.

But the main entertainment is to contemplate the environment and awe-inspiring view from the hills.

Geomorphology, flora and fauna

The rocky promontory of Rio's own Sugar Loaf was perhaps the inspiration for the name commonly given to the sugar-loaf feature which, in geoscience terminology at both home and abroad, describes a resistant solitary rock formation arising between hills and slopes covered by forest biodiversity,14 in the words of Aziz Ab'Sáber. The Brazilian geographer explains that places with sugar-loaf formations demonstrate a different kind of erosion, or more precisely, "external differential alteration where the rocky promontory continues as a monolith in the landscape", standing out from the gentler hills around it where "the ground and vegetation confirm the tropical nature".

Today's sugar-loaf was certainly once an inselberg, an "island mountain" on which sand was deposited to form a beach. Ab'Sáber says that the region of Guanabara Bay is of the utmost importance in demonstrating that sugar-loaf formations were once inselbergs and this shape adds originality and beauty to the coastal massifs of Rio de Janeiro's urban landscape.

Almost half Cara de Cão Hill (320 ft high) consists of biotite gneiss and one of the best samples of this kind of rock in the city is the site of St. John's Fort. Frade Point also displays one of best outcrops of another variety of this rock, quartzite gneiss. The Sugar Loaf (1,296 ft) and Urca Hill (735 ft), on the other hand, would be the remains of a horizontal gneiss fold, a block of lenticular gneiss. Their structures may be easily identified by the insertion of veins between the lenticular gneiss strata (a sub-type of granite gneiss).

Alberto Lamego, in O Homem e a Guanabara (1948), classified the Sugar Loaf as a primitive rock that preserved its original purity and was, therefore, included in the "Earth's cradle".

The local vegetation also offers considerable biodiversity. It is classified as a Pioneer Formation with Marine Influence (salt marsh vegetation) and Submountainous Atlantic Rainforest, according to the Brazilian Institute of Geography and Statistics (IBGE).

The current restoration of the secondary forest on the Sugar Loaf and Urca Hill slopes is specially due to reforestation and improvements in the past decades, with the planting of more than 20,000 seedlings of native ornamental and fruit-bearing species from the Rio Botanical Garden.

Biologist Jorge Pedro Carauta describes the relief of the hills in terms of steep gneiss escarpments, while the lower levels are partly covered by tree vegetation. The forest is tropical rainforest, displaying magnificent species with very beautiful blooms, such as Brazilian spider flowers, cassias, mimosas and a number of other plants. Very lovely mountain plants are also to be found - long mosses, orchids, cacti, irises, white and purple vellozias - and a wealth of fern flora. 15

On Cara de Cão Hill and between the Sugar Loaf and Urca Hill is a secondary forest with a large variety of tree, bush and grass species, and climbing plants and epiphytes. The main species are the silverleaf pumpwood (Cectopia hololeuca), orange-yellow glory bush (Tibouchina granulosa), plus epiphyte plants, such as arum lilies (Anthurium sp.) and orchids (Oncidium sp.) growing on the trunks and branches of the trees, ground orchids such as the Oecoclades maculata, begonias with white-speckled leaves (Begonia maculata) and abutilons with tiny red fruit (Talinum sp.). A number of other species, including torus herbs (Dorstenia arifolia) with interesting clusters of thousands of tiny blossoms, large ferns (some of the oldest flora), coffee Coffea arabica as a reminder of the coffee plantations, and indigenous species such as the succulent Pachystroma ilicifolium, atallea palm (Desmonchus sp.) and the nightshade (Solanum sp.).

Luiz Eduardo Pizzotti and biologist Anna Christina Saramago from the local secretariat for the environment inform that there are over twenty prevailing species of bromeliads, such as the royal vriesea (Vriesea regina), Vriesea goniorachis, Billbergia amoena, Tillandsia araujei and Vriesea brassicoides - the last an endangered species. Rock plants also worth mentioning are the Brassavola tuberculata and other orchids, namely the Epidendrum ellipticum, Prescotia plantaginea, Cyrtopodium andersonii and Laelia lobata, endemic to

the State of Rio de Janeiro - the last two endangered species. There are also cacti (Austrocephalocereus fluminensis, Rhipsalis cereoides and Pilosocereus arrabidae) and clusias (Clusia fluminensis). Rare endangered species are also to be found there, such as the white (Vellozia candida) and purple (Pleurostima purpurea) vellozias.

Figs native to Vermelha beach and the Sugar Loaf and on top of Urca Hill and Sugar Loaf are cultivated, and there are white mulberry (Morus alba var. alba), avocados (Persea gratissima), jackfruit (Artocarpus heterophyllus) and countless other species.

Most of the mainly tree vegetation is concentrated between Urca Hill and the Sugar Loaf, but the widest diversity is found next to the Claudio Coutinha track, due to the many springs from the south-facing slopes, with an abundant supply of water. Some of the typical native species along this stretch of the coast are mimosa (Piptadenia gonoacantha), castor oil plant (Guarea guidonea), tatapirica (Tapirira guianensis), certain figs (Ficus guaranitica, F. insipida, F. clusiaefolia) and the glory bush (Tibouchina granulosa).

The fauna found among the vegetation is also well represented, especially by the bird life. More than 70 species have already been catalogued on the three hills, namely tanagers Euphonia violacea and E. pectoralis, the Thraupis tanagers Thraupis sayaca and T. palmarum, and Calospiza tanagers (Dacnis cyana, Tersina viridis, Tangara cayana), long-billed wrens (Thryothorus longirostris), doves (Leptotila rufaxila), sparrows (Zonotricha capensis), ocellated crakes (Laterallus viridis), wood-creepers (Lepidocolaptes fuscus), owls (Otus choliba), roadside hawks (Rupornis magnirostris) and humming birds (Eupetomena macroura, Phaetornis ruber).

Carauta claims to have encountered there “the famous warbling seed-eater, a tanager outstanding for its blue plumage; the song-thrush and the brilliant scarlet saddle tanager, catching the eye of any onlooker”, in addition to hawks and the famous blue butterflies (Morpho achilles).

It is also the habitat of some reptiles (snakes and lizards, including large lizards with a prehistoric appearance), amphibians and arthropods.

Amid the song of small birds, the presence of the excited marmosets in the trees or crossing the path on the hilltop recall the accounts of former travelers. For example, the English poet Richard Flecknoe (1648) who was fascinated by the small golden-tailed primates (to which he refers as “the loveliest animals ever created by nature”) but failed in his attempt to take some back to Europe.

The coastal marina fauna (invertebrates) is quite varied and countless species of coastal fish are to be found there.

Carauta concludes that all these creatures are a living reminder of Rio de Janeiro when it was first founded.

The strength of the landscape

The panoramic view is 360° covering a large part of the city of Rio de Janeiro and its beaches, the town of Niterói and the coastal mountain range, Serra do Mar.

The first part of the journey in the transparent cable car goes as far as Urca Hill, where most of the tourist service infrastructure is to be found among the brightly colored flowerbeds. A view of the sea and mountains on all sides is seen from the railings along the slopes, with the deceivingly calm city sprawling below.

The second part of the cable car journey is exciting, with the almost naked rock face of the Sugar Loaf looming up in front. The arrival is pure magic, since the closeness to the Sugar Loaf gives an even greater feeling of strength. Any view from there is magnificent. The Copacabana side provides a view of the mountain chain, a harmonious undulating curving relief with different overlapping hues. Directly below, the curving strip of white sand and the waves on the beach of Copacabana, then Ipanema and Leblon, Dois Irmãos Hill and Gavea Rock.

The view from the other side is of Cara de Cão Hill, a small mount covered by almost continuous tufts of vegetation as if sculpted by nature in ornamental bushes; the rest is rock and a green carpet, with some facilities and a large sports complex next to the Fora beach. On the left, rising up from the Tijuca massif is Corcovado with the Christ statue opening its arms to the Sugar Loaf and the Bay. The eye follows the Botafogo harbor to Flamengo park with the gardens landscaped by Burle Marx, contrasting with the buildings in Botafogo, Flamengo, Gloria and downtown neighborhoods, and then on to Santos Dumont airport, the Fiscal island and to Governor island in the distance disappearing far into the Serra do Mar. Guanabara Bay is stunningly beautiful with sailboats and other vessels leaving a wake of foam on the deep blue of the water, while gulls swoop down in flocks as part of the landscape. The horizons in the distance are often veiled in mists. On the right is Niterói, with Santa Cruz Fort on the rock, once sentinel but today silent spectator as the water flows by. The view of the entire panorama, illuminated by the bay's surface with glimmering reflections of the sun or moon, is one of nature's works of art.

The value of the Sugar Loaf, Urca and Cara de Cão landscape has been recognized by the Institute of National and Art Heritage when it became national heritage on 8th August 1973, in response to the proposal submitted by landscape artist Roberto Burle Marx to the Federal Cultural Council, and at the request signed by artist Djanira and writers Carlos Drummond de Andrade, Fernando Sabino, Austregésilo de Athayde, Luiz Antonio Villas-Boas Correa and Marques Rebelo, to name some of the celebrities concerned with its possible future disfigurement.

In defense of preservation, the writer and tireless scholar Gilberto Ferrez began his report with the comments: "It seems incredible that we have to align data and facts to prove the need to preserve the Sugar Loaf - the symbol of our wonderful city. Not only is it the emblem but the landmark, the historic beacon at the entrance to the loveliest bay in the world, since the time of its discovery until today and forever". And he continued: "The preservation of the Sugar Loaf is a typical case of the highly obvious of our own Nelson Rodrigues". He also concluded that it was not enough to preserve the Sugar Loaf alone but also "from the foot of the four hills (Sugar Loaf, Cara de Cão, Urca and Babilonia), which form a whole, especially when viewed from Botafogo beach". 16

In the words of art historian Lygia Martins Costa, these natural elements "as landmarks and the definition of the Rio landscape, with its breathtaking skylines, far transcends regional value to become an exceptional landscape heritage of all Brazil."

The scenery including the Sugar Loaf speaks for itself. For there seem to be no words, scientific or poetic, that successfully describe the strength of this landscape with the importance it deserves.

Impressions and expressions: symbolic representations

Comments from newcomers and natives

André Thevet refers to the Sugar Loaf, in 1556, as "a rugged rock, wonderfully tall, looming up like a pyramid and wide in proportion, something almost unbelievable."

Another travelling companion of Villegagnon, Jean de Léry, described the Sugar Loaf as "a mountain or rock in the shape of a pyramid, not only magnificent and lofty, but fantastic too since, when seen from afar, it looks artificial since it is rounded like an enormous tower ".

Similarly, father Jacome Monteiro, in 1610, recounts: "To the south, next to Laje island, looms a strangely large pyramid-shaped crag on which the clouds are rooted. It is called Sugar Loaf because of its similarity."

English poet Richard Flecknoe came to Rio in 1649 and described his arrival in Guanabara: "The entrance to the bay is guarded by two large crags, a few miles from each other; one is called the Sugar Loaf. As we approach beyond the fort guarding the Bay, we see the most captivating scenery in the world: a lake, about 20 miles long, scattered all over with different sizes of lush green islands".

In 1757, a comment from M. De La Flotte showed how enraptured he was by the landscape: "I will remember to the end of my days, with ever renewed satisfaction, the day I sailed into the harbor of Rio de Janeiro. That was, for me, one of the most beautiful and delightful days of my life."

Friedrich Ludwig Langstedt, chaplain aboard the English ship Benjamin and Ann, in a fleet of 23 vessels that anchored in the harbor of Guanabara Bay on 29th April 1782, simply said: "I think the mountains of Rio de Janeiro are the most picturesque I have ever seen".

Rugendas, in his Viagem pitoresca através do Brasil (1825), concluded that "Maybe there is no other place in the world like Rio de Janeiro, with such a variety of scenery and beauty spots, in terms of the grandeur of the mountains and the curves of the beaches. In virtue of the many coves and promontories, there is an endless variety of panoramas, from both the bay and its islands and from the high seas. The wealth and variety of the vegetation are also on a par."

British scientist Charles Darwin also spoke of his impressions when he was in Rio in 1832: "... and from a height of five or six hundred feet, one of those splendid views was presented, which are so common on every side of Rio. At this elevation the landscape attains its most brilliant tint; and every form, every shade, so completely surpasses in magnificence all that the European has ever beheld in his own country, that he knows not how to express his feelings".

Hermann Burmeister also revealed his fascination for the city in 1850: "On 23rd November, at sunrise, the Brazilian coast and entrance to Rio de Janeiro bay came into view. It was almost seven o'clock when I went up on deck and stayed looking, full of expectations, at the blue mountains, like a child would have done on Christmas Eve, in front of the door where the his and his brothers' gifts were hidden."

The description, on the other hand, by Frenchman Charles Ribeyrolles, in the second half of the 19th century, is almost emblematic: "The Sugar Loaf, the top of which is like a Cleopatra's needle, has a wide base. Advanced sentinel, I suspect, in its shape, somewhat Huguenot enduring the pounding of the waves and breaking the waves like

a dam. It was also a guide from the high seas, in the absence of a lighthouse on the coast. Many ships in danger would give a cannonade in greeting to this ancient unique rock looming up a hundred fathoms high amid the storms".

The words of Austrian writer Stefan Zweig in his Brasil, país do futuro are pure enchantment: "Everything here is harmony, the city and the sea, vegetation and the mountains, all this somehow blends harmoniously (...). Rio de Janeiro is nature that has become a city, and is a city that gives the impression of nature. And as it welcomes one grandiosely and magnanimously, it knows how to captivate from the moment of arrival - we already know that our eyes will never tire and the mind will never get enough of this peerless city". It was also Zweig who, when arriving in Rio in 1941, recorded in his habitual traveler's diary: "We are in the most beautiful city in the world!"

And how does a person climbing the Sugar Loaf feel? Cintia Adriane, the Urca rock climbing guide, explains, "it is hard to describe the feeling of a walk or climb ", but she says "it's when all the problems in the world, the day-today disappear, the only concern is to breathe, look where you are walking, admire the scenery around you... There is a feeling of freedom, control over the body, tiredness, defeating setbacks, the feeling that you are able, you can succeed, you just need willpower and perseverance. It's like looking from the top at this big wide world and thinking how many beautiful, good, pleasant things there are to see on this planet".

Another interesting account of climbing the Sugar Loaf is by Pedro da Cunha e Menezes. Departing from the Claudio Coutinho track, which is a "kind of marine Paineiras" [walk by Paineiras in the Tijuca forest], he describes the final part of the adventure along the Transcarioca trail. "No one in the group chooses Urca Hill as an option. Everyone prefers the tough trail climb of the Sugar Loaf's Costão. We climbed the difficult trail caressing each rock with motherly love. In the harder stretches, we used the excuse to spend time gazing into the blue horizon. We reached the Sugar Loaf in the early afternoon. We lunched there at the top, but didn't feel the taste of anything. The last drop of coffee was bitter. We went down by cable car, blindly looking at our last minutes of walking. We alighted on Urca Hill [...]. In half an hour we reached the Army's Physical Education School [...]. Still inebriated by the achievement, we walked for another half hour to St. John's Fort at the entrance to Guanabara Bay. There we sat on the thick walls and absorbed the end of the day, appreciating the flat Laje island, Santa Cruz fort and Niterói".

On the hilltop, next to the Urca Hill/Sugar Loaf station, Ceará-born

João Rodrigues de Araújo, living in Rio since 1952 and cable car employee for the last 22 years, says: "I'm a happy man. How can you be anything but happy in a place like this?"

These impressions are still there today, when not even the dense mass of buildings blights the panoramic beauty and seems to submit visually to the strength of the landscape.

In a recent poll organized by the magazine Viagem17, Rio de Janeiro was elected best city in Brazil. One of the reasons for the choice was that "even when you've come here for the nth time, you look up and wonder if you'll be able to find time to see Corcovado and the Sugar Loaf again - and have another look at the city from the viewpoint of its Creator ".

The Sugar Loaf is, in fact, in the people's imagination.

Curious place names

In general, it may be said that place names, which do not originate from the name of a person or place, arouse curiosity. This is the case of the name of the complex. It is known that the Tamoyo Indians called the Sugar Loaf Paunh-Açuquã ("lofty, pointed and solitary hill") and that the name was chosen by the Portuguese for the likeness that they perceived, in the shape of the hill, with the sugar used in the bakery. The name appears in 16th century Portuguese maps and in charts and descriptions of spies and pirates, for example, in the account by Olivier Van Noort (1598), who commanded a "pirate expedition to the Pacific", as Carvalho França says. 19

The French, according to Jean de Léry, called the Sugar Loaf Pôt de beurre (butter dish), whose conical shape was similar to the sugarcane moulds. This is the name given to the mountain in Vau de Claye's map (c. 1579). There are also Spanish reports where it is called Sombrero.

Some versions associate the place name Urca to an indigenous word. Others say that the name seems to come from the kind of vessel used in the expedition of Estácio de Sá, who arrived there in "two or three-masted hooker (urca) vessels with round sails". This is explained by José Louzeiro, who quotes Aurélio Buarque de Holanda and Caudas Aulete when he claims that the word Urca is not indigenous but Dutch, referring not only to a kind of whale but to large vessels, more seaworthy than caravels, which were used in the past to carry passengers and cargo.

The current explanation about the origin of the name Cara de Cão is curious. Nelson Costa says that the hill got its name from the author of Tratado descritivo do Brasil in 1587, Gabriel Soares de Souza, because

it reminded him of a Lebreu or greyhound (breed of dog) – preferring Lebreu to Cabeça or Cara de Cão which it came to be commonly called.20

Semantics of the shape

The Sugar Loaf is considered to be the feet of the "stone giant" or "sleeping giant" that is formed by Tijuca and Gavea (face) slopes and Corcovado mountain range (trunk and legs).

Burmeister describes this impression on entering Guanabara Bay (1850): "The mountains we saw are compared by the sailors to a giant lying on his back. The high outstanding cone of Gavea, which rises from a wide convex base, is the nose of a large head; then a deep cavity is the neck, while the chest is the round curved hill of Dois Irmãos; beside them, Tijuca is far away, jagged and clearer; Corcovado, the highest peak in the whole formation, almost in the middle, represents the crossed hands; another peak on the right side and quite high represents the knees; and lastly, we have the Sugar Loaf, representing the toes pointed upwards. Some small irregular peaks in the foreground may be considered as folds of the clothing".21

The figure of the stone giant appears in a painting by Jules Marie Vincent de Sinety (1841) and in the poem Gigante de pedra, by Gonçalves Dias, "with his cast iron arms, before the clouds, and his feet over the sea ".

Whether it forms the feet of a giant at rest, or a mould for setting the sugar cane or a butter dish, the curving relief of the Sugar Loaf has been worthy of other inspiring interpretations. In a cartoon in the O Cruzeiro magazine, part of the stone giant is in the form of a mulatto woman; its curves are associated with sensual female images like the Rio landscape itself.

Famous are the drawings and tapestries in which Charles-Edouard Jeanneret- architect Le Corbusier - blatantly or subtly paints (1929-36 period) women and curves in the whole complex, just as the drawings in which the Sugar Loaf is the central theme, comprise the scenery of the bay or show Le Corbusier himself beside singer Josephine Baker. The Swiss architect - an outspoken lover of Rio - is also the author of the series of ce roc de Rio est très célèbre sketches, in which the natural view of the Sugar Loaf becomes a cultural scene in a large window frame: the landscape invades the home, is one of the conditioning factors of the drawing and nature overwhelms the city.

Gilberto Ferrez says that Urca and Babilonia Hills, the view of Botafogo harbor, gave the impression of "huge stranded whales".

Some metaphysics

The mountain has a charm of its own. The beauty present and perceived in such forms as the Sugar Loaf and its trait for conducing contemplation of the world in harmony with it, from above, after a rather impacting challenge - the climb - favor philosophical and even mythical comparisons. The mountain is an archetypal image and one of the universal symbols of security, permanence and the encounter between heaven and Earth, "home of the gods and purpose of human ascension", say Chevalier and Gheerbrant, adding that: "every country, every nation, and almost every city has then its own sacred mountain". 22

It is by no means strange, therefore, that the rough surfaces on the Sugar Loaf have been interpreted as figures sculpted by time on the rock face. On the northern slope, facing Flamengo Park, some say the 120 meter high concavity looks like the sacred bird of Egypt - "the mythological ibis" - which one day will fly as a symbol of humankind's redemption. On the western slope towards Urca Hill, some see in the grooves and marks a 200-meter long outline of an old man.23

Almost an ideogram

Iesa Rodrigues, fashion and decoration editor for a Rio newspaper, comments that it is "hard to find a more graphic city with a more surprising nature than Rio. Everything seems to have a design signature and is awaiting another interpretation. Footwear become bags, mountains purses, the curve of the Bay makes logos".24

The Sugar Loaf and Corcovado together are one of the main landmarks of the city and Brazil. And, associated visually with Urca Hill, appear as the main theme of symbolic representations of Rio de Janeiro, a kind of Rio birthmark.

It is therefore common to find drawings of the mountain in printed labels, as, for instance, in superior white vinegar and the graphic art of many products, such as the covers of notebooks, text books, records, albums. The drawing of the Sugar Loaf illustrates anthologies of music, such as Salve Jahu (Salvador Corrêa, c. 1922) and Tico Tico no Fubá (Zequinha de Abreu) and appears on the record sleeves of Tom Jobim e Billy Blanco (c. 1954), Ary Barroso canta Sílvio Caldas (c. 1955) and on the latest Rita Lee CD, associated with traditional irreverent records of Brazilian music of all kinds and at all times. It also appears on bank notes - the 500,000 reis (1893) and 200,000 reis (1936) notes and on postage stamps with the inscription la plus belle ville du monde (1922) - the year when it was celebrating the centenary of Brazilian political independence with an international exhibition.

It illustrates logos of Rio's local government departments and even the town hall of Niteroi, which has a splendid view of the long Rio skyline.

The curving silhouette inspires graphic design to be used in corporate logos and advertising, products and events that seek to identify with the city. An example of this is a São Paulo publishing house (Companhia das Letras) which included the lines of the Rio hill in its logo when it participated in the 1997 Book Biennial in Rio.

In fact, the curving silhouette of the Sugar Loaf recurs frequently in brochures for collections, publications, exhibitions, meetings, symposia, festivals, advertising campaigns, political candidate campaigns, and in ecological and city-loving campaigns. It is part of a wide variety of logos in commerce and services in the city and elsewhere - fashion, pens, gifts, eye clinics, virtual offices, restaurants and bars, vehicle co-operatives, associations and many others -, including services directly relating to tourism, such as helicopter or boat rental for excursions in the bay and temporary apartment leases, in addition to the Sugar Loaf tourist complex itself which has the concessionaire responsible for the cable cars.

In fact, the name Pão de Açúcar is also that of a São Paulo supermarket chain with branches in several cities in Brazil and which also uses the hill's silhouette to divulge the cultural events which it sponsors.

Graphic designer Isabella Perrota says that the Sugar Loaf is "number one": in the trademark contests and between logos and symbols chosen for different purposes, it is without doubt the most popular icon. She comments that the hill "is the strongest, most graphic image, the easiest to draw and also the most symbolic, since very often it is drawn together with the Bay to combine the characteristic features of the city - the sea and mountains. Its open location has also a lot of visibility".25

Maybe the fact that the Sugar Loaf is easy to draw is one of its major attractions for graphic design and advertising, since it is precisely because of the simplicity and beauty of its lines that it can be used freely and tirelessly not only as an emblem - one of the city's best known landscapes -, a reference in itself, but also as a symbol and reference that carries a wide range of meanings. Sometimes it is prominent, explicit, intent on immediate identification, other times discreet, almost imperceptible in a logo, like a curve freely drawn to suggest the hill's outline, gently penetrating the subconscious.

For Rio, like anywhere else in the world, stimulates the imagination with a succession of images that are directly or indirectly associated with it, and that eventually produce the expectations, not always conscious, of what the city personifies.

Welcome to Rio

The Sugar Loaf is found constantly on posters, book covers and travel brochures and in the customary tourist souvenirs, on plates, cups, pens, mugs, ashtrays, key-rings, T-shirts, caps, bottles of colored sand and so many other typical items of the tourist stores at the top of the hills and elsewhere in the city, country and the world.

The visitor is encouraged to look at the amusing aspects of the tour. The adapted snapshots bought at a booth on top of Urca Hill associates Sugar Loaf with a superhero - the turist becomes Superman flying over the city, with the hill and cable car in the background.

The outline of the Rio rock is found in posters, like those for the four hundred year celebrations of the city's foundation (1965). One has the Sugar Loaf and Pelé in his youth inviting you to come to Rio. It also appears in billboards for the show Rio de 400 janeiros, by the Carlos Machado company (1965).

It plays the leading role in practically the entire series of attractive commercial posters of airlines and cruise excursions, produced by Rio City Hall between 1920 and 1960 to encourage international tourism to the city – some even entitled Amérique du Sud. One of them is by Victor Vasarely (1946), creator of Op-Arte: symbolically a plane flying across the sun at daybreak which illuminates a landing strip in the amethyst-colored Atlantic ocean, whose waves recall the Copacabana promenade, and the skyline cut by the Sugar Loaf, Corcovado and the city lights. Marcio Roiter comments that it is interesting that most of the well-known posters do not mention the city, "as if there was no need to say that those beaches, mountains and that bay are Rio de Janeiro. We read South America. The designers presumed that the panoramas are so famous that mention of the continent would suffice. The loveliest city in the world, as published in international magazines and newspapers, was a portrait of the continent".26

A mountain in a stage setting

The Sugar Loaf, once a natural reference that became one of the best known and traditional urban references, ended up by being one of the city's most evocative landmarks. It is worth mentioning, in this sense, that the Rio rock outline has been used by local, national and international media. The Sugar Loaf has been the customary back-cloth - as location or studio-set scenery - for recording current affairs and interviews in the open air, which are not always relevant, but focus on topics of a more general nature associated with the city which it represents. It also appears in films, video clips and commercials that intend to offer immediate visual identification with the place where the scene is filmed: Rio de Janeiro - Brazil - Latin or South America.

With regard to the film industry, it was and still is without a doubt one of the main media of image building based not only on the film maker's view but on very clear cultural and sociopolitical factors. The diffusion of landscapes and sociocultural aspects of Rio de Janeiro at home and abroad have evidently fulfilled such conditioning factors. Virtual experiences of the cinema in its early years found fertile ground in what was then the Brazilian capital. In foreign films filmed in Rio during the first half of the 20th century it is common to find romanticized and overfictitious images of the city, sometimes caricatures of an imaginary place in the tropics with savages and snakes amidst the foliage and even on the asphalt. Milton's references to a New World paradise still seemed to fill the European imagination and affect the USA, where the major ticket office industry, with focus on the exotic and on the sensationalist, began to develop. Moreover, traces of a colonial culture still remained. After all, it was only about a century ago when Brazil had become politically independent (1822). The presence of urban forests, in turn, was (and still is) an extraordinary attraction for foreign visitors and has contributed to the fantastic image of the city and country.

The almost wild nature attributed to Rio scenery blends with the "symbolic features of the exotic and erotic, based on originality, impregnation of historic fact contaminated by imaginary miscegenation, sensuality and cordiality characteristic of a utopia in the tropics", as Tunico Amâncio says when mentioning Flying Down to Rio (USA, 1933), the first film of the couple Fred Astaire-Ginger Rogers directed by Thornton Freeland. This was the film that consolidated the image of the city in foreign fiction films "through a repertoire that will determine an accurate model of representation, that of the elegant beach resort for the international tourist, imbued with music and a docile friendly people". The story unwinds, as in most films after it, between allusions to famous vistas such as the Sugar Loaf, that is, the city's landmarks re-created by using stock-shots (image file).27

At that time, the trend in Brazil was slap-stick comedies and chat shows - attractions like César Ladeira's Cidade Maravilhosa (1935) also featuring the Sugar Loaf and other background scenarios.

Fifteen years earlier, when aviation was at its peak, two films showed stunning aerial views of the city for the very first time. One of them was A trip from Gibraltar to Rio de Janeiro (England, 1919), by an unknown filmmaker. In the other called Rio de Janeiro visto de aeroplano (1920), Juan Etchebarne used his panoramic scenes with a strong penchant for the Sugar Loaf and Corcovado.

Yet films such as Manuel Romero's Luna de miel en Rio (Argentina, 1940) continued as a stereotype of the light beach resort comedy with back-projection images (images projected from slides on a screen behind the actors). The same happened with Down Argentine Way (EUA, 1941), when Irving Cummings directed Carmen Miranda and Don Ameche against the background of dazzling fireworks in a mock Guanabara Bay.

The first attempt to break away from this kind of static landscape as a background was by the ingenious Oscar Welles, who roamed through suburbs and climbed hills, namely Providência, Mangueira and Saúde, to investigate other roots of the Rio folk culture. He filmed Grande Otelo, street carnival and the samba from the hills but was unable to finish It's all true (USA, 1942), rejected by RKO. The entertainment atmosphere continued. Cartoon figures such as the Walt Disney Zé Carioca (which means Joe from Rio de Janeiro), starring for the first time in Saludos amigos (USA, 1943), still stay in people's minds.

Soon afterwards, it was Alfred Hitchcock's time to film Notorious (USA, 1946) in Rio with the Guanabara Bay scenes all studio-filmed, using the resource of chroma key (blue background where previously screen images were inserted). The romantic and spy drama with the famous kiss between Cary Grant and Ingrid Bergman was not filmed in the city.

It was only during the New Cinema that Brazilian film maker Nelson Pereira dos Santos actually created a watershed between the before and after of the cinema filmed in Brazil. In Rio 40 graus (Brazil, 1955), a boy from a hill very different to the Sugar Loaf is confronted with the urban architecture and tries to survive in a what he believes to be a hostile city. The film was rejected by more conservative critics who, at the time, considered it detrimental to the city's image which they wanted to project. Nevertheless, the break had been made. A new trend was set and some of the film makers and society were to look at the city with new eyes.

Yet in culture there is room for every kind of tale, including those with no commitment to reality whatsoever. In this sense, nothing more tourist, perhaps, than Moonraker (England, 1979) in the James Bond series. This time, after the usual scenarios built in a studio, director Lewis Gilbert and his crew did actually come to Rio, a location of some of the scenes in the spy movie and in which 007 Roger Moore tests the force of gravity by balancing on cable cars side by side, in the fight against the "baddy".

When looking more closely at the dynamics of the Rio landscape in foreign films, Tunico Amâncio stresses that "The city is first and

foremost identified by its physical profile. Later, by the uniqueness of cultural expressions which give it substance and whose historic basis offers narratives of interaction and sociability, in a context of entertainment and availability that provides prevailing irresistible appeal ".

In one of the more recent films, for example, Bruno Barreto's Bossa Nova (Brazil/USA, 1999) the force of its expression lies in the poetry of the landscape – Leme beach, with the Sugar Loaf in the background.

Art creates art

Many art historians give the city the status of having been, jointly with Paris, the most portrayed city in the 19th century. The unusual picturesque shape of the Sugar Loaf appears in many portraits of that time, when Rio de Janeiro was host to two foreign art delegations. The works of the artists, such as the French painter Jean-Baptiste Debret (1816) and German sketcher and painter Johann Moritz Rugendas (1821), who exalted the beauty of the mountain in their works, enriched the Brazilian visual arts and was a valuable documentary source to study how the landscape developed.

The Sugar Loaf, an offshore reference for mariners of today and yesteryear and one of the landmarks in the tropical landscape, has inspired paintings where it appears in stormy seascapes - where the frigate is caught in a gale beside the Sugar Loaf (Emeric Essex Vidal, 1817) - in calm waters (Alfred Martinet, 1849).

In fact, there are many works of art that have sought in the complex of hills the theme, either from a romantic viewpoint or from the love of nature or geography, although the flight of fancy is seen even in the most realistic of paintings. The peculiar shape of the Sugar Loaf seems to have always caused strong impressions; there is no other reason to justify so many reproductions and new interpretations by art and its use as a background to record the daily life of the city. As the main feature or part of the panoramas of Guanabara Bay from the diverse views, the mountain has been seen and painted by artists in so many different ways, such as Debret, Rugendas, Essex Vidal, Martinet and Thomas Ender, Robert Dampier (1824) Nicolas Antoine Taunay (1816), R. P. Boys (1820), Charles Landseer (1827), Carl Robert Planitz (1840), Charles Ribeyrolles and Vitor Meirelles (1885). Modernist artists, besides Djanira herself, who later attempt to ensure its preservation, such as Tarsila do Amaral (1923), Leo Putz (1929) and Ismael Nery - in his enchanting Enseada de Botafogo and the famous selfportrait with the Eiffel Tower and Sugar Loaf side by side - have also painted it. It can also be seen in the bronze statue Pompeana by Alfredo Ceschiatti, a formal relationship with the mountain's profile. A process of drawing

the landscape was created where the Sugar Loaf became the traditional subject for painting and sculpture.

It was the subject of many pictures in the 20th century, especially with the development of photography, in which the talent of Marc Ferrez (1890, 1895, 1908), Augusto Malta (1910, 1922), Peter Fuss (1935-37), Jean Manzon (1950) and other sensitive lens encountered in the Sugar Loaf a scenario to be exploited, recorded or poetically represented in the art of absolutely charming photographs in black and white and in color.

And the accessories are there too. When the cable car was built in the middle of the Brazilian belle époque, the cable car journey to the top of Sugar Loaf was in vogue before becoming a tour and the Rio mountain gradually became part of city life. The admiration of the attractive landmark matched the desire to culturally and particularly possess the group of meanings it represented. So, by increasing the many artistic expressions already available, the Sugar Loaf landscape was added to the ornamental and utilitarian. There are countless humdrum items, such as trays and inlaid boxes, vases, musical instruments and photograph albums where a more or less faithful or free reproduction of its silhouette was reproduced. One example is the late-19th century Émile Gallé glass vases.28

Maria Inez
Garcia

And, as mentioned, it became even more popular in a wide range of artisan or manufactured products, with a trend towards the more commercial production of tourist souvenirs or restricted to the field of visual arts, including murals in stores, restaurants and bars, revealing the strong sentimental side in the man-landscape relationship.

In addition to the works of art (famous or otherwise) that have survived until today and well-known, there are still paintings to be painted, photographs to be taken, the daily art of the anonymous onlooker, the Rio dweller born and bred or sentimental, the apprentice tourist (as Mario de Andrade would say) who takes snapshots with a view to future memories.

Poetry in the sea and mountain

The direct or indirect allusion to the Sugar Loaf is to be found in literary texts, poems, music. The combination of the mountain with the Rio landscape, with its history and daily city life, is in its many different aspects ground for many different arts.

Oswald de Andrade shows the opposite of the symbol in “artificial Sugar Loaf” from Capital da República and a double symbolism in Noite no Rio:

O Pão de Açúcar / É Nossa Senhora da Aparecida / Coroada de luzes / Uma mulata passa nas Avenidas / Como uma rainha de palco / Talco / Fácil / Árvores sem emprego / Dormem de pé / Há um milhão de maxixes / Na preguiça / Que vem do fundo da colônia / Do mar / Da beleza de Dona Guanabara / Paixões de feérie / O Minas Gerais pisca para o Cruzeiro.

The Sugar Loaf / Is Our Lady Aparecida / with a crown of light / A mulatta girl walks down the Avenues / Like a queen on stage / Talc / Easy / Down and out trees / Sleeping upright / A million dances / in sloth / from the depths of the colony / from the sea / from the beauty of Donna Guanabara / Magical passions / Minas Gerais winks to the Southern Cross [free translation]

Manuel Bandeira composed verses from Louvação as follows:

"... Louvo a cidade nascida / no morro Cara de Cão, / logo depois transferida / Para o Castelo, e de então / Descendo as faldas do outeiro, / Avultando em arredores, / Subindo a morros maiores, / - Grande Rio de Janeiro!...".

Turazzi and Lúcia

... I praise the city founded / on the Cara de Cão Hill / soon to be moved / to Castelo, and from there / down the slopes of the foothill / Sprawling afar / Climbing the higher hills / - Great Rio de Janeiro!...

Retrato de uma cidade, by Carlos Drummond de Andrade, is dedicated to the

"cidade feita de montanha / em casamento indissolúvel / com o mar".

city made of mountain / in indissoluble union / with the sea.

Drummond then wrote the charming Canto do Rio em sol in homage to the creation of Guanabara State when Rio ceased to be the federal capital:

> *Guanabara, seio, braço / de a-mar: / em teu nome, a sigla rara / dos tempos do verbo mar. // Os que te amamos sentimos / e não sabemos cantar: / o que é sombra do Silvestre Artistic expressions of Sugar Loaf Landscape / sol da Urca / dengue flamingo / mitos da Tijuca de Alencar. // Guanabara, saia clara / estufando em redondel: / que é carne, que é terra e alísio / em teu crisol? // Nunca vi terra tão gente / nem gente tão florival. / Teu frêmito é teu encanto / (sem decreto) capital. / Agora que te fitamos // nos olhos, / e que neles pressentimos / o ser telúrico, essencial, / agora sim, és Estado / de graça, condado real. // II // Rio, nome sussurrante, / Rio que te vais passando / a mar de histórias e sonhos / e em teu constante janeiro / corres pela nossa vida / como sangue, como seiva / - não são imagens exangues / como perfume na fronha / ... como a pupila do gato / risca o topázio no escuro, / Rio-tato- / -vista-gosto-risco-vertigem / Rioantúrio. / Rio das quatro lagoas / de quatro túneis irmãos / Rio em ã / Maracanã / Socopenapã / Rio em ol em amba em umba sobretudo em inho / de amorzinho / benzinho / dá-se um jeitinho / do saxofone de Pixinguinha chamando pela Velha Guarda / como quem do alto do Morro Cara de Cão / chama pelos tamoios errantes em suas pirogas / Rio milhão de coisas / luminosardentissuavimariposas: / como te explicar à luz da Constituição? // III // Irajá Pavuna Ilha do Gato / - emudeceram as aldeias gentílicas? / A Festa das Canoas dispersou-se? / Junto ao Paço já não se ouve o sino de São José / pastoreando os fiéis da várzea? / Soou o toque do Aragão sobre a cidade? // Não não não não não não // Rio mágico, dás uma cabriola, / teu desenho no ar é como os primeiros grafismos, / teu acordar, um feixe de zínias na correnteza esperta do tempo / o tempo que humaniza e jovializa as cidades. / Rio novo a cada menino que nasce / a cada casamento / a cada namorado / que te descobre enquanto, rio-rindo, / assistes ao pobre fluir dos homens e de suas glórias pré-fabricadas.*

This poem describes the charms, foibles and essence of Guanabara, its mountains, Urca, Flamengo, Tijuca, its music and people. It specifically mentions Cara de Cão Hill - “as someone on top of Cara de Cão Hill calls to the wandering Tamoio Indians in their canoes...” Besides the even more famous Cidade Maravilhosa by André Filho,

and Valsa de uma cidade by Ismael Netto & Antonio Maria, many songs sing of the female city, as in these verses from Noel Rosa's Cidade Mulher:

> *"... Cidade sensível / Irresistível / Cidade do amor, cidade mulher / Cidade de sonho e grandeza / Que guarda riqueza / Na terra e no mar / Cidade do céu sempre azulado / Teu sol é namorado / Das noites de luar / Cidade padrão de beleza / Foi a natureza / Quem te protegeu / Cidade de amores sem pecado / Foi juntinho ao Corcovado / Que Jesus Cristo nasceu."*
>
> *Sensitive city / irresistible / city of love, female city / City of dreams and grandeur / that keeps riches / on land and at sea / City with the forever blue of the sky / Your sun is enamored / Of the moonlit nights / City of incomparable beauty / Nature it was / that protected you / City of sinless passion / Next to Corvocado / Jesus Christ was born [free translation]*

Some songs were especially inspired by the Sugar Loaf landscape, such as Ares do Rio, by Paulo Baiano & Marcos Sacramento:

> *Teus seios, os vi numa festa / entre copos e luzes, pessoas, / olhares, sorrisos / São seios, / são seios pontudos, os bicos acesos / Ares de Pão de Açúcar e do Cara de Cão / São Salvador, São Sebastião / Glória! glória! glória! / Os brilhos / eu via de longe / e até hoje me lambem / seu mares batendo, batendo... / São brilhos, / são filhos das águas que entram na barra / e lavam o Pão de Açúcar e o Cara de Cão / São Salvador, São Sebastião / Glória! glória! glória! glória! / Glória! glória! / Eu vim da barca cantareira da ilusão / Pra essa chapada te amar / timbrar meu coração / E a claridade, que faz dessa cidade meu chão, / é o meu mais puro devaneio... / Meu samba pauleiro / É o meu Rio de Janeiro / É o meu Rio de Janeiro.*
>
> *Your breasts I saw at a party / among glasses and lights, people / glances, smiles / They are breasts / pointed breasts with pert nipples / Airs of the Sugar Loaf and Cara de Cão / São Salvador, St Sebastian / Gloria,! glory! glory! / The brightness I see from afar / and even today I am lapped / by your waves crashing, crashing ... / They are shimmers / sons of the waters crossing the bar / and washing the Sugar Loaf and Cara de Cão / ...../ I came by the ferry of illusion / for this crowd to love you / to capture my heart / And the clarity that makes this city my base / it is my purest daydream... / My heavy metal samba / This is my Rio de Janeiro / My Rio de Janeiro [free translation]*

Others celebrate the blend of sea, mountain and sky, as in Rio by Roberto Menescal & Ronaldo Bôscoli:

Rio que mora no mar / sorrio pro meu Rio / que tem no seu mar / lindas flores que nascem morenas / em jardins de sol / Rio, serras de veludo / sorrio pro meu Rio que sorri de tudo / que é dourado quase todo dia / e alegre como a luz / Rio é mar / eterno se fazer amar / o meu Rio é lua / amiga branca e nua / É sol, é sal, é sul / são mãos se descobrindo / em tanto azul / por isso é que meu Rio / da mulher beleza / acaba num instante / com qualquer tristeza / meu Rio que não dorme / porque não se cansa / meu Rio que balança / Sorrio, só Rio, só Rio...

Rio in the ocean / I smile to my Rio / that has in its ocean / lovely dusky-born flowers / in sun-filled gardens / Rio, velvet mounts / I smile to my Rio which smiles at all / that is golden almost each day / and joyful as the light / Rio is the eternal / ocean to be loved / my Rio is the moon / white naked friend / the sun, the salt, the south / they are hands discovering each other / in the infinite blue / which is why my Rio / of lovely women / soon puts an end / to any tears / my sleepless Rio / for it never tires / my Rio that swings / My smile is only for Rio, only Rio... [This free translation was unable to provide the play on words of Sorrio with só Rio, etc.]

In Jet Samba, Tom Jobim sings of the nostalgia for the Rio skyline:

Minha alma canta

vejo o Rio de Janeiro

Estou morrendo de saudade

Rio, seu mar, praias sem fim,

Rio, você foi feito pra mim

Cristo Redentor

braços abertos sobre a Guanabara

Este samba é só porque

Rio eu gosto de você

a morena vai sambar

seu corpo todo balançar

Rio de sol, de céu, de mar

Dentro de mais um minuto

estaremos no Galeão

...Song of my soul, I see Rio de Janeiro, I die of longing, Rio, your sea, your endless beaches, Rio, made for me, Christ with open arms over Guanabara. This samba is because I love you Rio, the girl will dance, her whole body swaying. Rio of sun, sky and sea, One more minute and we'll be landing at Galeão... [free translation]

And Caetano Veloso scored the verses of Oswald de Andrade's Escapulário:

"No Pão de Açúcar / De cada dia / Dai-nos Senhor / A Poesia / De cada dia".

Lord, on the Sugar Loaf, give us each day our daily poetry

So, for years Rio has been sung in verse and prose or with the simple silence of eyes resting somewhere in the diaphanous horizon, where the sea and the sky meet. In fact, the stunningly beautiful landscape inspires meditation and all kinds of art. In the urban bustle of a charming, cosmopolitan city, throbbing in the coming and going of its cultural plurality, the mountain curves, vegetation and water sparkling in the dappled sun or moonlight encourage creativity and serenades to the gaze to those surroundings.

It is a welcoming and magical landscape from above, in the middle of the city. Unique landscape, in contrast to the Botanical Garden and National Tijuca Park. The complex occupies a relatively small area, in complete harmony with the urban skyline. From the top, the city is directly below, as if permitting it to be admired from a specially chosen corner like a natural vista. There, nature and the city meet and seem to mutually respect their boundaries. Because the Sugar Loaf and Urca Hill, seen from afar, are mountains; seen from being there, they are more than vistas: they are raised public squares, parks for meditation and leisure breathing in the irresistible harmony.

The peerless panoramic beauty is unveiled from the inseparable complex of the sheer slopes of Sugar Loaf and Urca Hill, and the small Cara de Cão Hill is part of the very group of hills which defines, values and helps to feature its historic status as a landmark in the Rio and Brazilian scenery.

The Sugar Loaf complex, embraced by the Christ statue on Corcovado, soars up from the calm waters of Guanabara Bay, watching the spread of the city whose beginnings it was witness. Keeper of centuries old geologic memories and of an extremely important cultural memory, it symbolizes the city and strength of its landscapes.

It would be impossible to calculate how many people, when they look at it, feel this strength, as gaucho writer Erico Verissimo wrote in 1945: "When I looked at Rio for the first time from the Corcovado summit, the beauty of the landscape was like a punch to my stomach. It was something far beyond any word, any canvas, any poster and slogan invented by tourist agencies".

The incomparable uniqueness and breathtaking landscape captivates everyone.

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1 The name R. Geneure is written on Le Festut's map (16th century).

2 Geographer Aziz Ab'Sáber explains that, in fact, Guanabara Bay had been a river and "became a bay when the sea suddenly rose, 12,700 to 6,000 years ago ", behaving "like an 'estuary' [a number of channels] complex and alone". AB'SÁBER, Aziz. A região da Guanabara, do Rio a Niterói: um patrimônio da humanidade (printout). Rio de Janeiro, 2000.

3 Some historic accounts suggest that this stronghold built by Martim Afonso was the famous Carioca ("white man's house") mentioned by the Tamoio Indians, but it is more likely that the Indians were referring to the trading post built by Gonçalo Coelho on Flamengo beach in around 1503 or 1504. (CRULS, Gastão. Aparência do Rio de Janeiro. Coleção Rio 4 Séculos, 2 vol. Rio de Janeiro: José Olympio, 1965)

4 Estácio de Sá's gravestone and the city's foundation stone are to be found in today's Church of St. Sebastian on Haddock Lobo street in the neighborhood of Tijuca (commonly known as the "Church of the Capuchins") where they were taken when the Castelo hill was demolished in the first half of the 20th century.

5 LOUZEIRO, José. Urca: o bairro sonhado. Rio de Janeiro: Relume Dumará: City Hall, 2000.

6 FERREZ, Gilberto. Parecer de tombamento do Pão de Açúcar. Rio de Janeiro: IPHAN, 14 June 1973.

7 Urca rock climbing guide Cintia Adriane says that this is one of the most reliable versions of the first climb up the Sugar Loaf. She says that, according to the historic research that she is doing for the

Urca Rock-climbing Guide, "the Sugar Loaf was climbed in 1817 by an English woman called Henrietta Carstairs and she was one of the first names in rock climbing in Brazil. The traditional rock climbing lines began to be opened in the 1940s. In 1944, during the War, the Stop chimney was climbed, the C.E.P.I. cliff in 1952, Gallotti in 1954 and the Secundo in 1957. But there are different versions and all very controversial. After the English woman's feat when she stuck the English flag at the peak, there was a certain embarrassment among the military, who considered this to be an insult. After this, many military and civilians plunged into the adventure of reaching the top of the Sugar Loaf. Soon after records of climbs up other mountains, such as the Gavea Rock in 1828, Agulhas Negras peak in 1856 and God's Finer in 1912. (ADRIANE, Cíntia. Information by e-mail). D. P. Kidder (1951) comments that others have claimed "the glory" of having been the first to climb the Sugar Loaf: some versions refer to a North American or Austrian mariner and Kidder himself says that "the first woman to attempt the venture was D. America Vespuci, in 1838". (CARAUTA, Jorge Pedro Pereira & OLIVEIRA, Rogério Ribeiro de. Plantas vasculares dos morros da Urca, Pão de Açúcar e Cara de Cão. In: Rodriguésia, Rio de Janeiro, April/June 1984)

8 TOSATTO, Pierluigi. Um palácio na história geológica brasileira. 2nd ed.. Brasilia: DNPM, 1997.

9 The Communist Conspiracy, "name given to the military uprising of November 1935, in opposition to the advance of fascism and increased repression of the Getulio Vargas government ", had nationwide repercussion and was organized by the Brazilian Communist Party (PCB) backed by members of the National Liberating Alliance (ALN), which had been closed down by Vargas that year. In Rio the uprising began in the 3rd Infantry Regiment on Vermelha beach and, as Louzeiro says, "the militant communists were eventually overcome by the legalist troops even before they could get to the streets ". But the event was engraved in the history of Urca, and in fact damaged the cables of the first stretch of cable car, causing the only shutdown of the service in all those years, until the new cables arrived [CASTRO, 1988]. Perhaps it was not by chance that "during the worst period of dictatorship - 1937-1941" the neighborhood changed from the peace and quiet to bustle with luxury cars in the streets and millionaire yachts from Miami, Argentina and Colombia "less than 200 meters away in the calm harbor". (LOUZEIRO, José. op. cit.)

10 Brazil was the fourth country in the world to install television, which only existed in the United States, England and France. It was a real venture. "Towers, cameras, microphones, image selection table, everything arrived at Santos port in 1949. A number of actors went to

festively welcome the arrival of the equipment. They did not have the know-how, however, since they had never seen the new art. Everything was new. And unknown. All the engineers, actors and directors knew about the radio since they all worked with this communication vehicle. A few months later and everything was ready. An American engineer came to give the final touches. Everything very fast and streamlined. Everyone together in a great dream. There was so much work that one vital detail had been overlooked and was only remembered almost on the final deadline: there were no televisions, none had been bought for receiving the broadcast. Warned of this fact, Chateaubriand went into partnership with some major stores that existed at the time and imported 200 televisions, which arrived a few days before the date and were installed in very busy places. These were Mappins, Cassio Muniz stores and the São Paulo Horse Jumping Club, as well as in the homes of some friends of the journalist. Some trial broadcasts were made and the inauguration took place on 18th September 1950, at 8:00 p.m.. After the ceremonies, some broadcasters, some songs, the Television Anthem, and the party. Brazil had inaugurated the first television station in Latin America." (O Museu da Televisão Brasileira, http:// www.televisaobrasil.com.br)

11 The idea caused such controversy at the time that it was the origin of a joke that four and not three cables should be built: the fourth to be linked up to the Pinel Psychiatric Hospital close by.

12 Nelson Motta is part of the history of music in Brazil and he was very active in the bossa nova, jovem guarda, music festivals, Tropicalism, popular Brazilian music /MPB, discotheques, rock (MOTTA, Nelson. Noites Tropicais: solos, improvisos e memórias musicais. Rio de Janeiro: Editora Objetiva, 2000).

13 Cíntia Adriane comments that the 3rd edition (sold out) of the Urca Guide is being updated. It is the outcome of a more in-depth study performed by herself and others on the history of mountaineering on the Sugar Loaf and Urca. She explains that "the first climbs were made in chimney, since there was no proper equipment available for another kind of climb. Then came the artificial and steel cable lines and soon afterwards the free lines. The equipment was developed from the Army carded boots, moving on to sisal sandals and tire-soled sneakers until arriving at the slippers used today; from the rope at the waist, through the small rope seat with a knot to the current 'baudrier' or seat, among other developments". (ADRIANE, Cíntia. Information by e-mail)

14 Ab'Sáber says that at several points on the coast there are still "active sectors of abrasion in the front areas of mountain spurs,

'promontories' or small coastal massifs, which one day were islands, especially in the period called climate optimum", and that "such island massifs - as in the case of the Sugar Loaf - were incorporated to the mainland through single or double sand bars", that is, sand deposits with curving formations. And he comments that the inselberg status - "a monolithic rocky accident surrounded by hills and undulations open to semi-arid climates, soils and vegetation" - of the Rio Sugar Loaf is demonstrated by the "presence of stony ground under recent oxyssoils acting as an ecological support for the current biodiversity of vegetation ". (AB'SÁBER, Aziz. op. cit.)

15 It is actually very beautiful vegetation, whose biodiversity however was not on a par with that of the National Tijuca Park. The biologist was a member of a team undertaking thorough research on the hill vegetation and he concluded that "prevailing in the rainforest are the Polypodiaceae, Moraceae, Rubiaceae and Araceae families. The sheer rock faces indisputably have the Bromeliaceae family, forming almost homogeneous communities, such as the Vriesea regina. Other important families on the rock faces are the Velloziaceae and Orchidaceae" and at the foot "more Compositae, Graminae and Euphorbiaceae have been sighted. At the top, in gardens, there are stretches with homogeneous communities of bamboo, planted to substitute the guinea grass (Panicum maximum var. maximum)". (CARAUTA, Jorge Pedro Pereira & OLIVEIRA, Rogério Ribeiro de. Plantas vasculares dos morros da Urca, Pão de Açúcar e Cara de Cão. In: Rodriguésia, Rio de Janeiro, April/June 1984)

16 Part of the data on flora and fauna of the hill and the cable car complex were taken from FERNANDES, Luiz Eduardo Pizzotti & BASTOS, Anna Christina Saramago. Morros do Pão de Açúcar, Cara de Cão e da Urca (printout). Municipal Government of Rio de Janeiro/ Municipal Secretariat for the Environment, 2000.

17 FERREZ, Gilberto. Parecer de tombamento do Pão de Açúcar, op. cit. The term "highly obvious" was created by the Rioborn writer Nelson Rodrigues.

18 " Transcarioca is a trail of which only a few stretches now exist. Yet, if it was taken as a whole, it will combine the pleasure of encountering almost virgin beaches, exuberant rainforests and historic monuments of Rio de Janeiro with the conservation of its natural reserves. The first Brazilian long-distance trail from the Marambaia salt marshes, climbing the slopes of Guaratiba, crossing Pedra Branca State Park and the National Tijuca Park and ending at the foot of the Sugar Loaf will create an ecological corridor to guarantee the health of our fauna and flora. The Transcarioca represents the dream of many fortunate

Rio de Janeiro inhabitants and visitors. Or rather, of all those who are concerned with the preservation of the magnificent nature that coined the city's name 'Wonderful'." (CUNHA E MENEZES, Pedro da. Transcarioca: todos os passos de um sonho. Rio de Janeiro, Editora Sextante, 1998).

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ROBERTO BURLE MARX, THE SCIENCE OF PERCEPTION

José Tabacow

José Tabacow is a landscape architect who worked with Burle Marx for 17 years in various landscape projects, before embarking on his own career. Author of various books for children and adults, within the area of his own specialties, José Tabacow is today one of the most consistent Brazilian thinkers concerning the relationship between ecosystems and their occupation by human establishments.

References are often made to his discovery of the beauty of the tropical plants in the Dahlem Botanical Garden, near Berlin owing to the cultural irony inherent in this incident. The young Brazilian artist who was nineteen years old at the time, first experiences the exuberance of neotropical flora, characteristic of hot and humid climates, in the hothouses of a Botanical Garden of the Old World, whose climate is cold and dry! It was there that the future landscape artist was deeply impressed by Adolf Engler›s collections of tropical plants.

isode, which is always mentioned in biographies of Roberto Burle Marx, is justified by the fact that his home country, Brazil, had adopted European patterns in its squares, parks and gardens (Sgard, 1994), copied from the rigid Cartesian compositions of the French baroque and neoclassical styles and, alternatively or cumulatively, from the scenic, naturalistic landscapes which emerged from 18th Century English Romanticism.

This discovery is simply the initial link of a chain of circumstances which enabled the shrewd eye of the landscape gardener to understand and take advantage of the opportunities offered to him, in the structuring of the process which led to the modern tropical garden. Also, it should be mentioned, which he often created himself, drawing from observations and taking advantage of situations which he perceived and re-elaborated better than anyone. However although the irony ends, with a certain aura of legend (Oliveira, 2001), the discovery has ramifications, which even today lend authenticity to Burle Marx› compositions as new proposals - the vegetation as one of the elements which will re-structure a rupture with the stereotypical landscaping styles divorced from our tradition, history and culture, imitations or supposed reflections of that which had been or still was the fashion in contemporary Europe.

The search for new species led him to make a complete break with that style which may have been imposed by gardeners from Portugal, Spain or other parts of the old continent who, unaccustomed to the cultural aspects of tropical vegetation, sought to use and reproduce what they knew from their native lands in Brazil. Nonetheless such a transformation is gradual. The gardens of the Casa Forte (fortress) in Recife still reflect a strong influence of French geometry with longitudinal axes, rigid forms and symmetrical distribution of the vegetation. However, it would be wrong to attribute the rupture to this period. What happened in Recife had to do with the choice of vegetation. This should not be considered native, because it came from another climactic region, the Amazon, so distant both in its geography and its appearance that it does not make botanical sense to classify it as native. So wherein lies the originality of this garden, now part of history? Certainly this spring from the establishment of criteria for choosing the vegetation which although arbitrary, went beyond the merely aesthetic, and above all, was completely unconventional? It shows the application, though still incipient, of those perceptions and decisions intuited in Berlin, five or six years earlier.

If the discovery of new material only implies a potential connotation in its use, the decision to collect it and cultivate it means a step forward, much more significant than the first, in the sense that it constitutes a real expansion of Burle Marx› possibilities of expression in the composition of landscapes or gardens. It signifies an objective decision, which will help to consolidate the projects of the landscape gardener in the organization of his conscious and planned attempts to seek new possibilities of expression. Just like a painter seeking new paints, or a sculptor who experiments new kinds of marble, he does not just want to invent for the sake of it. He wants to find ways of avoiding the conventions, escaping from the sameness of the roses, the caladiums and the begonias, from the gardens with diagonal pathways and central bandstands, of the cachepots with little palm trees and many other servile fashions which even today take up a lot of space in our cities. Roberto himself says: «originality never concerned me as much as quality and respect for the office of landscaping itself.» (Tabacow, 2004)

In this phrase there is an indirect denial of another recurring legend by which a dubious analogy attributes to Burle Marx, the landscape gardener, the qualities of a painter who uses the land as a canvas and the plants as paint. This kind of simplification, reducing the landscape to two dimensions, also reduces the landscaper›s ideas to mere compositions stripped of what was precisely one of his chief

attributes, the dimension of volume, which he dominated masterfully because he thought it out at the same time as he calculated the outlines of the pathways and the flower-beds and considered the slope of the land, the surrounding landscape, besides of course the functional necessities of each project: «When I make a sports arena, I can›t think it out in the same way as if I was making a garden for a monastery!». The fragility of this kind of comparison is obvious when we look at the Recife projects in which the draught of the idea is done in perspective, a technique which makes the volumes stand out, and not in a flat two dimensional diagram, emphasizing the outlines. In fact it is worth mentioning that when he was studying in the Escola de Belas Artes (Fine Arts School), Burle Marx expressed the desire to switch from painting to architecture, but was persuaded not to by Lucio Costa, then director of that institution.

In this way he nurtures a creative process inspired by certain restlessness, a great preoccupation to find a new way of modeling spaces. He discovers, in tropical vegetation, a powerful ally to carry out these ideas. However, in order to understand this process, it should be noted that in these preliminary moves no kind of preoccupation with environmental conservation can be identified. His proposal was to increase the supply of living material, that is to say vegetation which can figure in elaborate landscapes. However it can be affirmed that concerns with environmental destruction arise from his making ever more frequent contacts with natural environments and witnessing their degradation. It was a consequence, never an intention. His collection of plants did not begin as a way of preserving in gardens what was being lost in nature, although, later, this perception would reinforce his desire for collecting. The destruction of natural surroundings was perceived gradually at first but vertiginously in the second half of the last century, reaching a climax during the years of the military dictatorship which preached progress at any cost and offered legal incentives for destruction of the environment.

In this way, the use of Brazilian flora, criteria initiated in the two public gardens of Recife long before, in the 1930s, does not represent a conservationist posture or the use of original elements of primitive landscapes. As has already been mentioned, it is not acceptable to attribute an ecological interpretation to criteria which establish politico-geographical limits on the scale of Brazil itself, in the name of a pretended adherence to indigenous vegetation. At the most a pioneering spirit can be recognized together with Aziz Ab Saber, Augusto Ruschi, Jos Lutzenberger and a few others, denouncing the destruction of natural surroundings. However, what Burle Marx was seeking was an innovation of forms, colours, textures in such an

unexplored and unknown world that the few native plants used in gardens (e.g. Bougainvillea, Sinninghia) had been taken to Europe in the 19th century, to return as exotic, imported rarities.

In Brazil›s coastal forests, with some of the highest indexes of floral diversity in the planet, especially with regard to the trees, Burle Marx «had prodigious resources at his disposition [...] from the beginning, but he also had to have the idea of going out to look for them and get the maximum from them»(Caillois, 1994). For this, the reference of the numerous travelers who had scoured the country in all directions in search of new plants in the previous century was extremely useful to him, leading us to qualify the young landscape artist as an extemporaneous 19th Century naturalist. His enormous admiration for Martius, Saint-Hilaire and Gardner, among many other travelers of that notable period, permits and reinforces such an interpretation.

It is impossible to know exactly which was was the first collecting expedition which Roberto Burle Marx undertook. Nor can it be known if he did this in a planned or a casual way, setting out to collect his first anthurium, his first begonia. Probably this was a slow process - that he was gradually aroused by the enormous range of possibilities that unfolded before him.

He began his searches in the coastal rain forests with their high levels of humidity, labyrinths of little streams and vertiginous, slippery slopes. The curiosity of this budding naturalist was stimulated by the same fascination which had enthralled the travelers who crisscrossed Brazil in the 19th century.

It could be that this preference was defined by the much commented walks with his mother, whereby they left Leme on foot at dawn and continued to the top of Corcovado. The proximity of Rio de Janeiro which led him to the Atlantic forest did not at this stage attract him to the spits and the plant life of the rock faces, whose peculiarities he only discovered and investigated much later. His first searches were oriented by an obvious preference for wide-leafed plants. It was in the forest that the araceae, marantaceae, heliconias and zingiberaceae were to be found, as well as the emblematic colonies of palm heart palms and samambaiaçu ferns, always present in the virtually untouched environments of the time. During this period, a preference for big leaves can also be seen in his painting, in many still lives in which the leaves of alocasias, philodendrons and anthuriums are almost always present in a clear reminder of the strong impression left on him by Engler›s hothouses in Berlin.

In Belo Horizonte at the end of the 1930s he met Henrique Lahmeyer

de Mello Barreto, a self-taught botanist, who was to become the director of the newly created Zoological Garden of Rio de Janeiro in 1945. This was the period in which Pampulha was constructed, which must be considered a turning point in the history of plant collection and use in garden landscaping in our habitat. This research achieved more coherent criteria when it began to confer new value to the relationship between the construction and the surrounding landscape. Mello Barreto introduced a thus far completely unknown aspect of science to the landscaper: ecology. In one of his conferences, Roberto affirms that he attributed to Mello Barreto the attitude he adopted from thence onwards. He would no longer limit himself to collecting the plants to which he was attracted for their morphological qualities alone, but also to observe their relation to the neighboring vegetation, the substrata, their phyto-sociological importance, their phenology, in short all the aspects which characterize ecological niches. It was the botanist who made him consider landscapes as a set of characteristics, an indissoluble whole. He showed him the possibility of the transposition of relationships encountered in nature to the composition of gardens, invoking, for this purpose, the coherence of the landscape which prevents us from visually relating a succulent plant to a water surface or associating a species native to sun scourged rocks with another from the humid undergrowth even if this makes up a beautiful vegetal composition and is physiologically possible.

This advice produced a great change of mind and broadened the horizons of an artist who, always open to new information, was never satisfied with his knowledge, never relied on easy formulas or conventions to solve problems of composition in landscape gardening, always starting from the premise that each situation is unique and therefore requires original solutions. Burle Marx was concerned not to fall prey to the common tendency of repetition and often cited Picasso: «It›s better to copy others than to copy yourself!». But he now had a scientific basis which allowed him to «make transpositions, rather than imitations», by including in his projects the strong and charismatic elements of the natural environments which surrounded them, visually relating these with works constructed «by man and for man». The new face of his ideas regarding gardens emerges at this time, «the fitting of the ecological environment to the natural demands of civilization». Although this definition sounds redundant, it demonstrates his concern with emphasizing the architectonic nature of landscape interventions.

With this new information at his command, Burle Marx amplifies still further his search for novelty, for innovation. It was not just a question of collecting plants in their natural habitat. Now his attentive eye

turned to the environment as an inexhaustible source of inspiration, examples to be reworked, reinterpreted and accommodated to his compositional necessities, no longer seeing the plant as a simple element for filling flower-beds but as an integral part of a whole which is born simultaneously from the stones, the pathways, the water, which taken together compose a set of forms, volumes, textures, colors, variables which, artfully combined, assure the outcome in the search for constant renovation.

His association with Mello Barreto awakens in the landscape artist the idea of seeking, in the natural habitat, specific flora for the project in hand, the work in progress. This happened in Pampulha (1942), in Parque de Araxá Park (1943) and in the uncompleted proposal for zoobotanical groups for the Zoological Garden of Rio de Janeiro (1946).

Together with Luiz Emygdio de Mello Filho, round about 1951, he carries out the renovation of the vegetal components of Praça Salgado Filho (in front of Santos Dumont Airport), in Rio de Janeiro (Mello Filho, 1998), thus furthering his contact with botanists. For his original idea, Burle Marx had counted on Mello Barreto›s collaboration as he had introduced a fig tree (Ficus pertusa) from Minas Gerais, whose collection at a train station had led them to miss the train with all their personal baggage inside, so excited were they with the novelty. These trees which can adapt perfectly to local conditions excite admiration for the originality of the intricate and sculptural forms of their crown which begins a short distance from the ground.

At the time that they were reforming the square, Emygdio was director of the Parks Department of the City Hall of Rio de Janeiro. The landscape gardner and the botanist travelled to the north of Espirito Santo. They brought more unknown plants from the forests and stone quarries of that state and especially three species of Clusia (C. fluminensis, C. hilairiana e C. criuva), later consecrated as ornamental plants which are reproduced to this day in commercial nurseries. This partnership continued throughout Burle Marx› life, resulting in important works, among which can be numbered Parque do Flamengo park in Rio de Janeiro and Parque das Dunas park, in Natal, Rio Grande do Norte.

Shortly before, an important change took place, on his acquisition of the land which would come to make up the Sítio Santo Antônio da Bica farm (now Sítio Roberto Burle Marx): in Barra de Guaratiba. The collecting activities began to be focussed not only on the projects being undertaken at the time, but also to put together a generic collection of plants. It was thus that in 1949 began what was to become one of the greatest collections of live plants in the world. Two guidelines

were incorporated into the new phase which was being initiated: the necessity of counting on the supervision of botanists in all collections and the broadening of the horizons which both Luiz Emygdio and Mello Barreto indicated, by showing him potential values in other formations in our landscapes besides the forests. Burle Marx often repeated Mello Barreto›s reference to « the richness of the rocky surfaces where, in a single square metre there are more different species than in a square kilometre of the Amazon» . His gaze now focussed eagerly on the rocky promontories of gneissic-granite, of the sandstone-quartz, of the limestone, where natural gardens suggested to him compositions according to the grouping of species so characteristic of the rock face vegetation.

From then on, he undertakes numerous journeys specifically collecting plants from quarries. He discovers their enormous potential for gardens on flagstones. From then on he undertakes many expeditions specifically in search of plants from quarries. He discovers their great potential for paving stone gardens because these species can survive on tiny layers of soil. In his projects he uses this capacity to the limit. From then on, even when he is on a journey for other reasons, whenever he passes a rocky promontory, his eye surveys the rock surface in search of bromelias, orchids, begonias, philodendrons, anthuriums and many other plants whose discovery brings him enormous satisfaction. He develops a permanent attraction for rocky habitats. He repeatedly visits the states of Minas Gerais, Bahia, Goiás, Esprito Santo and Rio de Janeiro, always following the indications of his botanist friends, whom he never fails to consult. It is possible to make a long list which includes the most important Brazilian botanists. Besides those already mentioned, important figures like Adolpho Ducke, Aparcio Duarte Pereira, Graziella Barrozo, Nanuza Menezes, Joo Semir and Gert Hatchbach must be included. Not only did he take them with him on expeditions, but he also counted on them at his farm, where they helped him to identify and organise his collections of species, many of which were new to botany. Roberto Burle Marx discovered nearly a hundred plants unknown to science which have been named after him or with names that he suggested. The presence of these researchers met his necessity for taxonomic knowledge, as he was adamant in denying the qualification of botanist or ecologist which was often attributed to him erroneously. «I am not a botanist. My only knowledge of botany is the way it can be applied to gardens, which is what interests me", he said.

However in his typically disinterested manner, his gaze extends beyond the rock faces to the spits, swamps, scrubland and high plateaus. He develops a special perception of the transitions

between these formations, always replete with plants with unique morphologies. Observing these surroundings, he reproduces their textures and colours, emphasizing flowering plants, making generous use of contrasts which give value to the dominant and the dominated elements, a compositional resource which he already controls in painting and which reinforces Lucio Costa›s observation: «His life is a continuous process of research and creation. The work of the botanist, the gardener, the landscaper is nourished by the work of the artist, the draughtsman, the painter and vice versa, in a continuous exchange.» (Motta, 1983). This is a very different observation, you might say, from those who would wish to reduce the garden to a canvas and consider the colors of the vegetation as mere blotches.

In time, the excursions evolved in terms of their organization, their intentions and the collecting techniques. Burle Marx invited botanists, architects, people from his office including draughtsman, students and collaborators in general, anyone who might be interested, to come on these journeys. There would be a lorry with the collecting equipment as well as passenger vehicles. Almost all the gardeners from the farm underwent training and they knew better than anyone all the techniques of transplanting, accommodating cuttings, wrapping and all other necessary information for the survival of the plants.

The routes were defined following preliminary information from botanists, other collectors, or even laymen and sometimes had as their goal the collection of a single species which possessed some particular quality. It was thus for example with a frustrated journey to the Mel island, at the entrance of the Paranaguá bay. The goal of the expedition, which had been indicated by the Paraná botanist Gert Hatchbach, who was their guide, was an anthurium with very big leaves which grew on the island which was then unprotected by environmental legislation. However, they failed to achieve their objective as the sea was very rough and they were unable to make the crossing.

Nonetheless such failures did not make him lose heart. On the contrary, he always tried to take advantage of the experience, explore new localities, collect other plants, and observe unknown formations. Many of the participants systematically photographed the vegetation, the landscapes or any unusual geographical feature.

Roberto was always in a good mood, from the dawn of the expeditions, joking and singing all the time, inventing stories for the inhabitants of the little villages of the interior who gathered curiously around the arriving caravan: «We›re the circus! Let›s find a spot to put up the big top!» He would joke, enthusiastic about the perspective of new and imminent discoveries, the beauty of the sunset, or the sudden sight

of some spectacular flowering plants. Even when he was older, and problems in his knees prevented him from climbing over the rocks of the quarries, he would shout up from the edge of the path to those who were looking for plants up on top of the hill: «Heeey! Is there anything there?" Yes! There was! And there always will be for those who learned his lesson: curiosity is what keeps us alive! Or as he used to say: «Whenever I make a trip and find a new plant, I am excited by the discovery. The important thing is for us to understand the meaning of things. Faust sold his soul to the devil because he wanted to know more and more». (Cals, 1995).

As Lucio Costa expressed it so well, Roberto Burle Marx was a humanist who, although he was in harmony with his times, had his roots in the Renaissance. His attention was always directed towards the capacity for creating or transforming the social environment based on teachings only available to those who unburdened by historical conditioning or pre-established truths seek to envision fresh ideas and new opportunities.

Dahlem›s hothouses were merely circumstantial in Burle Marx› life. He would no doubt have discovered tropical flora in some other situation.

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Ecology, a term which has been overused due to the alteration of its original meaning, is understood in this text in its original context as the study of the relationship of living organisms between each other and the environment in which they live.

VISTAS AND LANDSCAPES

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1. Introduction

From near or afar, the contours of Rio de Janeiro have always sparked the imagination of travelers who have frequently described and portrayed them. Between the colonial period and the mid-19th century, the city and nature blended into the landscape - sometimes the stronghold would predominate and at other times the forests, rocks and seawater of the bay. Mr. George Gardner recounts his experience of the distant view from his ship, when he was delighted by the harmony among the houses and vegetation, divine creation and human constructions, forming "scenery unrivalled on the face of the Earth". A closer look, unfortunately, showed the celestial city to be a mirage. Rio and its sordid alleys at the time of slavery would have distressed romantic and colonialist feelings. The urban impressions, however, were not summed up only in the contrasts of heaven and hell. An infinite number of views, prospects and landscapes still exist to help us learn a little more about Old Rio.

The first views are conspicuous for their lack of information, by the hasty visit of pirates, forbidden to step on Portuguese colonial land. In these statements, Rio was described briefly as a small stronghold in the distance, with mention of some buildings, fortifications and relief. Since the second half of the 18th century, when the city grew rapidly, descriptions and pictures portrayed the corners of the city in more detail. The many bird's eye views from the sea towards the land diminished in number to give way to various portrayals of the urban center and its surroundings. When the ports opened up, the city was viewed from the shore towards the sea, and the daily life of the population was gradually portrayed by curious beholders intrigued by the exotic. Nature occasionally was given paradise-like contours and the outskirts were represented by the sublime and picturesque following the vogue of the 18th century romantics. In short, distant or close prospects, from in or outside, are a pretext for a short excursion through the records of the wonderful city.

For a stroll around Rio de Janeiro through texts and pictures, I will resort to a few but very different onlookers - pirates, travelers, naturalists, traders and artists, almost all from shores even farther than Portugal. The choice is based on the principle that the city's representations changed as the city grew. The consolidation of the

Portuguese invasion to this land, cultural and artistic changes are also subsidy to understanding the framework of representation. After all, landscape is a representation of the representation. Far from being a close and naturalist copy of nature, the landscape is a cultural creation that first chooses and unifies separate subjects and groups them together in a landscape. Graphic representation is the second stage in the process of producing landscapes2.

The Portuguese and Brazilians were seldom concerned with describing or divulging the view over the city. The vistas, prospects, panoramas and landscapes are mostly the work of foreign artists and travelers; either in colonial times or after the political emancipation of Brazilian lands. The city portraits produced by "foreigners", certainly helped to build the unique identity, or rather, forged a self-portrait in the iconography from outside in.

2. From outside, vistas and prospects

Since the first navigators as early as the 16th century, Guanabara bay has been an key topic in the travel accounts to the South Atlantic. The fresh water springs and fruit of the earth, in addition to the natural beauties, were some of the wonders encountered in these stopovers. After a long journey, sailors and travelers would cure their ailments and exhaustion from the long voyage by feeding on the delicacies offered by the Indians. André Thevet described the reception of the Tamoyos when he arrived in Guanabara. In joyous welcome, the old Indians would greet the French and offer them food of different kinds – manioc flour, large and small roots, all with excellent flavor3. Oliver van Noort and Richard Flecknoe also wrote about the natural resources available in the bay. The latter went on land and described in detail the fruit trees, animals and birds of the Guanabara ecosystem4. Second in importance to the supplies, the most recurring topic in the travel literature was safety. After Antarctic France, the city was built in the shelter of fortifications that, on all sides, defended it against invaders.

The first engravings of the bay are battle scenes, portraying skirmishes between the French and Portuguese. These pictures, illustrating accounts by Hans Staden and André Thevet, emphasize the Indians' role and crossfire between enemy vessels5. There was still no autonomy of space regarding an iconographic theme. The battle is in the foreground rather than the incipient French fortification. In 1599, the engraving in Oliver van Noort's report shows the bay and its contours, highlighting the relief, forts and rows of houses. For the first time, the figure of the Sugar Loaf is to be seen, which is much closer to the open sea than the Santa Cruz fort. In the background and

in front of the aforementioned fort are the city buildings, set out in a straight line, like a wall6. The picture, therefore, shows the confused geographic knowledge of the early sailors. Noort's expedition had little time to look at the outline of the bay and city complex.

The elements in the picture would certainly offer the Dutch better chances of a well-aimed attack in the future. Nicolas van Geelkerken (c.1623) also painted the entrance to the bay for the same purposes7. In the illustration, the forts are in a better position. Santa Cruz fort is in the foreground, then the Sugar Loaf and St. John's, St. James' and Villegaignon forts. The rows of houses seem arranged only in the lower part and, therefore, with no clear evidence of the Castelo Hill and the older buildings in the city. The religious buildings are in evidence - it is worth mentioning the church of St. Catherine (Candelaria) and Franciscan and Benedictine monasteries. A major advance in the knowledge that the Europeans had of the bay is also visible, even after 1605, when foreigners were forbidden to land and stay in Brazil.

"St. Sebastian, Ville Episcopale du Brésil" is the title of the first panoramic view of the city from the harbor, drawn by mathematician and "voluntary engineer" François Froger in 16968. This was the location of the first religious and administration buildings. Contrary to Dutch iconography, no value was given to the defensive system. On the left are the Old Abbey and College of the Company of Jesus on Castelo Hill; on the right, St. Benedict monastery. Only the fort of St. James is illustrated, while the entrance to the bay and its principal defenses are absent from the picture. This is the first view devoted to the architectural aspect, providing more detail and accuracy in the buildings. At the bottom, in addition to churches and cranes for unloading merchandise, are a number of twostory and a three-story buildings.

Later, when French invasions tormented the city dwellers, the views disappeared. It was only in the second half of the 18th century that there was again concern to portray the city as "it was beheld", more closely illustrating the experience of the beholder looking at the rows of houses and mountains from the sea. This view was replaced by the different planes and plans of the city, no longer concerned with integrating the houses with nature in a simulated synthesis. During this phase, the French drawings illustrate the invasion of Duguay Trouin in 1711, while the Portuguese were busy in fortifying projects for the city. Only in 1744 was the city again portrayed with its complex architecture, nature and relief, in the scene by François Froger, for example. In half a century, the city had grown fast, spurred on by the gold from Minas Gerais.

Urban growth and foreign control of the city's circumstances are evident in the view painted by François Moyen and James Forbes. In 1744, when the French invaders still threatened the city, Moyen painted Cobras island in the foreground, a small boat with rowers and a helmsman. The scene has a unique view, since the open sea, Santa Cruz fort and Sugar Loaf are in the background, while the city is on the right. Englishman James Forbes spent three months in the city, writing a brief report and drawing a view, dated 1765. Forbes had a poor opinion of the Portuguese, since he called them degenerate, unlike the earlier visitors who had discovered routes to the East. Pride, poverty, indolence and superstition were their main characteristics. He did, however, praise the splendor of the churches and the ceremonies. The religious buildings were portrayed in the view from the sea towards Castelo Hill, showing ample knowledge of the city's geography9.

These views, however, did not compare to the prospect drawn by Italian Miguel Angelo Blasco, who illustrated the urban fabric from St. Benedict monastery looking towards the Sugar Loaf, in c.1762. The comparison of Froger's view in 1695 to this picture gives an idea of the enormous progress made in architecture and urban planning. The view also portrays the city from the sea looking towards the land, from the harbor to the buildings and Carioca mountain range. In the foreground are St. Benedict monastery, Cobra island and dozens of vessels, with the Sugar Loaf and Castelo Hill in the background10. Ordered by Count Bobadela, governor of Rio de Janeiro between 1733 and 1763, the prospect depicts buildings in great detail, especially warehouses and cargo loading and unloading quays. It is still possible to visualize the traffic of little canoes and rowers to carry merchandise to the mainland. Aside of the urban morphology, the artist has endeavored to portray trade and bustle in the harbor and waters of the bay.

A tangle of roofs, towers and windows are visible between the Carioca mountain range and the sea, creating the illusion of a heavily populated city. In the prospect ordered by Vilhena, dated 1775, this pictorial resource was not used. The buildings are set out one by one on the edge of the bay, as if the buildings were only on the shore. The two or three-story houses are uniform, more conceptual than those drawn by Blasco. It is used, therefore, as a map of the city, schematically pinpointing the main religious and government buildings. In the background, the hills have none of the detail of the previous view. The author drew conceptual elevations without emphasizing the uniqueness of the relief. The foreground depicts warehouses in the harbor and a few boats, showing that trade was not the main activity to be illustrated. In short, the main theme of

the illustrations is the city outskirts, portrayed by artists who had been there11. In the late 18th century, the sketches drawn from afar belonged to the past, containing deformations in relief and city profile.

In the last quarter of the 18th century, views, prospects and panoramas no longer portrayed the whole extent of the city. Undoubtedly, the urban spread, the fashion of sublime and picturesque landscapes was the reason for the emergence of fragmented pictures of Rio de Janeiro. They were no longer intended to chart buildings, forts and streets of the colonial city. Once they had focused on certain places, corners, portraying the interaction between nature and the city, man and nature. Gradually the city's iconography became inhabited by the common citizen, soldiers, workers, musicians and slaves. The daily life of the city was first painted by Leandro Joaquim who demonstrated tremendous sensitivity and caused a major breakaway from the system of baroque illustration. Since the early days of colonization, plastic arts in Brazil had been devoted especially to lives of saints and biblical passages, adorning churches and civil institutions. The oval panels by Leandro Joaquim, dated between 1780 and 1790, not only portray archaic forms of urban life but highlight human dominion over the natural world - the fishing net near the church of Gloria, whaling in the waters of the bay; hay carriers; pack horses, ox carts and oxen grazing near Boqueirão lagoon12.

Besides illustrating nature, Joaquim also painted buildings, the Carioca aqueduct, Gloria church, Lapa church and Carmo square, not to forget the bustle of the port and seafaring expeditions. As Maria Lucia Kern points out, the breakaway from baroque motifs occurred in the period after the reforms by the Marquis of Pombal and the headlong process of secularizing knowledge in Rio de Janeiro, at the time of the viceroys Marquis of Lavradio (1770-1779) and Luis de Vasconcelos e Sousa (1779-1790). On a visit to Rio in 1792, Sir George Staunton commented on two charming pavilions in the public gardens, adorned with views of the city and whaling. The ceiling was also decorated with brightly-colored fish and the plumage of Brazilian birds, demonstrating a strong inclination by the local authorities for natural history13. The incentive to scientific production undoubtedly inspired Leandro Joaquim to create landscapes/chronicles that added value to urban morphology and the daily life of the inhabitants.

The elliptic panels also portray the city viewed from the sea to the land, as in the earlier pictures of the city, but which were no longer used to guide ship captains and mariners on their first voyage. The utilitarian aspects of the 17th century vistas were gradually replaced by the romantic, majestic, tropical landscapes that have immortalized the city. During colonial times, artists at last portrayed the facades, forts, harbor

and the relief around the city. They were not concerned in portraying its inhabitants, and the city appeared empty and uninhabited. Leandro Joaquim, although not considered a romantic, was the only artist to portray human beings in the vistas and prospects.

Nevertheless, the daily life of Rio de Janeiro continued to intrigue the many travelers. Since the 17th century, the religious festivities, slave economy, and outskirts were recorded by visitors. There seems to be a certain gap then between the written text and image as yet unexplored by historiography - if the customs were observed and described, why were they not drawn and painted? The city center, its streets and squares, suburbs and daily life of its population only became a theme for the main pictorial records in the 19th century. This trend would be explained partly by the romantic taste for folk culture and picturesque landscapes. Aside of the question of style, colonial iconography played different roles in comparison to romantic iconography. The former was used first and foremost as a map. Besides demarcating territory, 19thcentury artists and travelers intended to record the impact of the landscape on romantic sensitivity. But response to this statement requires a more in-depth study on the Portuguese technical art of the period between the Marquis of Pombal reforms and the French invasion of Portugal. During the period, several military sketchers had drawn the human types of Brazil.

3. From within, landscapes

In 1792, the city's interior was portrayed in the engraving by William Alexander, who was a member of the delegation of the new English ambassador to China. The artist painted a picture with a wealth of architectural and social detail. Surrounded by a mountain and tropical vegetation, the aqueduct is the scenario for city players - Franciscan monks reading among bushes, slaves carrying a litter, a man leading a horse and cart, barrel carriers and a number of passers-by before an urban environment with homogeneous constructions14. Compared to colonial iconography, Rio was portrayed from the city looking outwards to the sea, from within. As in Leandro Joaquim's panels, the scene portrays the daily life, row of houses, vegetation and relief, without resorting to strong contrasts between sea and land. The seascape, a recurring theme in the Rio landscape, was not used in the engraving, nor even Boqueirão lagoon which, at the time, had undoubtedly been filled in15.

It is interesting to compare "The view of Boqueirão lagoon" by Leandro Joaquim and this picture. While the former portrays the space between the sea and the Carioca aqueduct, Alexander's engraving reproduced the gap between the mountains and aqueduct. In the latter, Lapa and

Santa Teresa churches are visible in the background. The contrast is elucidative, clearly demonstrating the lines of the Portuguese-Brazilian and the Englishman, especially when comparing the church architecture. Joaquim draws them in baroque and Alexander in gothic forms with high pointed spires. The human types in Leandro Joaquim recall the small figures by Carlos Julião and Guillobel16, portraits full of social and cultural symbols. The figures by the English artist are less rich in details of this kind, which is to be expected from a foreign painter who spent a very short time in the city.

After 1808, when the ports were opened and the court arrived, Rio de Janeiro grew faster and was visited by numerous travelers and artists who painted its surroundings. The French and Austrian missions17 recorded it both from the sea to the land and from the mountains to the sea, enjoying the wondrous combination of sea, mountains, forests and city. Panoramas and vistas, from the harbor or a bird's eye view, continued to portray the city. The new elements of urban morphology and geography, however, are present in the views from within outwards, such as in the engraving by William Alexander. With freedom to stay in the city and visit its outskirts, artists multiplied its representations. On trips to the countryside, they would portray the composition between land and water, sometimes minimize the city buildings, seeking to highlight nature prevailing over the landscape, and at others, include social elements, especially black inhabitants, in the environment. The scenery of the city and of nature reveals a slight European urban mentality, especially English, in search of the majestic and picturesque, but also provides precious information on urban sociability18.

Amidst the Tijuca massif, John Luccock would watch the slaves clearing a piece of land to build a house. The felling of huge trees unveiled a perfect panorama of the city of St. Sebastian. The effect of the indescribable beauty would suddenly strike them, leaving even the slaves stunned in admiration. The silence and clamor expressed by natives from three corners of the world were proof indeed of their enchantment by the landscape19. The Englishman says that the effects of nature on human sensitivity was beyond the differences between the peoples. The fascination for the landscape was, after all, universal.

At the turn of the 19th century, landscape painting was in vogue in the European art salons, namely among the English. Dawn Ades believes that two factors can explain this phenomenon: "the rise of the nation-state and the search for a cultural identity and the change in attitudes towards nature and natural history"20. The Rio de Janeiro landscapes, created by foreigners, did not initially promote the nation-state, nor was their purpose, in principle, to forge the Brazilian identity.

Many artists were at the service of scientific research, following the instructions of the professor Humboldt. Amidst a unique untouched nature, the traveling artists sought the progress of natural history and were enraptured by the picturesque and majestic.

Speculating on the picturesque, Rev. William Gilpin mentioned the works of art that copied the wild, rustic and untamed. The scenic beauty was added value to the contrasts of color, forms and textures in nature. It synthesized many different parts consisting of natural subjects, such as mountains, trees and water. Gilpin believed that the artist should not, however, anatomize the subject but look at and design a landscape that would not always be confounded with reality, resorting to an "imaginative organization"21. The majestic, in turn, was nature's victory over man, who before its beauty, lost his mind and control, as in the episode described by Luccock. The sublime is the origin of amazement, "that consists of the state of a soul in which its every movement is sustained by a certain degree of horror", causing admiration, reverence and respect22. Rio de Janeiro, seen from within, from the land seawards, was full of reasons for scenic and sublime landscapes.

In the best tradition of the sublime, Nicolas Taunay23 portrayed Tijuca waterfall, Cascatinha da Tijuca, from a "low perspective", from the bottom upwards, giving it monumental status. He also deepened the contrast of color in the vegetation, rocks, mountains and waters. The iridescent sky, among the white, blue, gray and red, blends into the peaks and vegetation, spreading its hues over the top part of the painting. At the foot of the painting are the painter, black servant, dog and easel, close to some pack mules. Brazilian artist Manuel Araújo Porto-Alegre also painted the waterfall using the same theme and prospect.

The waters fall amidst the rocks amid varied and contrasting nature - trees, climbing plants, flowers and bright-colored birds. The human beings, tiny and insignificant, are in the dark part of the canvas. With top hats and rifles, they appear to be using instruments to take notes and measurements. They are undoubtedly naturalists on their daily tasks. This landscape is unique, which is why numerous other artists register it as a sublime phenomenon, contrasting nature's grandeur with human fragility.

The preoccupation to emphasize nature's magnificence in contrast to human works is visible in the watercolor by trader and English artist George Lothian Hall. In his "Mountains of Rio de Janeiro seen from Niterói" (1858), the painter increased the size of the mountains and made the city buildings almost invisible. They are like tiny white dots,

almost disappearing into the lilac relief. This lilac hue tints the sea and the mountain range around the bay, while the vegetation and ground in Niterói are varying shades of black and ochre24. In 1849 French artist Joseph Alfred Martinet painted three panoramas of Rio de Janeiro and its outskirts. From Corcovado, the painter was visualized the waters, the edge of the bay, and mountains and the city disappears. Human beings are only present in the foreground, where some elegantly dressed gentlemen and a lady are appreciating the sublime view25.

After all, as Gilpin wrote, the landscape does not always compare to what is actually observed. Scenic beauty presumes the value given to contrasts, the artist's intervention in order to transform nature into a landscape. A similar resource was adopted by Benjamin Mary in his watercolor dated 1836. In "Rio de Janeiro - Vue de La Gloria", the artist painted the Lapa arches as ruins in the midst of thick and varied vegetation. There human work was supplanted by nature. Mary gave emphasis only to the church of Gloria in the architectural group of houses26.

But the iconography of Rio de Janeiro has excellent examples of urban landscape painters who have provided details of the morphology.

The landscape is a way of structuring the world, originating in both painting and writing. To understand the construction of the landscape, it is necessary to explore its written representations - images and meanings27. In 19thcentury literature, descriptions of the landscape are frequent. Just as Luccock did, Maria Graham wrote the following in her journal on 15th December 1821:

> *Nothing I have seen so far is comparable in beauty to the bay. Naples, the Firth of Forth, Bombay harbour and Trincomalee, each of which I consider perfect in their own kind of beauty, must all bow in reverence to it because this bay exceeds all others in its various aspects. High mountains, rocks like superimposed pillars, lush forests, islands of brilliant flowers, green banks, all blending with white buildings, each small eminence crowned with its church or fort, ships at anchor or sailing, and numerous boats moving around in such a delightful climate, all combines to make Rio de Janeiro the most charming scene ever known to the imagination28.* [free translation]

Maria Graham expressed the emotion often felt among artists who have portrayed Rio in the first half of the 19th century. Nevertheless, the landscape which the English woman described in her writings did not fit the scenic beauty of William Gilpin. When he defined the picturesque, he was compared to William Marshall Craig, marking

two schools of landscape painting - the abstract and realistic. The realistic resorted to a method of analytical and additive composition; the abstract adopted synthesis, blending the elements of nature29. The realistic or naturalist school sought to create a map, using the vistas and prospects. Since Claude Lorrain and Salvatore Rosa, "the great style" was enormously successful, rejecting abstraction, valuing individuality, variety and organic naturalism. In this sense, a good part of the Rio landscapes follow the latter style.

H. Schmidt painted a magnificent panorama from Santa Teresa to the sea, including the houses of Lapa, Public Promenade (*Passeio Público*), Ajuda, Castelo Hill, also including the city center and St. Benedict monastery30. The row of light yellow houses, which are uniform in color, have one or two stories and a few with three stories. Curiously enough, the residences are located between the straight line of the streets and backyards, where bushes sometimes remind us of orchards. Creepers and small trees are seen on Castelo Hill among the buildings and steep alleys. The Passeio Público, or public promenade, and its thick lush vegetation are surrounded by a wall also yellow. Two pyramids in the middle of the "urbanized forest" act as a gateway. The sea appears from a yellowish mist, which prevents a clearer view of the other side of the bay and coastal mountain range, Serra da Mar, which stretch endlessly into the distance to meet the sky. The deep blue of the sky behind the high mountains adds luminosity to the painting.

Lapa was also the scene by French artist Adolphe D'Hastrel in his most delightful print, portraying the church of Lapa and Santa Teresa convent, in addition to some houses31. Some changes can be seen in the urban morphology there - the convent is lower down and next to the church; the aqueduct which should be next to it has disappeared. In the foreground is a street of two-story houses. A small balcony and window at the top do not correspond to the ground floor with two large windows, similar to the upper floor, a small window and a doorway. At the side of the church, the artist has drawn a wall in ruins, in the picturesque style. Similar to the panorama by H. Schmidt, lush vegetation in the backyard includes coconut palms, banana plants and a leafy tree. In front of the wall are several Negroes busy at work. A woman with two casks, another with a bundle on her head and a third carrying her child strapped to her back. The rest appear to be chatting. They are all black, considered to be elements of the picturesque due to their color and customs.

Although portraits of the city emphasize a picturesque contrast between color and form, travelers' accounts do not always emphasize the beauty. The Agassiz couple were horrified by narrow streets crossed by open sewers in which all kinds of filth accumulated. Neglect

and inertia, general ruin, prevailed in the city, the result of the extreme uniformity caused by the climate. The disastrous acts of nature, however, worsened with the general indolence of the passers-by. Yet travelers and painters surrendered to the effect of the picturesque, at least excluding from the landscapes the defects and urban disorder. "They are well aware that they themselves felt fascinated and enraptured, despite the filth and absence of things considered to be the most necessary"32. In short, the picturesque numbed the criticism and demands of travelers accustomed with the urban comforts of northern cities . The charm of the landscape and scenic beauty helps understand the contrast between the commotion of urban life and the breathtaking landscapes.

The contrasts of the city were not only between the picturesque and neglect but between "old educated Europe" and "American savagery", emphasized in the writings of Spix and Martius. The Bavarian naturalists considered the black and mulatto population inferior and coarse. They walked semi-naked all over the city affronting European sensitivity, accustomed to "delicate customs and the obsequious formulas of their homeland". Rio de Janeiro was the encounter of opposite worlds, the meeting of European tradition and slavery:

> Language, customs, architecture and affluence of manufactured products from all over the world give a European aspect to Rio de Janeiro. And what, however, soon reminds the traveller that he is on a strange continent if the world is especially the mixed mob of Negroes and mulattos, the working class encountered wherever he goes, as soon as he sets foot on shore34.

Nor is this the reason why the Negroes were labeled barbarians in the urban landscape of Rio de Janeiro. In "Gloria Square", Henry Chamberlain painted an urban scene depicting several human types in the city, many of them earning slaves. Black men and women, freed slaves, are carrying a wide variety of merchandise on their heads. In the landscape, the Negroes are going about their everyday jobs, carrying water, selling, fishing, driving cattle and carts, completely at one with the working world. They are also able to enjoy a rest, leisure, as in the scene of the church of Gloria by Joseph Tully35. In the watercolor, two black boys, fruit vendors, are in the churchyard gazing out at the panorama of the bay. Negroes are also a principal feature of the watercolor by Auguste Earle36 and the engraving by Richard Bates37 who included black workers in the landscape, without showing the signs of slavery. This iconography, however, does not have anti-slavery elements, nor endeavors to detract from the black people as in the texts by Spix, Martius and the Agassiz couple. As Ann

Bermingham points out, while the landscapes express relationships of power, the city and the Negro, in particular, portray an iconographic problem that, in principle, seems very promising.

The landscape paintings are outstanding for the harmony between the city and nature, the free and the slave inhabitants. In her journal, Maria Graham wrote that the beauty of the city lay in the union, synthesis, between the forest, rocks, waters and rows of houses, which together provided the "the most charming scene ever conceived by the imagination". The aforementioned synthesis is certainly found in the vast iconographic material on the city. Besides the interaction with nature, the landscapes also portray people, the social diversity and the city at the time of slavery. The Negroes, mulattos and white, commanding or obeying, play their roles without endangering the order. Graham guaranteed that the Negroes, whether free or slaves, "seem cheerful and happy in their work"38. The black figures included in the world of work also express the harmony of the "charming landscape", immune to the rumors from the Haiti slave rebellion.

Although there is no dissonance in the iconography, travel reports describe, in addition to the enchantment, a poor city, with prevailing indolence, where the Negroes harass terrified wayfarers. The contrast, therefore, reveals the ideological character of the landscapes. As landscapes and drawings are devoted to depicting nature – nature which is mistaken for science and the truth - they tend, sometimes, to naturalize social relations. The more realistic the painting the more persuasive, more "naturalizing" and illusory it is39. In this sense, in landscape painting, the harmony of nature errs in terms of society, as in the following extract.

On 24th January, when leaving Guanabara, Maria Graham wrote another delightful comment in her journal: "... if a mountainous and picturesque country really has, more than any other, the power to attract its inhabitants, the dwellers in and around Rio de Janeiro should be as patriotic as any other in the world"40. The comment is based on the principle that nature also forges identity and patriotic feelings. The cult of nature, undoubtedly, becomes a unifying social element. This was also construed by a literate public who enjoyed paintings. As historic comment, landscapes is an element to strengthen national identity. The romantic literature of the 19th century has this exact measure, comprising a rich varied nature – almost paradise. Harmony between nature and the humans in the landscape certainly contributed to the project of the Imperial State intended to bring the regional powers together around Rio de Janeiro. The inclusion of artists in the state project is as yet a somewhat undeveloped theme. In this vein, research may more systematically discover the political elements of the Rio landscape.

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CARIOCA LANDSCAPES

FERNANDO MAGALHÃES CHACEL

Rio de Janeiro is nationally and internationally acclaimed for the natural beauty of its landscape. Some of its natural features are closely identified with the image of Rio itself like Sugar Loaf and Corcovado, where the statue of Christ the Redeemer opens its arms over Guanabara Bay.

These are not the only two city landmarks that dominate the topography of Rio with their majestic presence. Other hills like Dois Irmãos and Pedra da Gávea and the Tijuca and Pedra Branca massifs grace and highlight both the natural and urban context of the city.

Rio is the sea, the mountain range, the lagoon and the forest, which offset the intricate, constantly shifting mosaic of the cultural landscape; a place where squares and parks have emerged over time within the city's open spaces.

And it is about some of Rio's parks that we are going to speak.

Of their past, their present and their future. Of the architecture of their landscapes and of those who designed them or made their existence possible.

The first important feature of landscape design in Brazil was the building of Passeio Público, which took place in the 18th century. At the time, this intervention was regarded as an initiative of urban planning of great importance for the city.

The process of building Passeio Público began with the razing of Mangueiras Hill, a hill of small dimensions that was a bulwark for Desterro Hill. It was not as imposing as Outeiro hill, which stood nearby, topped by a 17th century church of incalculable architectural value, nor could it compete with Castelo, Conceição, São Bento or Santo Antônio hills, which, at the time, counterbalanced the flat areas of the city.

Boqueirão Lake was in the surrounding area, overlooking Guanabara Bay. The earth taken from the demolished hill was deposited in its rank waters to create the ground for Brazil's first public park: Passeio Público.

This moment marks the beginning of a procedure to be often repeated: that of using landfill to create flat areas, which were more convenient for urban planning, filling the waters with material resulting from the

demolition of the natural landmarks which overlapped each other on the site of the city.

The figure of a garden "designer" also emerged for the first time in Brazil in the person of Mestre Valentim, sculptor, architect and, in this case, urban planner of Colonial Rio, who was concerned with guiding the city's expansion, establishing conditions for communications beyond the future neighbourhoods of Flamengo and Botafogo, and projecting new streets like Belas Noites, now Rua das Marrecas, and Passeio, where the main entrance to the park stood.

Valentim designed this entrance gate, wrought in cast iron with rococo style decoration, highlighting the central motif of a bronze medallion with the coat of arms of the viceroy, Dom Luiz de Vasconcelos.

Inside the park, by the main gate, marking the entrance to the main avenue are two granite pyramids on a triangular base, characterised by marble medallions with the inscriptions, "For the love of the public" and "Nostalgia for Rio".

Passeio Público was made in the shape of an irregular hexagon, criss-crossed with a series of straight avenues planted like "streets lined with groves", all of them symmetrically positions with relation to the central axis.

Rua das Belas Noites was inaugurated as an "extra mural" extension to this central axis, introducing certain principles of spatial organisation from French gardens.

To this end, Mestre Valentim created an axis, with Marrecas fountain, designed by him, at one end, which gave way to Rua das Belas Noites, and at the other a sculpted architectural structure reproducing a mound of stone and vegetation on a bronze base with two entwined alligators.

This structure, which was named Amores fountain, was bordered by stairways which led onto a terrace, offering a splendid view of Guanabara Bay. From here, on the opposite side the fountain were the so-called Bica do Menino, with two pavilions, built at either end and lined with a decoration of shells and bird feathers.

According to José Mariano Filho the choice of shrubs and trees which bordered the geometrical lines of the park's gardens "obeyed the essential principles for the composition of tropical gardens", with mango trees, jack trees, tamarind trees, jambeiros (*Myrtaceae*), bread fruit trees, cedars, palm trees, and trellises for rose bushes, passionflowers and other climbing plants.

These newly planted areas, which consisted almost entirely of non-native species, made Passeio and its immediate surroundings a shady retreat, quite unlike the rest of the city centre, where the streets, plazas and squares were barren spaces bereft of vegetation.

After a violent storm that caused great damage to the park in 1817, it entered a period of decline that was only halted in 1860, when Dom Pedro II, emperor of Brazil, decided to reform it. He invited the "Inginieur dês Eaux ef Fôrets", Auguste François Marie Glaziou, to the city, a man who was to take the lead in several landscaping projects in Rio de Janeiro city, leaving incontestable testaments to his great capacity, competence and talent.

Glaziou produced a radical proposal for the transformation of Passeio Público. The only features of Valentim's original work to be maintained were the beautiful entry gate, the pyramids of Rio granite with details in Lioz stone, Amores fountain with the stairways leading to the terrace.

The original contours were completely altered to give way to winding paths and a curvaceous water course flowing into a lake, all adorned with rocks, grottos and artificial branches, so beloved of the English garden "accepted throughout the world to be the most natural, most free and that which invokes most agreeable and complete illusions", according to the report of Rio author Joaquim Manuel de Macedo, in his book *Passeio pela cidade do Rio de Janeiro*.

Curiously the Frenchman Glaziou substituted the French-style garden of Passeio Público, which had been designed by the Brazilian Mestre Valentim, for another, in the English style.

Regarding the garden style introduced to the Passeio Público that he calls the "landscape garden", Manoel de Macedo tells us:

"*The three ideas which should be demonstrated dominating this work are the choice of wondrous and rare trees and plants; the care of bringing together in the limited space of the garden diverse natural delights reproduced on a small scale; and finally the meticulous observation of the laws of perspective arranging of the trees in such a way that the eye of the beholder may extend into the distance and enjoy, even beyond the limits of his walk, the admirable panoramas of picturesque sights which grace the city of Rio de Janeiro*".

The contemporary press strongly criticised this alteration in the choice of the plants to be grown in the park. However, another writer Moreira de Azevedo (1832-1903), strongly defended it, judging it necessary "to plant other more curious ones [species] and give the garden a new appearance".

On weighing up the results, even taking a more severe view of Glaziou's landscaping proposal for Passeio Público, casting doubts on him from an ethical point of view or with respect to the city's own history, it must be concluded that his contribution to Rio de Janeiro was magnificent. Two of his finest works to support this argument are Quinta da Boa Vista Park and Campo de Santana.

These two parks, built in the 19th century, have certain similarities, their essential differences notwithstanding. In both of them the landscape architect introduced species of African and Indian origin, considerably broadened the contemporary mosaic of cultivated plants in current usage, by employing scents and associations of vegetation which were morphologically compatible and ecologically adapted to a landscape, of which he captured the rhythms, the textures and the distributions of the vegetation in a surprising way.

Glaziou demonstrated great knowledge not only in the composition of plants in the areas he planted, but also in his way of organising the constructed topography of his parks by means of remodelling the terrain in a way which reminds us of another master of this art in the context of English gardens: Sir Lancelot Brown, or simply "Capability" Brown.

The origin of Quinta da Boa Vista was the Quinta do Elias, the country house of the Portuguese merchant Elias Antônio Lopes who, in 1808, donated his property to the Prince Regent Dom João, when the Portuguese Court arrived in Brazil. In 1816 it became the official residence of the court after its grounds had been expanded and it had undergone successive reforms to improve its state of repair.

During his reign, Dom Pedro I made important alterations to the site, such as creating streams and lakes, planting more trees, including the introduction of fruit trees, and beginning the implantation of the Botanical Garden.

In 1860, Dom Pedro II commissioned Glaziou to undertake the project of reforming Quinta da Boa Vista. The shape and landscaping features he introduced to the grounds have survived to this day.

Among all the aesthetic and environmental qualities of Quinta, we could not fail to mention the magnificent manner in which a particular Brazilian species, the Sapucaia (*Lecythis pisonis*), is highlighted by using it in a long avenue created by the landscape architect which links the main entrance gate to the palace. The Avenue of Sapucaias, specially admired in their flowering season, in September and October, is without any doubt one of the most important features of the park and one of Glaziou's notable contributions to Rio de Janeiro's planted landscape.

Inside the Quinta, Glaziou created gardens with winding paths, creating a sense of movement that nonetheless maintains the original relief of the terrain, with its dips and hillocks. He also introduced a mixture of exotic and native plant species that co-exist in perfect harmony: the fig trees from Africa and tamarind trees and flamboyants from India grow alongside local species like paineiras (*Ceiba speciosa*), Pau de Ferros (*Caesalpinia ferrea*) and species from other parts of Brazil, like Abricó de Macaco (*Couroupita guianensis*), Ortizeiro and Juazeiro (*Ziziphus joazeiro*).

Today, Quinta da Boa Vista is a popular park that has several recreation facilities. It has paved roads, avenues and footpaths that cross the park, leading its visitors to every corner of the grounds. Within the park there are unusual constructions, like the Japanese pagoda on a bank beside the lake, or the Temple of Apollo near a Carrara marble statue known as "The Grouping ". The park's statue collection includes busts of Glaziou and José de Alencar, and the statues of Dom Pedro II and Empress Leopoldina.

Quinta da Boa Vista also contains the National Museum and the Zoological Gardens. The latter, founded in 1888 and installed in Vila Isabel, was partially transferred to Quinta da Boa Vista in 1945. It continued to grow and evolve, and in 1985 it became the Rio-Zoo Foundation, with an independent administration, although it is still subordinated to the City Council. The zoo houses one of the richest collections of fauna in Brazil.

Campo de Santana park, an exceptional open space for the city in the 19th century, known at the time as Campo da Cidade before being redesigned by Glaziou, was an area for many activities, holding a great variety of installations which ranged from an amphitheatre for public horse-riding and bull-running festivals to a city military barracks, thus attending the military aspirations of the Portuguese court.

In spite of all this the Campo never lost its characteristic as a space for leisure. It was a venue for royal parties, where all the pomp of the court and the Brazilian imperial family was on public display. Indeed, it was probably the success of these festive events which inspired the proposals to improve its area, one of which was submitted by Grandjean de Montigny but never carried through, to create a "place royale" in honour of Dom Pedro I.

The Campo da Aclamação, as Campo de Santana was also known during the monarchy, or Campo de Honra, as it was known during the regency, was always a centre of the urban life of the time. It was an area that drew the population together for social gatherings,

particularly during the festivals in honour of the patron saint celebrated on 26th July in the church that lent its name to the park. Taking on the characteristics of a great square, it filled up with the faithful and the different segments of society, mixing the function of religious rituals with entertainment and socialising.

In 1873 Glaziou designed and began executing the Campo de Santana gardens. They were inaugurated seven years later, on 7th September 1880. In order to understand the atmosphere prevailing at Campo de Santana at that time, we reproduce below a description written by a former German soldier, Carl Von Koseritz (1830-1890), who had moved to Rio Grande do Sul state and worked as a journalist:

"The whole space is covered by the park with the exception of the wide avenues, which cross it in all four directions. Thus you can have an idea of the size of this garden, which is encircled all the way round by a granite wall topped by decorative iron railings. Numerous wide paths, covered with fine sand, cross the park; beautiful trees and groups of shrubs of the most rare and beautiful kinds are scattered around the lawns; little lakes and streams flow in all directions crossed by bridges made of stone sculpted in the form of tree trunks; there are beautiful islands of stone covered with exotic vegetation in the midst of the waters; bronze tritons shoot crystalline fountain into the air; swans cross the waters; here and there stone pedestals crowned with statues and groups of figures indicate the shores of the lakes and canals: - in a word, all is beautiful and magnificent, but the most sublime is this great stone creation from the top of which sprouts a wonderful waterfall, which falls into a stone basin, where golden fish swim in complete comradeship with young ducks. A narrow passage leads to the entrance of a great cavern, which takes up the whole of the inside of the rock, gleaming with beautiful crystals, while enormous stalactites descend from the roof. The inside of the cave from which the waterfall descends is beautiful, and the whole really causes an impression of grandeur."

The trees of this English-style garden deserve special mention, with specimens of notable species, trees of great stature, and particular emphasis on the *Moraceae* family. Chief among the fig species planted by Glaziou are *Ficus religiosa*, with its immense trunks and superb root system, *Ficus cannonii*, with its bronzed leaves, *Ficus microcarpa* and *Ficus elastica*. There are other large trees in the park, including jequitibás (*Carimiana estrellensis*), jack trees (*Artocarpus heterophyllus*) and xixás (*Sterculia foetida*).

Campo de Santana harbours various cultural features, such as French fonts and fountains made of cast iron, and four statues in

Carrara marble representing the four seasons and another called the Neapolitan Fisherman. Two buildings stand out among the park's luxuriant foliage: Campos Sales municipal school and the building which houses the Parks and Gardens Foundation (Fundação Parques e Jardins), both listed by the local authority.

Campo de Santana with its lakes, bridges, and the grotto of the waterfall is a park of wellbeing, a place for rest and contemplation where the observation of animal species and the trees are the main attractions. It is part of the historical area of the city known as the Cultural Corridor, which was listed in 1968, at the state level, owing to its cultural and historical importance.

As at Quinta da Boa Vista, there are many animals and birds at Campo de Santana, including columbine doves, great kiskadees, humming birds, and the special annual visits from the northern hemisphere of peregrine falcons. Wild duck and Asian peacocks can also be seen in the lakes and on the lawns.

Starting in 1874, Glaziou was responsible for the landscape projects for Tijuca Forest. This forest is part of Tijuca National Park, which covers 3,360 hectares and is entirely within the city perimeters. Besides direct contact with nature and its impressive vegetation, it offers its visitors an agreeable climate, a large variety of walks along its footpaths and a road system crossed by the coast.

For two centuries, its forests were cut down to make way for various kinds of farming, predominantly coffee plantations. It was only in the mid 19th century that the imperial government decided to take a stand with regard to the recovery of Tijuca Forest's vegetation. This was owing to the decadence of the coffee plantations and other farming, and in face of the problems being caused to the city's water supply by deforestation around the water springs.

A Major of the National Guard, Manuel Gomes Archer, was responsible for reforesting the Tijuca region. Over 13 years, some 80,000 trees were planted, recuperating the vegetation in the damaged areas. Later on, in 1874, Colonel Gaston Robert d'Escragnolle was put in charge of continuing Major Archer's work and, with Glaziou's help, introduced gardens and other features, such as bridges, lakes and viewing points, very much in the style of the acclaimed French landscape designer. Around 35.000 trees were planted over this period, which lasted until the end of the empire.

It was only in 1944 that Tijuca Forest again received special treatment with regard to the maintenance and recovery of its vegetation and specially its undergrowth. This effort to improve it was thanks to the

presence of Raymundo Castro Maia, who, alongside landscape artist Roberto Burle Marx, gave Tijuca Forest its present character and spatial organisation.

Nowadays the area includes picnic areas, playgrounds and areas devoted to contemplating the surroundings. Agreeable walks or bicycle rides can be taken along the roads and paths, which date from the 19th century.

Three substantial peaks, well-known to rock climbers, emerge from Tijuca Forest: Pico do Papagaio, Pico da Tijuca and Pico do Conde. They give breathtaking views of the Jacarepaguá lowlands round as far as São Conrado district.

At Pedra Bonita there is a ramp for hang-gliding, from whence the enthusiasts of hang-gliding and paragliding can glide down to São Conrado beach.

Tijuca Forest has a considerable collection of cultural artefacts, chief among which are Mayrink Chapel, with its murals painted by Portinari, the Açude Museum, where Esquilos restaurant operates, the ancient country seat of the Brazilian Horse-Riding Society (Sociedade Hípica Brasileira), which was in bygone times the residence of the Baron of Bom Retiro, Major Archer's former slave quarters, and the watch towers and gates of the Açude Solidão and that of Cascatinha.

This area is distinguished for its variety of natural features and lush vegetation. The former include Paulo and Virgínia grottos, Açude Solidão reservoir, Cascatinha waterfall and the Fadas (or "fairy") lake. As for the trees, there are a number of Brazilian species, including the jequitibá, sapucaia, pau ferro, paineira, caviuna (Brazilian rosewood), cedar and various species of ipês. The trees form a dense, varied canopy, where some new species are beginning to appear; this means the secondary forest has already reached a very advanced stage of regeneration.

Another important event of a scientific nature that affected the landscape and was unprecedented in the city's history took place in the early 1800s, more precisely in 1809, when the first regent, the future Dom João VI of Portugal, founded the Royal Botanical Garden, which are now the Botanical Garden of Rio de Janeiro. The creation of a "terrain necessary for the establishment of an acclimatising garden, destined to introduce the culture of spices from the East Indies to Brazil in June 1808, was the starting point for the Royal Garden, which was extended in 1819 upon the creation of the Royal Botanical Garden, with a street gaining the same name. The imperial palm trees that now line the whole of the front of the Botanical Garden were nurtured in this garden devoted to the acclimatisation of non-native plants.

In a country marked by such a diversity and quantity of flora, the Botanical Garden of Rio de Janeiro are unquestionably a major milestone in the history of this country, having become a respected centre of scientific research, where specimens of flora are cultivated and classified for the knowledge of present and future generations.

Dom João went back to Portugal in 1821, but Don Pedro I continued his father's projects, opening the Botanic Garden to the public for guided tours by experienced gardeners. In 1824, botanist Frei Leandro was appointed the director of the gardens. Indeed, he was the first of a long line of naturalists and conservationists to run the institution, who greatly contributed towards making this place for admiring the natural environment a centre for research and study of tropical flora.

Among the various administrators who deserve mention for their contributions towards this important institution were some of its most eminent directors, including Barbosa Rodrigues, Campos Porto, Pacheco Leão, Paulino Reitz and Wanderbuilt Duarte. Each in their specific area of expertise, the naturalists decisively contributed towards the formation of a rich and varied collection of botanical material, represented by national and international herbariums, much sought after by students of Brazilian flora and ecosystems.

The Botanical Garden of Rio de Janeiro should be understood as a repository of a great mosaic of tropical plants. Among the best-represented varieties of this flora are *Anacardiacea, Araceae, Bromeliaceae, Graminae, Leguminae, Liliaceae, Moraceae, Myrtaceae, Orchidadeae, Palmae* and *Lapindadeae*.

As well as the natural collection, the Botanical Garden organise special exhibitions of ornamental plants, which attract visitors from Brazil and different parts of the world, keen to learn about the valuable botanical collection there.

There are many pathways along which visitors can acquaint themselves with the treasures of the garden: the avenue of the imperial palms (*Roystonea oleracea*), the avenue planted with abricó de macaco (*Couroupita guiannensis*), or the avenue which leads to Lago Frei Leandro pond, where Victoria regias and other water lilies can be seen with a row of pau mulato (*Calycophyllum spruceanum*) nearby. Not far away is the waterfall, whose pathway is lined with pau brazil and another *Caesalpinaceae*, pau ferro. In the central avenue, there are Brazil nut trees (*Bertholletia excelsa*) and jequitibá (*Cariniana sp*).

In special areas of the Botanic Garden and in the hothouses there are several reconstituted habitats and collections of plants. For instance, there is the cetarium, which is filled with succulent plants from

various regions, the orchid house, built in the late 19th century, the bromeliad house and the hothouse of insect-eating plants. There are also groups of plants that represent different morphoclimatic zones of Brazil, such as the vegetation from the Amazon region or the coastal flora, especially sandbank vegetation. There are also remnants of Atlantic Forest vegetation within the gardens, providing a repository for the native fauna, which is attracted by the easy access to nutrients and water.

The Botanical Garden contain sculptures in cast iron of allegories representing poetry, science, music and art: the central fountain of Barbosa Rodrigues avenue, the statues of "Nymph Echo" and "Narcissus the Hunter", the bronze statue "Woman with Cornucopia", the "Sundial", and nearby the "Emperor's Table". There are also important architectural works inside the park, like Casa dos Pilões (House of Pestles) and the Levada Aqueduct, both from the 19th century, the Empress' house facing Rua Pacheco Leão, the buildings that house the administrative offices, and Pacheco Leão House which contains part of the botanic research.

At the beginning of the 20th century, Rio de Janeiro underwent a major urban overhaul, and the city received its first ever master plan, drawn up by French town planner, Alfred Agache. Probably under the influence of Agache himself, the squares and gardens began to be conceived or reformulated in accordance with French design precepts. Paris square, situated between the new roads created after Castelo Hill had been razed and the landfill of Guanabara Bay, is a good example of this trend which marked the landscaping projects of this period. Over the years, with successive interventions to reclaim land, Rio de Janeiro lost the first of its four hills, the landmarks of the original four-sided urban centre of the city, of which only São Bento and Conceição hills remain.

From the 1930s on, Brazil witnessed the rise of an extraordinary artist who, in his creation of landscapes, took his rightful place on the world stage as one of the most important individuals of the 20th century: Roberto Burle Marx. He was to revolutionise the ideas of his day in landscape design, not only through the pictorial and sculptural aspects of his work but also through his wholesale use of Brazilian plants and species in his landscape gardening.

His professional career began in 1932, thanks to Lúcio Costa, arguably Brazil's greatest urban architect, who invited him to create a garden for a house he had designed. This garden, the first in his long career, was followed by a series of other projects that confirmed he was possessed of an extraordinary sensitivity, skill and professional approach typical

of the visual artist, combined with knowledge of botany, the outcome of his great interest in plants from a young age.

In the 1940s he designed the gardens of the Palace of Culture, formerly the Ministry of Education, in the centre of the city, with its fine square containing paving stones which lead to the elevators and the exhibition hall and auditorium, the library building and the tall pillars which give the sensation of its being a great gateway leading across the square. The paving chosen for the area outside the Palace of Culture was cobblestone, or Portuguese mosaic, a material that Burle Marx would use extensively in other works, creating the designs that are the hallmark of his work.

The gardens, made on the basis of a judicious and refined selection of species, exploit the effect of big trees, especially a group of three imperial palm trees. Indeed, the trees are distributed in such a way as to emphasise their individual and collective textures, crowns, different shades of colour, and blossoms. As for the selection of plants and shrubs, Burle Marx exploits the variations of size, colour and type, making it quite new and unique if compared to other public gardens.

Special mention should also be made of the roof gardens beside the office of the then minister Gustavo Capanema, a great innovation at the time and result of the influence of the "toit terrasses" initiated by Le Corbusier.

The city centre contains a large number of varied Burle Marx gardens, situated in Largo da Carioca and Avenida Chile, which as a group create a successful landscape "continuum" which was concluded in the 1980s. These are the gardens of the Santa Teresa tram station, partially built on the roof of an underground garage, the gardens inside and outside the Petrobrás building, and their counterpoint on the opposite side of Avenida Chile, the gardens of the BNDES building, which are also on a residual fragment of Santo Antônio Hill, on which the convent of the same name stands. Largo da Carioca, with its open spaces for walking around, stopping, resting and watching the world go by, completes this group of green spaces as an area destined for events and widely used by all those who frequent the city centre.

Not far from this landscaped complex is Salgado Filho Square, built at the beginning of the 1940s in the area in front of Santos Dumont Airport, before Flamengo Park. As if it were the port of entry to Flamengo Park, it heralds with its collection of Brazilian species, an innovation in relation to the gardens of the time in its use of native flora, the great pageant of cultivated plants of the Aterro da Glória – Flamengo, better known as Flamengo Park.

This park, characterised as a "parkway", is unquestionably one of the most important achievements of Roberto Burle Marx. Professor Luiz Emygdio de Mello Filho, an eminent botanist, a close friend of the landscape designer and member of the working committee which installed the park, describes its innovatory character thus: "we are captivated by the liberty and fluidity of its lines, without any pandering to convention in its outline, the play of colours and forms with a comprehension similar to that applied by painters, and the use of volumes and textures almost in the manner of an artisan".

A mobile spectator moving through the fixed scenario of Flamengo Park, including walkers and cyclists, can delight in the contemplation of a unique landscape experience in which both native and exotic tropical trees intercommunicate, exhibiting an almost sculptural nature.

There is a mixture of trees and groups of vegetation from Brazil's natural and cultural landscape, in perfect harmony within this created space, reclaimed from the sea by man but luckily destined as a public utility and the aesthetic affirmation of a constructed landscape which is capable of paying homage to its dazzling surrounding landscape.

So great is the diversity of the vegetation contained in Flamengo Park that it would be exhausting or even boring to list the species that make up and embellish its floral mosaic. We have thus only chosen a few. *Bombax malabaricum*, for its spectacular scarlet blossoms, and *Pseudo bombax elipticum,* which has an abundance of reddish-violet flowers.

For their magnificent presence and as a reference to Glaziou's work, the "naturalised" and native fig trees that grace the Rio de Janeiro landscape, like *Ficus cattapaefolia*, *Ficus clusiaefoliae* and *Ficus lyrata*.

Big groups of the *Cocoloba uvifera*, the abricó of the beach or *Mimusops curiacea*, the cotton tree of the beach, *Hibiscus tilliaceus* and the almost tree *Terminalia cattappa* that is now so common, can be seen in the areas with a greater marine influence.

Nor can we fail to mention here the *Pthecolobium tortum,* a tree which is the theme of so many of the landscape gardener's illustrations, and which stands out due to the whiteness of its trunk and its strange shape.

The native and non-native palms grant a vertical dimension to the landscape composition in a sculptural manner, standing out in an expressive way and along with the other trees in the park affirming the importance of the ever-present vegetation in Brazilian landscapes.

Among the Brazilian palms are the guriri – *Algoptera arenaria*,an

acaule species of the Rio restingas, the baba de boi - *Arecastrum romanzoffianum* of the swamp woods, the acrocomia – *Acrocomia selerocarpa*, the guarirova – *Syagrus comosa*, coqueirinho do campo – *Syagrus campestris* and butiá – *Butia sp*.

Among the exotic palm trees many of which can today be considered "naturalised", like *Chrysalidocarpus lutescens*, present in large groups in the Park and *Coccos nucifera*, our very well-known coconut tree, we cannot fail to exalt the African palm *Corypha umbracullifera*, with its vigorous aspect and huge, fan-shaped leaves, which only flowers and bears fruit after some 50 years.

Inside the park there are individual gardens, key among which are the gardens attached to the Museum of Modern Art, which should be considered and understood without any doubt as an extra mural work of art, to be included in the museum's collection.

While the fauna to be encountered in Flamengo Park is not its main attraction, there are many wild birds, especially as many species are attracted to the park from other green areas.

The park is well equipped, and its football pitches and other sports facilities are always busy, day and night. The artificial beach is an integral part of Flamengo Park, providing an important leisure area with a varied space to be enjoyed by the locals in search of open-air relaxation and recreation.

Affonso Eduardo Reidy, architect, city planner and member of the Working Committee, chaired by the extraordinary Lota de Macedo Soares, who was responsible for the park as a whole, from the original proposal to the end of its installation, left as his contribution buildings which are today considered important references of Brazilian modern architecture: the Museum of Modern Art, with its graceful footbridge, the Japanese pavilion, the Arena Theatre and the Bandstand.

Other important constructions which are part of the park's scenario today are the Marina da Glória seafront and the former Rio's restaurant, which is today occupied by a steak house, a prestigious addition to the city's gastronomic circuit.

Inside Flamengo Park two important monuments can be visited: the National Monument to the Dead of the Second World War – a project by architects Hélio Marinho and Marcos Konder – and the Estácio de Sá Monument by Lúcio Costa. The Guahtemoc monument, given to Rio de Janeiro city by the Mexican government, is situated in an area adjacent to the park in which it is visually integrated by the landscape design of the surrounding square.

Leaving Flamengo Park towards Copacabana, there is a garden on Praia de Botafogo in the central reservation of the road that traverses the park. It was built in the 1950s, during the administration of Mayor João Carlos Vital, when the Director of Parks and Gardens was the botanist Luiz Emygdio de Mello Filho. Burle Marx, who was already nationally and internationally renowned, was invited to prepare the project for the gardens, with the collaboration of Professor Luiz Emygdio for the botanical aspects. They occupy a strip that is almost one kilometre in length, all along the beach widening out as it reaches the Pasmado tunnel.

Respecting the characteristics of a "parkway", it created visual segments made up of groups of vegetation of a particular and varied nature, with the plants and shrubs highlighting the hues and volumes of its component parts. However, it is the park's trees that are best admired today and which have stoically withstood a series of actions that have modified the nature and intention of the original project. Groups of *bombacaceae* and the line of fig trees that has been preserved from the gardens adjacent to the linear park can still be seen, as can the groups of arecas, collections of *pandanus* and *cycadaceae*, the *Dracaenas arboreas*, the *erythrinas* and other trees which pinpoint and give reference to this important linear park for the city.

The length of Copacabana beach, with its magnificent cobblestone mosaic designs conceived by Burle Marx as a long panel, can be considered a true kaleidoscope of visual sensations which it affords to the visitors and inhabitants of the district. In this fantastic pictorial work, the author demonstrates his unrivalled capacity to scale up his drawings into the landscape.

In Leme, Almirante Júlio de Noronha square brings to an end the Copacabana promenade, where the landscaper used the same abstract design as for the rest of the seafront, assuring the continuity, unity and integration between the two districts.

One cannot speak of Burle Marx and his influence on Rio de Janeiro without mentioning the core of his life's work: Santo Antônio da Bica estate in Barra de Guaratiba. Those who visit this harmonious, balanced micro-cosmos, product of the creative will of an exceptional artist, have the opportunity to understand the full dimension of his work and the materialisation of his landscaping proposals.

It was here that for most of his life Burle Marx exercised all his talents as collector and transformer of nature. He made his farm into his artist's studio, his laboratory of botanical experiments, the space for his creations and the stage for his art of living.

Whoever wishes to understand who this artist-landscaper was will find a clear, unequivocal answer upon experiencing his extraordinary landscaping journey, the reflection and mirror of his determined dedication to the art of transforming, creating, recreating and organising landscapes within the principle of aesthetic refinement typical of great masters.

The botanical nature of the estate deserves special mention, as it is expressed not only in the huge diversity of planted vegetation, but also in the housing of extraordinary collections of plants from the most diverse and varied tropical zones of the planet, on a par with the world's best Botanical Garden.

Burle Marx acquired his botanical knowledge through his professional relationships with friends and renowned botanists such as Mello Barreto, Luiz Emygdio de Mello Filho, and Graziela Barroso. His expeditions all over the country to broaden his knowledge of Brazil's rich and diverse flora transformed him from the very early stages from a militant conservationist to a determined defender and pioneer of the ecological movement in our country.

This affirmation is corroborated by the proposal he made together with Henrique Lahmeyer de Mello Barreto, who he called "my botany master", for Araxá Park in Minas Gerais state in 1943, which was to house significant samples of different morphoclimatic zones of Brazil.

Also of note is his proposal for the Biological Group of Coastal Lakes of the Federal District, published in the Municipal Engineering Review (January – March 1949) in which he affirms that, "The object of this group is to represent a natural association of animals and plants which was quite frequent on the ocean shore of Rio de Janeiro, which is formed primarily along the beaches."

The intention was to create an exhibition of aspects of Rio's nature, providing a synthesis of the habitats of different animal species which still exist on a much diminished scale or which have long since vanished from the region in an area of some 25,000 m².

In these two projects Burle Marx, showed quite clearly, back in the 1940s, that he was one of the pioneers in landscape work for the restoration of Brazilian ecosystems through eco genetic processes. Only one of these two projects was partially implemented in Araxá Park, but it is now completely unrecognisable.

His proposal for the Biological Group of Coastal Lakes of the Federal District was never carried through. Thus, Rio de Janeiro lost the opportunity of having an unprecedented model park of a truly ecological nature on the shores of Rio's lakes.

The lessons to be learnt from this project provide indispensable inputs today for all those who wish to make landscape intervention a means of mitigating impacts and an element of identity for our cultural landscape, in line with today's so controversial sustainable development.

Nevertheless, Burle Marx's ideas, concepts and guidelines can be found in 13km of projects for parks on the banks of the Tijuca, Jacarepaguá and Marapendi lagoon in Barra da Tijuca district of Rio and the Jacarepaguá lowlands. Of this total, about 6km of linear parks is already established in private grounds, like Rio Office Park, at Jacarepaguá Lake, and the Gleba. On the banks of Tijuca lagoon, Professor Mello Barreto and Fazenda da Restinga parks, part of the VIA PARQUE eco-project, are also open to the public.

The Municipal Ecological Park of Marapendi which is the most important landscape proposal of for Jacarepaguá lowlands and Barra da Tijuca, is planned to be created at Marapendi lagoon. Plans for the first unit, measuring 200,000m², have already been drafted and the bidding process for the park to be built is awaited, or else an offer of sponsorship or adoption by the private sector.

This park, in the Environmental Protection Area of Marapendi, is the most important conservation area in Barra da Tijuca district, as it covers almost six million square metres, half of which is the waters of Marapendi lagoon, while the other half is made up of the lines of dunes which border it to the north and south. The terrestrial part of the park is in a very poor state, although in certain stretches there are valuable remnants of the flora that covered the dunes and the lower reaches of the dunes in the Barra da Tijuca and Recreio dos Bandeirantes region.

Signs of regeneration of the native vegetation can also be noted, at various stages, in the more protected areas that are not so exposed to the environmental impacts that take place even within the boundary of the park.

Owing to its ecological objective, this park should be subject to an environmental landscaping project capable of conveying its fundamental goal, which is to return the former physiognomy of the coastal flora to these lowlands. The form of development employed to date has been responsible for the almost complete destruction of the surface structure of the regional landscape.

The maintenance, within the park's limits, of remnants of vegetation, typical of the primitive ecosystems, allied to the reintroduction of specific groups of vegetation native to these segments of the Atlantic

vegetation system, could be part of an urban landscape intervention that would be of supreme importance for the third millennium.

Without any doubt, the Marapendi Ecological Park has the potential of becoming a notable biotic experiment of supreme importance to the city, the state and the country. Above all it could become a gene bank for extensive use in the process of restoring landscapes that have been degraded or under threat of extinction.

Nearby, in an area of original sandbank vegetation on the sandy plain of Jacarepaguá, Chico Mendes Park retains the natural conditions of the site, while its paths allow visitors to discover the rich and diverse flora or reach the banks of Tachas Lagoon and its surroundings, whose preservation was the main aim of the park. Inside the park, there are areas of wetland and sandbank vegetation in excellent condition and with an appreciable diversity in all the strata of their vegetation. The yellow-throated alligator (*Caiman latirostis*), which is an endangered species, can be found in the swampy area, a natural habitat for amphibians and reptiles. The fauna is well represented by good zoological biodiversity and a variety of bird species.

Among the existing parks in Barra da Tijuca, another we could not fail to mention is Bosque da Barra, which is an important leisure area for the inhabitants of the districts of Barra da Tijuca and Recreio dos Bandeirantes. Near the junction of Avenida Ayrton Senna and Avenida das Américas, it contains patches of the vegetation that originally covered the beach ridges of the Jacarepaguá lowlands, which remain in a good state of conservation.

A mostly uniform stratum of low-growing shrubland predominates, but it also contains some rare and endangered species. Besides its typical sandy plains, it also contains swamps, peaty wetlands and wetlands.

In all the aforementioned parks in the Barra da Tijuca and Jacarepaguá areas, strong ecological planning is evidenced by the efficient action of the state and local environmental agencies, which have passed ever stricter environmental legislation that is enforced by means of the guidelines of the National Environmental Policies, from CONAMA resolution 01/ 1986.

The Environmental Protection Areas, the Biological Reserves, the protection provided by the Brazilian Magna Carta of the mangroves, and the parks which have been formed in the region in recent years by the public and private sectors, all represent the materialisation of the ideas and dreams of Magalhães Corrêa, Berta Lutz, A. J. Sampaio and Roquete Pinto in the 1930s, the young Brazilian scientists of the 1950s

Adelmar Coimbra, Alceo Magnanini, Haroldo Strang and Henrique Coimbra, and the author of the Pilot Plan, urban planner Lúcio Costa.

The landscape interventions which have already been undertaken, are underway, planned, or are merely the object of future deliberation, help ensure the taking of appropriate human actions, an integral part of a cultural landscape, for the recuperation of the components, groups and even individuals which compose the original ecosystems.

Through this process, localities, sites and regions are restored, conserved and preserved, while their original features and the specific landscape identities of the coastal region of Rio de Janeiro are maintained.

In the last few years we have perceived that the authorities involved with the environment and the quality of the landscape in Rio de Janeiro have demonstrated special attention and care in relation to the extension and protection of the green areas of the city through the creation of Environmental Protection Areas and new Conservation Units.

Furthermore, the private sector has taken concrete actions, in tune with modern trends, which have contributed to the creation of important private parks or helped recuperate areas of public land bordering on the lagoons, in partnership with public authorities.

In this text, we have presented only a few of the parks that are part of our landscape and our history.

There are many others that could be, or deserve to be, or definitely should be mentioned here and described, owing to their beauty, their originality or their intrinsic qualities.

I leave them to be discovered by those who come to visit us and be welcomed by the Marvellous City, with all its delights and its renowned hospitality.

Rio de Janeiro, 19th March 2001

Fernando Magalhães Chacel

VII.C. THE FORM AND DATE OF THE MOST RECENT DOCUMENTS CONCERNING THE PROPERTY

1. DECREE OF IPHAN Nº 127 ON 30 ABRIL 2009 – establishes the designation of Brazilian Cultural Landscape, considering:

the disposition of Law nº 25, on 30th November 1937, which regulates the conservation of national historical and artistic heritage, in Legal Decree nº 3.866, of 29th November 1941, which regulates the listing of heritage in the Service of National Historic and Artistic Heritage, in Law nº 3.924, of 26th July1961, which regulates archaeological and pre-historic monuments, and in Legal Decree nº 3.551, of 4th August 2000, which nominates the registry of immaterial cultural heritage, and the City Statute;

that Brazil is author of documents and signatory of international letters recognising the cultural landscape and its features as cultural heritage and lauding its conservation;

that the intellectual concept of the Brazilian Cultural Landscape is based on the Constitution of the Federal Republic of Brazil of 1988 (Constituição da República Federativa do Brasil de 1988), according to which the cultural heritage consists of both material and immaterial properties, considered individually or as a group, bearing references for the identification, the actions, or the memory of the different formative groups of Brazilian society, in which can be included forms of expression, ways of creating, doing and living, scientific, artistic and technological discoveries, works of art, objects, documents, buildings and other spaces used for artistic and cultural events, urban groupings and historical, landscapes, artistic, archaeological, paleontological, ecological or scientific sites; ways of life and local traditions which may be put at risk by the contemporary tendencies of urban expansion, globalisation and massification of urban and rural landscapes all over the planet;

the necessity for administrative and institutional actions and initiatives for the preservation of complex cultural contexts, which include section of national territory is emphasised by the particular interaction of man with his natural habitat;

that the recognition of cultural landscapes is praticed all over the world in the interests of heritage conservation and that its adoption leads to the inclusion of Brazil among those nations with institutional protection of the body of factors which compose their landscapes;

that the designation of Brazilian Cultural Landscape stimulates and motivates the human action which creates and expresses the cultural heritage and harmonious interaction with nature, stimulating the affectionate dimension with the territory and holding the premiss of the quality of life of the population; that the valid legal instruments dealing with natural and cultural heritage, individually applied, cannot completely account for the totality of factors implicit in cultural landscapes.

By means of an administrative process opened by IPHAN, the Executive Committee for the Nomination of Rio as World Heritage, composed of members from the three spheres of government, private enterprise and members of civic bodies, requested an examination by IPHAN in May 2009 for the designation of the Rio de Janeiro Landscape, as a Brazilian Cultural Landscape. National recognition was one of the steps for cementing the alliance between the bodies involved in the shared management of the Site and for the recognition of Rio's cultural landscape as World Heritage.

2. DECREE OF IPHAN Nº 2, 15th JANUARY 2009 - Creates the Technical Committee establishing directives and concepts for the elaboration of the technical dossier for the Nomination of the City of Rio de Janeiro as World Heritage. In this decree, the Technical Committee takes on the following powers:

I – to establish the concepts and technical directives which inform the elaboration of the dossier for the nomination ;

II - accompany the work of experts in various fields, who will collaborate on the elaboration of the technical dossier for the nomination;

III - establish the directives for the shared management of the area defined for the nomination

IV - apply the analysis of the parametres for town-planning and conservation of the area defined for the nomination;

V - propose the revision deemed necessary of parametres for town-planning and conservation of the area defined for the nomination;

VI - contribute with the elaboration of a management plan for the area defined for the nomination together with the experts under contract for the development of this work.

The Technical Committee which has been working for the nomination since January 2009 was composed of:

I - One representative of the Material Heritage Department and the Inspection of IPHAN and a respective substitute;

II - One representative of the Regional Superintendence of IPHAN in Rio de Janeiro and a respective substitute;

III - One representative of the Chico Mendes Institute and a respective substitute;

IV - One representative of the State Government of Rio de Janeiro and a respective substitute;

V - One representative of the City Council of Rio de Janeiro and a respective substitute;

VI – One representative of the Research Institute of Rio de Janeiro Botanical Garden

3. TERM OF TECHNICAL COOPERATION – signed on 4th May 2009 between the Ministry of Culture of Brazil, the National Institute for Historical and Artistic Heritage (IPHAN), the State Government of Rio de Janeiro, the City Council of Rio de Janeiro, the ABC Group / Association of Business Friends' of UNESCO and the Roberto Marinho Foundation. One of the aims of this Agreement the mutual cooperation beween the parties for the purpose of creating an Institutional Committee, to support the nomination of the city of Rio de Janeiro as World Heritage and the undertaking of the necessary actions for elaboration of a Management Plan for the Site.

4. MANAGEMENT PLAN FOR TIJUCA NATIONAL PARK – established in 1981 and revised in 2008, in accordance with the directives of the National System of Conservation Units of the Brazilian Government.

5. ADMINISTRATIVE PLAN FOR THE BOTANICAL GARDEN OF THE CITY OF RIO DE JANEIRO - in 2002 the Brazilian Institute of Municipal Administration (IBAM) acted as assessor to the Botanical Garden in the elaboration of an administrative plan, which was updated in 2009. This task consisted in the identification of the present conditions of use and occupation of the territory through actions developed over the last six years, emphasising the Botanical Garden' relationship to the city and its internal organisation for the conservation of its landscape and its scientific, natural, archaeological, historical and cultural values.

6. LAW FOR THE REVISION OF THE ADMINISTRATIVE PLAN FOR THE CITY OF RIO DE JANEIRO: - Amendments to Municipal Executive Power – proposals to include the concept and underline the importance of the landscape among the guiding principles and application of town-planning policies in the City

MODIFICATION AMENDMENT Nº 1

Paragraph I do Art. 2 becomes law in the following terms:

"I. Conservation and protection of the environment, the landscapes and the natural and cultural heritage in the process of the City's development;"

ADDITIONAL AMENDMENT Nº 2

Art. 2 becomes law including paragraphs §1, §2, §3 e §4, in the following terms:

"§ 1. Landscape is here taken to signify the interaction between culture and the natural environment, expressed in the spatial arrangement which results from the juxtaposition of natural, social and cultural elements, and the physical traces of actions, demonstrations and forms of human expression.

§ 2. The landscape of the City of Rio de Janeiro represents the most valuable economic property of the city, responsible for its recognitIon as a universal icon and its inclusion in the country's touristic economy, generating employment and income.

§ 3. The landscape heritage of the City of Rio de Janeiro includes not only the landscapes with excepcional features, but also the landscapes resulting from popular expression and action.

§ 4. The visual access to the landscape of the City of Rio de Janeiro is an unalienable right of this and future generations."

These amendments were sent to the City Council for approval.

7. MUNICIPAL DECREE N.° 30.542, OF 18TH MARCH 2009 - creates the Comittee for Environmental Control of the Marítime Coast with the object of:

I - Improving the town-planning and environmental quality of the city´s marítime coast;

II - establishing the quality control indices of the maritime coast;

III - supervising the monitoring of parametres for the quality of the maritime coast;

IV - organising and controlling economic, sporting, touristic and leisure activities carried out or or situated on the coast.

MUNICIPAL DECREE 26.578 OF 1ST JUNE 2006 defines Sugar Loaf and Urca hill as a natural monument measuring 91.5 hectares, considering:

the listing of Sugar Loaf and Urca hill in 1973 by SPHAN by process 869-T/73, included in items 52, 53, 54 and 58 of list of archaeological, ethnological and landscape heritage on 8th August 1973;

Law 9.985 of 18th July 2000 and Decree 4.340 of 22nd August 2002, which establishes and regulates the National System of Natural Conservation Areas (SNUC);

Decree 1.446 of 2nd March 1978, which approves PEU 001, on the preservation of the landscape formed by Sugar Loaf and Urca and Babilônia hills;

Decree 322 of 3rd March 1976 (art.163), which establishes that all areas of Sugar Loaf and Urca hill over 60m above the contour line be included in ZE-1, as per the town planning legislation;

recognition of Sugar Loaf and Urca hill as tourist sites attracting national and international visitors, with singular importance to the history of Rio de Janeiro;

that these areas have unique natural, geomorphological and ecological features, including numerous endemic, rare and threatened species.

REPORT: FLAMENGO PARK – SURVEY OF TREE SPECIES – undertaken in 2008 by landscape designer Denise Pinheiro da Costa Monteiro, with the support of Burle Marx e Cia Ltda, hired by the Rotary Club of Rio de Janeiro, with the purpose of gathering data for the future recuperation of the park's plant life. The original copy of the report is kept at the Rotary Club in Flamengo.

MUNICIPAL DECREE 30936 OF 4TH AUGUST 2009 establishes the provisional listing of 84 landscape designs by Roberto Burle Marx in the city of Rio de Janeiro, 29 of which are in the site or its buffer zone.

10. AMENDMENT TO THE COOPERATION AGREEMENT of 28th August 2007 for the shared management of Tijuca National Forest, signed between the Chico Mendes Institute for the Conservation of

Biodiversity (ICMBio), the Rio de Janeiro State Government, Rio de Janeiro City Council, Comlurb, and Empresa Municipal de Vigilância S.A., with the mediation of the Ministry of the Environment.

VII.C.1. HISTORIC DOCUMENTAL SOURCES

1. Directive 577 of 11th December 1861, creating the administration of Tijuca and Paineiras forests

"His Majesty the Emperor shall approve the following provisional instructions for the planting and conservation of Tijuca and Paineiras forests.

Art. 1. In the national territory of Tijuca and Paineiras, the regular planting of trees shall be established.

Art 2. This tree planting shall especially be done in the clearings in the existing forests at the aforementioned sites, using saplings, for which nurseries for new plants must be established at the places chosen for this.

Art.3. The trees shall be planted in straight lines, parallel to each other, with lines running perpendicular to each other. The work shall start from the banks of the springs outwards to each side, with a distance of 25 palms between one tree and the next.

Art.4. The saplings to be used shall be no less than three years old and no more than 15 years old, and may be collected from the Paineiras forest and planted at the appropriate season.

Art.5 There shall be one Administrator at Tijuca forest and another at Paineiras forest to run this service, who will receive a monthly wage of 90$000.

Art. 6. Together with these employees there will be one superintendent per forest, who will be particularly responsible for choosing and planting the saplings, who will receive a daily wage of 2$000, plus as many manual labourers as are deemed necessary for the work, who will receive a daily wage of 1$500.

Art. 7. The General Inspector of Public Works may, for this task, employ some of the slaves of the nation who may be available as manual labourers, who shall receive 100 *réis* a day plus food and clothing.

Art.8. It is the responsibility of the administrators, superintendents and manual labourers of the forests to prevent any damage to the trees, and arrest and take to the nearest police authority for prosecution any person caught in such act.

Art.9. All care shall be taken to conserve the roads that cross or come to cross the forests, preventing the entry of any individual who is not properly authorised with the necessary licence, whether or not they intend to hunt, and inspecting them to ensure they are not hiding malefactors.

Art.10. The administrators will be appointed by the Ministry and Secretary of State for Agriculture, Trade and Public Works; the other employees shall be appointed by the General Inspector of Public Works of the Municipality of the Court, and also dismissed by them according to the requirements of the job.

(...)

Art.16. It is expressly forbidden for timber of any nature to be felled, for which enforcement the administrators, forest wardens and other employees shall be responsible. (...) Rio de Janeiro Palace, 11th December 1861. Manoel Felizardo de Souza e Mello."

2. *Report by the Department of Agriculture, Trade and Public Works submitted to the General Legislative Assembly at the 2nd session of the 11th Legislature by the respective Minister and Secretary of State Manoel Felizardo de Souza e Mello*. Rio de Janeiro: Universal de Laemmert, 1862.

3. *Report submitted to Manoel Felizardo de Souza e Mello, State Advisor, appointed Minister and Secretary of State for Agriculture, Trade and Public Works on 31st March 1862 by the Director of Agriculture, Trade and Industry, José Agostinho Moreira Guimarães*. Rio de Janeiro: Paula Brito

4. "Report on the evil of coffee plantations" In: *Report submitted to Manoel Felizardo de Souza e Mello, State Advisor, Minister and Secretary of State for Agriculture, Trade and Public Works on 31st March 1862 by the Director of Agriculture, Trade and Industry, José Agostinho Moreira Guimarães*. Rio de Janeiro: Paula Brito, 1862.

5. "Contract with the Fluminense Institute of Agriculture to administrate the Botanical Garden and Report to the President of the Same Institute", In: *Report submitted to Manoel Felizardo de Souza e Mello, State Advisor, Minister and Secretary of State for Agriculture, Trade and Public Works on 31st March 1862 by the Director of Agriculture, Trade and Industry, José Agostinho Moreira Guimarães*. Rio de Janeiro: Paula Brito, 1862.

6. *Report to be submitted to the General Legislative Assembly during the 3rd Session of the 11th Legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works, Pedro de Alcântara Bellegarde*. Rio de Janeiro: Perseverança, 1863.

7. Report submitted to General Pedro de Alcântara Bellegarde, of the Council of S.M., Minister and Secretary of State for Agriculture, Trade and Public Works, by the Director of the Department of Agriculture, Trade and Industry, José Agostinho Moreira Guimarães. Rio de Janeiro: Perseverança, 1863.

8. "Letter by Advisor Francisco Freire Allemão on the evil of the coffee plantations," In: *Report submitted to General Pedro de Alcântara Bellegarde of the Council of S. M., Minister and Secretary of State for Agriculture, Trade and Public Works, by the Director of the Department of Agriculture, Trade and Industry, José Agostinho Moreira Guimarães*. Rio de Janeiro: Perseverança, 1863.

9. Report submitted to the General Legislative Assembly at the 2nd session of the 12th Legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works, Domiciano Leite Ribeiro. Rio de Janeiro: Paula Brito, 1864.

10. Report submitted to the General Legislative Assembly at the 3rd session of the 12th legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works, Jesuíno Marcondes de Oliveira e Sá. Rio de Janeiro: Universal Laemmert, 1865.

11. Report submitted to the General Legislative Assembly at the 4th session of the 12th Legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works, Antonio Francisco de Paula Souza. Rio de Janeiro: Perseverança, 1856.

12. Report submitted to the General Legislative Assembly at the 1st session of the 13th Legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works, Manoel Pinto de Souza Dantas. Rio de Janeiro: Perseverança, 1867.

13. Report submitted to the General Legislative Assembly at the 2nd session of the 13th Legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works, Manoel Pinto de Souza Dantas. Rio de Janeiro: Diário do Rio de Janeiro, 1868.

14. Report submitted to the General Legislative Assembly at the 1st session of the 14th Legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works, Joaquim Antão Fernandes Leão. Rio de Janeiro: Diário do Rio de Janeiro, 1869.

15. Report submitted to the General Legislative Assembly at the 2nd session of the 14th Legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works, Diogo Velho Cavalcanti de Albuquerque. Rio de Janeiro: Universal de E. & H. Laemmert, 1870.

16. Report submitted to the General Legislative Assembly at the 3rd session

of the 14th Legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works, Theodoro Machado Freire Pereira da Silva. Rio de Janeiro: Universal da E.& H. Laemmert, 1871.

17. "Imperial Fluminense of Agriculture Annex C". In: *Report presented to the General Legislative Assemble at the 3rd session of the 14th Legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works, Theodoro Machado Freire Pereira da Silva*. Rio de Janeiro: Universal da E.& H. Laemmert, 1871.

18. Report submitted to the General Legislative Assembly at the 4th session of the 14th Legislature by the Minster and Secretary of State for Agriculture, Trade and Public Works, Baron of Itaúna. Rio de Janeiro: Universal de E.&H. Laemmert, 1872.

19. Report submitted to the General Legislative Assembly at the 2nd session of the 15th Legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works, José Fernandes da Costa Pereira Junior. Rio de Janeiro: Comercial, 1873.

20. "Report by Manoel Gomes Archer on the Tijuca Forest Service. Annex W". In: *Report submitted to the General Legislative Assembly at the 2nd session of the 15th Legislature by the Minister and Secretary of State for Agriculture, Trade and Public Works José Fernandes da Costa Pereira Junior*. Rio de Janeiro: Comercial, 1873.

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22. Report submitted to the Vice-President of the Republic of the United States of Brazil by the Minister of State for Industry, Highways and Public Works Antonio Francisco de Paula Souza in 1893. Rio de Janeiro: Imprensa Nacional, 1893.

23. List of original plants (200 specimens on rice paper) from the Landscape Design for Flamengo Park from the offices of Burle Marx, digitalizadas by the Parks and Gardens Foundation of Rio de Janeiro local authority and kept in files 12, 307,502 and 196201 of the Technical Archive;

24. List of original plants on tracing paper from the Landscape Design for Copacabana beach filed at the offices of Burle Marx & Companhia.

VII.D. ADDRESS WHERE INVENTORY, RECORDS AND ARCHIVES ARE HELD

Copies of the dossier will be filed in the archives of the Ministry of Culture (Brasília), IPHAN (Rio de Janeiro and Brasília), and at the Rio de Janeiro State and Municipal Government (Rio de Janeiro).

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VIII. CONTACT INFORMATION OF RESPONSIBLE AUTHORITY

A. PREPARER

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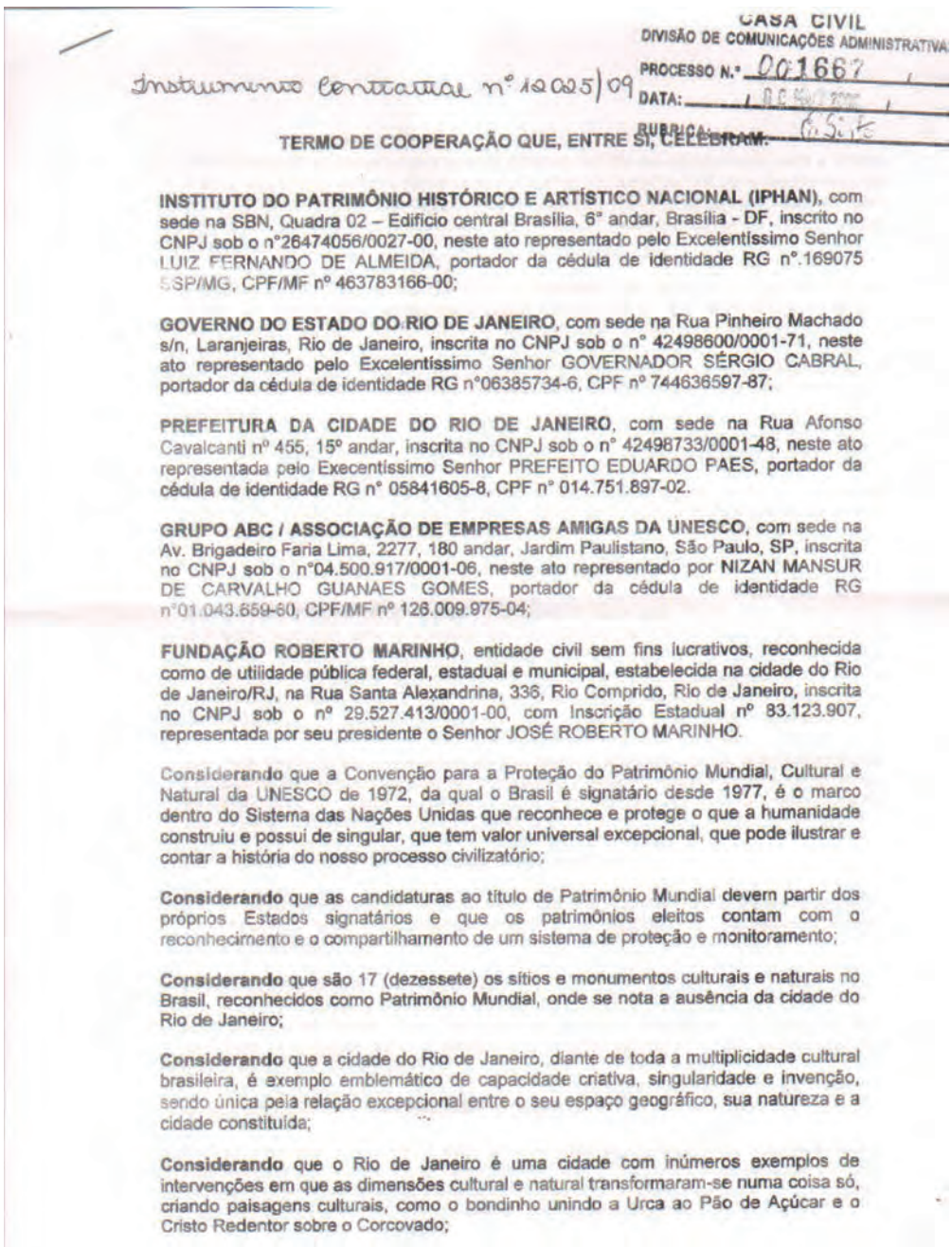
X. ANNEXES

X.A. COPY OF DOCUMENTS

X.A.1. Term of Thechnical Cooperation



CASA CIVIL
DIVISÃO DE COMUNICAÇÕES ADMINISTRATIVA
PROCESSO N.º 001667
DATA:
RUBRICA:

Instrumento Contratual nº 12025/09

TERMO DE COOPERAÇÃO QUE, ENTRE SI, CELEBRAM:

INSTITUTO DO PATRIMÔNIO HISTÓRICO E ARTÍSTICO NACIONAL (IPHAN), com sede na SBN, Quadra 02 – Edifício central Brasília, 6° andar, Brasília - DF, inscrito no CNPJ sob o n°26474056/0027-00, neste ato representado pelo Excelentíssimo Senhor LUIZ FERNANDO DE ALMEIDA, portador da cédula de identidade RG n°.169075 SSP/MG, CPF/MF nº 463783166-00;

GOVERNO DO ESTADO DO RIO DE JANEIRO, com sede na Rua Pinheiro Machado s/n, Laranjeiras, Rio de Janeiro, inscrita no CNPJ sob o n° 42498600/0001-71, neste ato representado pelo Excelentíssimo Senhor GOVERNADOR SÉRGIO CABRAL, portador da cédula de identidade RG n°06385734-6, CPF nº 744636597-87;

PREFEITURA DA CIDADE DO RIO DE JANEIRO, com sede na Rua Afonso Cavalcanti nº 455, 15º andar, inscrita no CNPJ sob o n° 42498733/0001-48, neste ato representada pelo Execentíssimo Senhor PREFEITO EDUARDO PAES, portador da cédula de identidade RG n° 05841605-8, CPF n° 014.751.897-02.

GRUPO ABC / ASSOCIAÇÃO DE EMPRESAS AMIGAS DA UNESCO, com sede na Av. Brigadeiro Faria Lima, 2277, 180 andar, Jardim Paulistano, São Paulo, SP, inscrita no CNPJ sob o n°04.500.917/0001-06, neste ato representado por NIZAN MANSUR DE CARVALHO GUANAES GOMES, portador da cédula de identidade RG n°01.043.659-60, CPF/MF nº 126.009.975-04;

FUNDAÇÃO ROBERTO MARINHO, entidade civil sem fins lucrativos, reconhecida como de utilidade pública federal, estadual e municipal, estabelecida na cidade do Rio de Janeiro/RJ, na Rua Santa Alexandrina, 336, Rio Comprido, Rio de Janeiro, inscrita no CNPJ sob o nº 29.527.413/0001-00, com Inscrição Estadual nº 83.123.907, representada por seu presidente o Senhor JOSÉ ROBERTO MARINHO.

Considerando que a Convenção para a Proteção do Patrimônio Mundial, Cultural e Natural da UNESCO de 1972, da qual o Brasil é signatário desde 1977, é o marco dentro do Sistema das Nações Unidas que reconhece e protege o que a humanidade construiu e possui de singular, que tem valor universal excepcional, que pode ilustrar e contar a história do nosso processo civilizatório;

Considerando que as candidaturas ao título de Patrimônio Mundial devem partir dos próprios Estados signatários e que os patrimônios eleitos contam com o reconhecimento e o compartilhamento de um sistema de proteção e monitoramento;

Considerando que são 17 (dezessete) os sítios e monumentos culturais e naturais no Brasil, reconhecidos como Patrimônio Mundial, onde se nota a ausência da cidade do Rio de Janeiro;

Considerando que a cidade do Rio de Janeiro, diante de toda a multiplicidade cultural brasileira, é exemplo emblemático de capacidade criativa, singularidade e invenção, sendo única pela relação excepcional entre o seu espaço geográfico, sua natureza e a cidade constituída;

Considerando que o Rio de Janeiro é uma cidade com inúmeros exemplos de intervenções em que as dimensões cultural e natural transformaram-se numa coisa só, criando paisagens culturais, como o bondinho unindo a Urca ao Pão de Açúcar e o Cristo Redentor sobre o Corcovado;

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Considerando os benefícios que a candidatura do Rio de Janeiro trará para a cidade e seus habitantes, como o fomento das indústrias do turismo, cultura e entretenimento, entre outras, o reforço nos mecanismos de proteção de bens culturais e naturais, além do impacto positivo na auto-estima do carioca, pelo reconhecimento do valor universal de sua cidade; e

Considerando, ainda, a importância e o interesse dos partícipes em contribuir para proteção e valorização das riquezas culturais e naturais do Rio de Janeiro por meio do apoio e legitimação da candidatura do Rio de Janeiro a Patrimônio Mundial;

Decidem, de comum acordo, na presença de duas testemunhas, ao final assinadas e qualificadas, celebrar o presente TERMO DE COOPERAÇÃO, nos termos a seguir expostos:

CLAUSULA PRIMEIRA – DO OBJETO

1.1. Constitui objeto deste Instrumento a mútua cooperação entre os partícipes visando a criação de um Comitê Institucional, que irá apoiar a candidatura da cidade do Rio de Janeiro a Patrimônio Mundial.

CLÁUSULA SEGUNDA – DAS AÇÕES DOS PARTÍCIPES

2.1. Os partícipes se comprometem, por meio da assinatura do presente instrumento, a envidar esforços para o sucesso da candidatura da cidade do Rio de Janeiro a Patrimônio Mundial da Humanidade, acordando em fazer parte do Comitê Institucional mencionado na cláusula 1.1 *supra* e contribuindo para seu objetivo geral, por meio de articulações e apoio político-institucionais, estabelecimento de parcerias e legitimação de ações.

2.2. Fica desde já acordada entre os partícipes a possibilidade de adesão de novas instituições ao Comitê Institucional mencionado no objeto deste instrumento, ao longo da candidatura da cidade do Rio de Janeiro, sem que seja necessária a assinatura de outro instrumento ou instrumentos Aditivos a este Termo.

CLÁUSULA TERCEIRA – DO PRAZO DE VIGÊNCIA

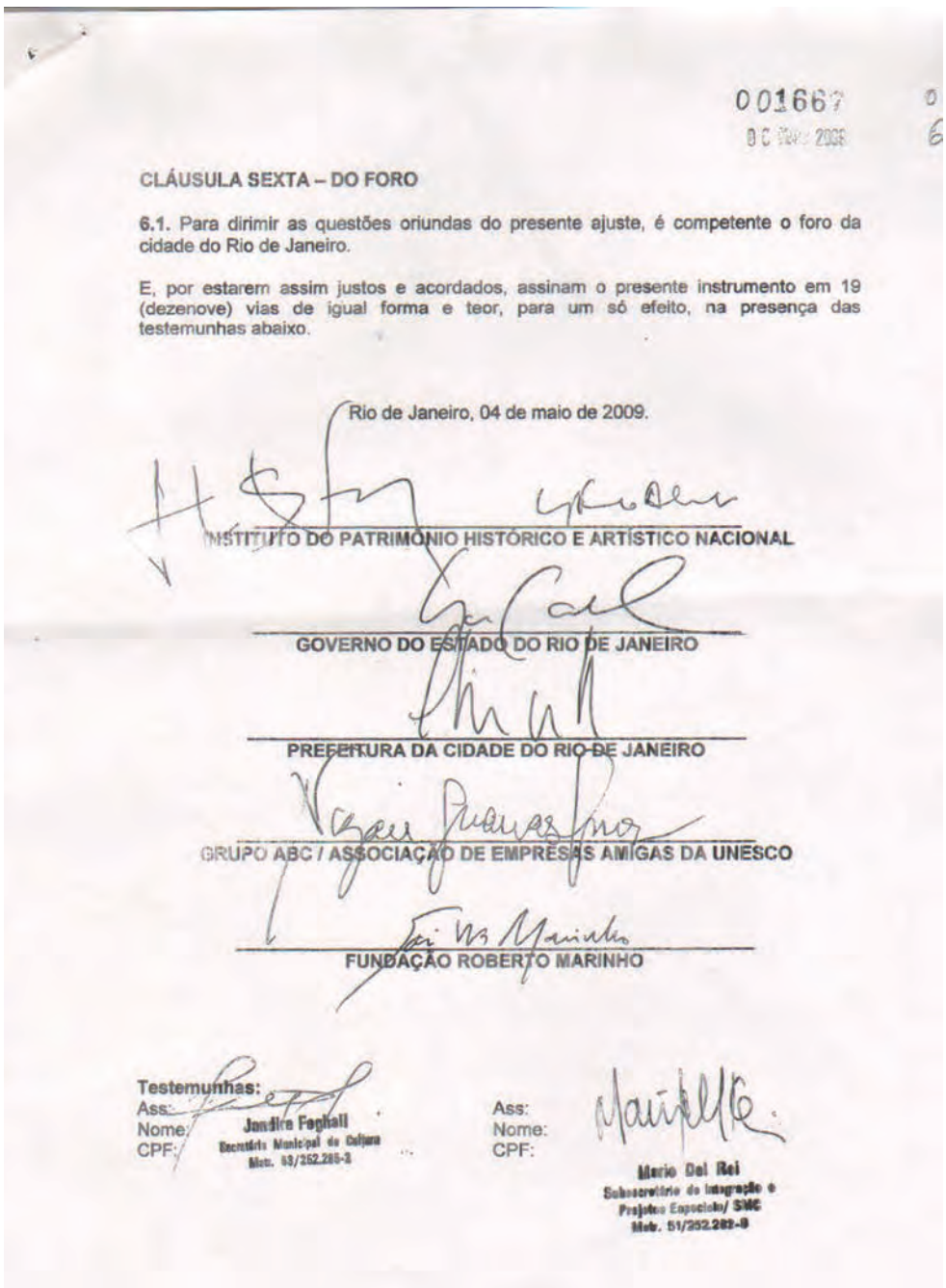
3.1. O presente instrumento vigorará pelo prazo de 24 (vinte e quatro) meses, a contar da data de sua assinatura, podendo ser prorrogado, a critério dos partícipes, por meio de Termo Aditivo.

CLÁUSULA QUARTA - DA RESCISÃO

4.1. O presente Termo de Cooperação poderá ser rescindido, por qualquer dos partícipes, a qualquer tempo, mediante notificação por escrito com, no mínimo, 30 (trinta) dias de antecedência.

CLÁSULA QUINTA – OBRIGAÇÕES E CUSTOS

5.1. O presente Instrumento não gera obrigações jurídicas ou custos para os partícipes, devendo apenas servir como instrumento indicativo dos esforços comuns adotados visando à implementação e execução do Comitê Institucional, que irá apoiar a candidatura da cidade do Rio de Janeiro a Patrimônio Mundial.



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CLÁUSULA SEXTA – DO FORO

6.1. Para dirimir as questões oriundas do presente ajuste, é competente o foro da cidade do Rio de Janeiro.

E, por estarem assim justos e acordados, assinam o presente instrumento em 19 (dezenove) vias de igual forma e teor, para um só efeito, na presença das testemunhas abaixo.

Rio de Janeiro, 04 de maio de 2009.

INSTITUTO DO PATRIMÔNIO HISTÓRICO E ARTÍSTICO NACIONAL

GOVERNO DO ESTADO DO RIO DE JANEIRO

PREFEITURA DA CIDADE DO RIO DE JANEIRO

GRUPO ABC / ASSOCIAÇÃO DE EMPRESAS AMIGAS DA UNESCO

FUNDAÇÃO ROBERTO MARINHO

Testemunhas:
Ass:
Nome: Jandira Feghali
CPF: Secretária Municipal de Cultura
Mat. 03/252.285-3

Ass:
Nome: Mario Del Rei
CPF: Subsecretário de Integração e Projetos Especiais/ SMC
Mat. 51/252.282-9

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INSTITUTO DO PATRIMÔNIO HISTÓRICO E ARTÍSTICO NACIONAL

PORTARIA Nº 2, DE 15 DE JANEIRO DE 2009

Cria o Comitê Técnico para o estabelecimento de diretrizes e conceitos para a elaboração do dossiê técnico de candidatura da paisagem cultural da cidade do Rio de Janeiro como Patrimônio da Humanidade.

O PRESIDENTE DO INSTITUTO DO PATRIMÔNIO HISTÓRICO E ARTÍSTICO NACIONAL - IPHAN, no uso de suas atribuições legais e regimentais, com fundamento na Lei n.º 8.029, de 12 de abril de 1990, na Lei n.º 8.113, de 12 de dezembro de 1990, e especialmente no disposto no inciso V, do art. 21, do Anexo I, do Decreto n.º 5.040, de 07 de abril de 2004, resolve:

Art. 1º Criar o Comitê Técnico com a atribuição de estabelecer as diretrizes e conceitos para a elaboração do dossiê técnico de candidatura da paisagem cultural da cidade do Rio de Janeiro como Patrimônio da Humanidade.

Art. 2º Ao Comitê Técnico compete as seguintes atribuições:

I - estabelecer os conceitos e as diretrizes técnicas que nortearão a elaboração do dossiê da candidatura;

II - acompanhar os trabalhos dos especialistas das diversas disciplinas, que colaborarão na elaboração do dossiê técnico da candidatura;

III - fixar as diretrizes para a gestão compartilhada da área definida para candidatura;

IV - efetuar a análise dos parâmetros urbanísticos e de proteção em relação a área definida para candidatura;

V - propor a revisão dos parâmetros urbanísticos e de proteção em relação a área definida para candidatura que se fizerem necessários; e,

VI - contribuir com a elaboração do plano de gestão em relação a área definida para candidatura em conjunto com os especialistas contratados para o desenvolvimento desse trabalho.

Art. 3º O Comitê Técnico será constituído por:

I - 1 (um) representante do Departamento do Patrimônio Material e de Fiscalização do Iphan e respectivo suplente, que serão indicados pelo Presidente do Iphan ;

II - 1 (um) representante da Superintendência Regional do Iphan no Rio de Janeiro e respectivo suplente, que serão indicados pelo Presidente do Iphan;

III - 1 (um) representante do Instituto Chico Mendes e respectivo suplente, que serão indicados pelo Presidente do Instituto Chico Mendes;

IV - 1 (um) representante do Governo do Estado do Rio de Janeiro e respectivo suplente, que serão indicados pelo Governador do Estado; e,

V - 1 (um) representante da Prefeitura do Rio de Janeiro e respectivo suplente, que serão indicados pelo Prefeito Municipal.

§ 1º Os titulares do Comitê Técnico serão substituídos pelos seus suplentes em seus impedimentos legais, temporários e eventuais;

§ 2º A coordenação do Comitê Técnico será exercida pelo representante do Departamento do Patrimônio Material e de Fiscalização do Iphan;

Art. 4º O trabalho dos membros do Comitê Técnico não será remunerado.

Parágrafo único. Caso seja necessário o pagamento de diárias ou passagens para o desenvolvimento dos trabalhos, tais despesas serão de responsabilidade do ente a que estiver vinculado o membro do Comitê Técnico.

Art. 5º Esta Portaria entra em vigor na data de sua publicação.

LUIZ FERNANDO DE ALMEIDA

AUTHORIZATION

1. I, MARCIA NOGUEIRA BATISTA the undersigned, hereby grant free of charge to UNESCO the non-exclusive right for the legal term of copyright to reproduce and use in accordance with the terms of paragraph 2 of the present authorization throughout the world the photograph(s) and/or slide(s) described in paragraph 4.

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   a) Unesco publications;
   b) co-editions with private publishing houses for World Heritage publications: a percentage of the profits will be given to the World Heritage Fund;
   c) postcards – to be sold at the site protected under the World Heritage Convention through national parks services or antiquities (profits, if any, will be divided between the services in question and the World Heritage Fund);
   d) slide series – to be sold to schools, libraries, other institutions and eventually at the sites (profits, if any, will go to the World Heritage Fund);
   e) exhibitions, etc.

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RIO DE JANEIRO, JANUARY 8TH 2010

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Uppsala	2010 01 10	
Place	date	Signature, title or function of the person duly authorized

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1. I, MARIA CRISTINA VEREZA LODI the undersigned, hereby grant free of charge to UNESCO the non-exclusive right for the legal term of copyright to reproduce and use in accordance with the terms of paragraph 2 of the present authorization throughout the world the photograph(s) and/or slide(s) described in paragraph 4.

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Rio de Janeiro, January 8, 2010

Nomination's Coordinator
Signature, title or function of the person duly authorized

AUTHORIZATION

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8. Any difference or disputes which may arise from the exercise of the rights granted to Unesco will be settled in a friendly way. Reference to courts or arbritation is excluded

Rio de Janeiro	10/01/2010	
Place	date	Signature, title or function of the person duly authorized

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8. Any difference or disputes which may arise from the exercise of the rights granted to Unesco will be settled in a friendly way. Reference to courts or arbritation is excluded

Rio de Janeiro, 10/01/2010

Ruy Rogerio Salaverry

X.B. EXECUTIVE SUMMARY

I. STATE PARTY

Brazil

II. STATE, PROVINCE OR REGION

Rio de Janeiro City and State

Rio de Janeiro Metropolitan Area

III. NAME OF PROPERTY

Rio de Janeiro - Rio Landscapes between the Mountain and the Sea

IV. GEOGRAPHICAL COORDINATES

No.	NAME OF THE COMPONENT PART	DISTRICT	COORDINATES OF THE CENTRAL POINT	CORE ZONE (ha)	BUFFER ZONE (ha)
001	Floresta da Tijuca, Pretos Forros e Covanca – Tijuca National Park	Alto da Boa Vista	43°28'W x 22°94'S	1,982.58	8.621,38
002	Pedra Bonita e Pedra da Gávea – Tijuca National Park	São Conrado	43°28'W x 22°99'S	257.89	
003	Serra da Carioca – Tijuca National Park and Botanical Garden	Alto da Boa Vista, Sumaré and Jardim Botânico	43°23'W x 22°95'S	1,823.97	
004	Mouth of Guanabara Bay and Manmade Shorelines – Flamengo Park, Historic Forts of Niterói, Pão de Açúcar Natural Monument, Copacabana Seafront	Jurujuba, Urca, Rio de Janeiro City Center, Flamengo, Botafogo and Copacabana	43°21'W x 22°95'S	3,184.34	
			Total (ha)	7,248.78	

V. DESCRIPTION OF THE PROPERTY

The proposed property is situated between the southern area of the city of Rio de Janeiro and the western point of Niteroi, both in the Metropolitan Region, emphasising the outstanding massif of Tijuca, whose uppermost peak attains an altitude of 1.021 m.

It is characterised by steep descents, big rocky clusters, some of them extending right up to the coastline and covered by tropical vegetation, both native and resulting from reforesting. It includes the part of the city which has developed in the narrow strip of alluvial plain between the Guanabara Bay, the Atlantic Ocean and the mountains, which has over the centuries suffered extensive interventions to the coastal landscape, whether as fortifications for the defence of the city or facilities for its population.

The property concentrates the most significant visual marks of Rio de Janeiro. The visual points correspond to the top of the main mountains of the site. Some of them contain buildings that distinguish them, as those of Corcovado, Pão de Açúcar, Pico, Leme and Glória. All of them act as remarkable view points of the city, offering important landmarks to the image of the city, making easer lecture and comprehension of the Carioca urban landscape.

The proposed property encompasses the main structural elements of the cultural landscape of Rio de Janeiro, divided into four Components:

Component 1, 2 and 3 – The Mountain, the Forest and the Garden: delimited by the four areas of Tijuca National Park and by the Botanical Garden with a buffer zone comprising the area under the park's management and the area contiguous to the Botanical Garden, forming an ecological corridor which protects the biodiversity of the flora and the mobility of the wildlife until the banks of Guanabara Bay;

Component 4 – Mouth of Guanabara Bay and Manmade Shorelines: composed of Flamengo and Passeio Público Parks, the protected area comprising the forts at the mouth of Guanabara Bay, and the Copacabana seafront composed by the protected sidewalk of Burle Marx, the beach sand and a portion of the Atlantic Ocean waters. It is also included Leme hill, Copacabana fort and Arpoador spit. The buffer zone here is the area between Corcovado, in the Tijuca massif and Pico hill, in the region of the Niteroi forts. The area which can be seen from these two highpoints marks out the main area of the site;

The Major Buffer Zone – The Urban Landscape: marked out by the natural elements in the site. This is an important landscape

element as it links and protects the other sectors, while also enhancing and promoting the outstanding value of the site as a whole. It includes Babilônia, São João, Catacumba, Cabritos and Saudade hills, which mark the borders of Copacabana, Botafogo and Lagoa districts, Morro da Viúva hill in Flamengo, Cosme Velho and Laranjeiras valley, and the south side of Santa Teresa hill down as far as Flamengo Park in the city centre.

VI. SITE MAP - D02

See Annex

VII. JUSTIFICATION

As regards the classification according to paragraph 10 of Annex 3 – Guidelines for the Inscription of Various Types of Sites in the World Heritage list, Guidelines for the Implementation of the World Heritage Convention, the site can be included in the following categories:

- Intentionally Designed Landscape - represented by the Botanical Garden, Passeio Público park, Flamengo Park and the Copacabana Beachfront

- Organically Evolving Landscape, in the subcategory of Contínuous Landscape –represented by the natural elements, specially Tijuca National Park and its replanted forests, which have been regenerated over the years (in the Carioca and Tijuca mountain ranges) .

- Associated Landscape – represented by the various features which have been modified by man and whose images are depicted from the early days of colonisation, projecting the city and culture of Rio de Janeiro throughout Brazil and the world. The social imagery of the city landscape consists of literary and pictorial representations, created by both Brazilians and foreigners, celebrating the interaction between the mountain curves, the seashore and the people who made this their home. Specially remarkable are the escarpments of Corcovado and the Sugar Loaf, which were respectively graced with the statue of Christ Redeemed and the cable car; the entrance to Guanabara Bay, with the fortresses projected in times past for the bay's defence and in modern times, the exceptional landscape of Flamengo Park and Copacabana Beach, designed by world renowned Brazilian landscape artist Roberto Burle Marx.

VII.A. STATEMENT OF UNIVERSAL VALUE

The Carioca landscapes of Rio de Janeiro are exceptional statements of the landscape of the area that have interacted and evolved over half a

millennium with the human settlement and development of the city. It synthesize the sharing of human values giving rise to an extraordinary complex of urban public landscaping projects, composed by gardens, parks and protected natural lands where scientific approaches of nature and its cultural associations made them highly significant to be shared by generations, by all humankind in the present and future..

VIII. CRITERIA ADOPTED

The Cultural Landscape of Rio de Janeiro possesses exceptional universal values which allow for its classification in three of the criteria established in the Operational Guidelines for the Application of the World Heritage Convention:

(i) To represent a masterpiece of human creative genius;

(ii) To exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;

(vi) To 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. NAME AND CONTACT INFORMATION

ORGANIZATION:

National Institute for Historic and Artistic Heritage (IPHAN)

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Brasília – DF

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55 61 2024-6280

55 61 2024-6185

FAX:

55 61 2024-6275

E-mail:

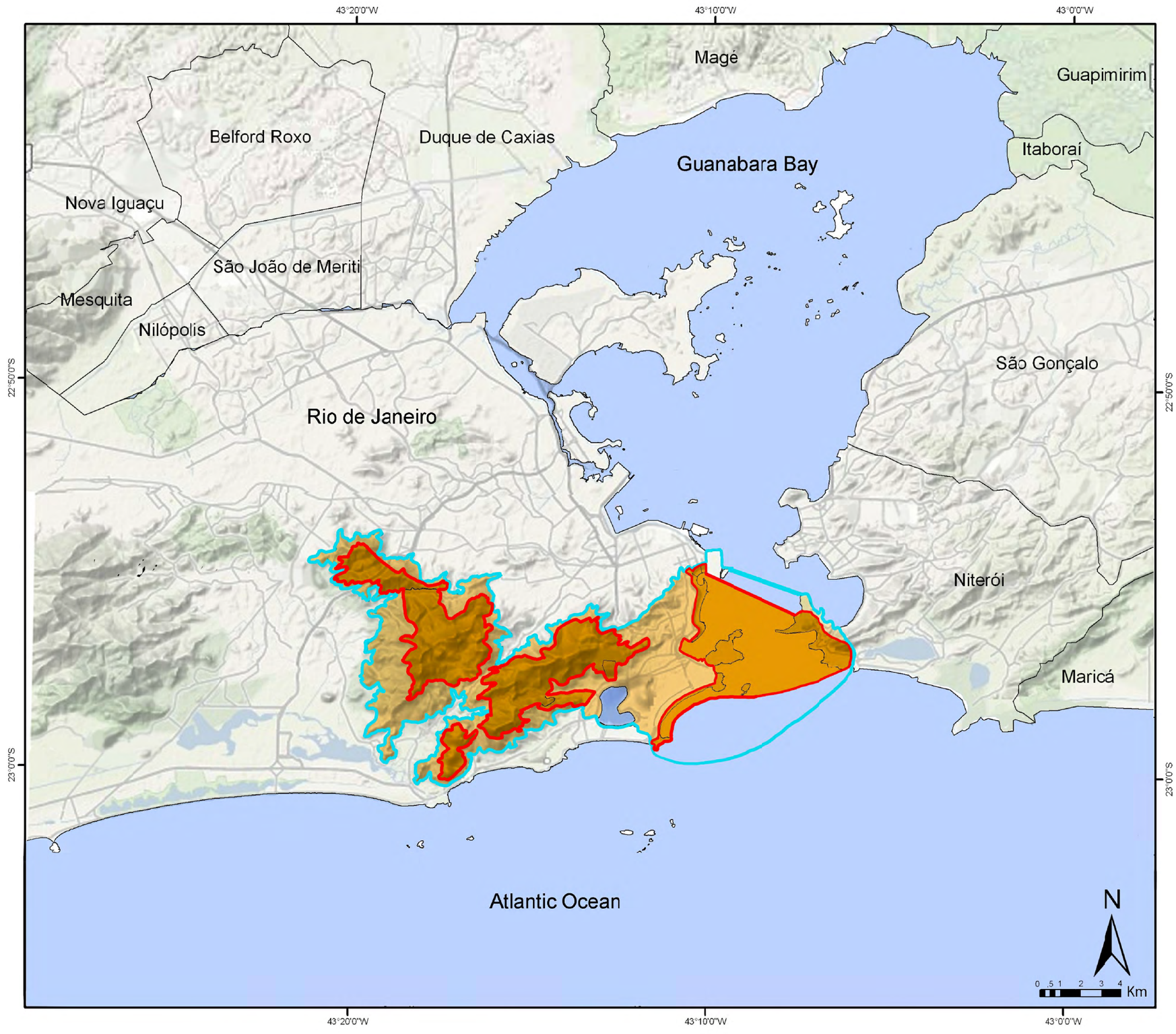
gab@iphan.gov.br

WEB ADDRESS:

http://www.iphan.gov.br

INDEX – MAPS AND PLANS

MAP Nº	TITLE	FORMAT	SCALE
IDENTIFICATION, DESCRIPTION AND JUSTIFICATION			
D01	Location Map	A3	1:200.000
D02	Site Map	A3	1:100.000
D02 (A)	Site Map	A0	1:20.000
D02 (B)	Site Map	A0	1:20.000
D03	Categories	A3	1:125.000
D04	Criteria	A3	1:125.000
D05	Visual Analysis	A3	1:125.000
D05 (A)	Visual Analysis – Images	A3	No Scale
D06	Geological Map	A3	1:125.000
D07	Sector (A) Map– Components 1,2 and 3	A3	1:75.000
D08	Sector (B) Map– Component 4	A3	1:50.000
D09	Sector (C) Map – Buffer Zone	A3	1:50.000
HISTORY AND DEVELOPMENT			
H01	The City and the External Defense	A3	1:50.000
H02	The Productive City	A3	1:50.000
H03	The City and the gardens	A3	1:50.000
H03 (A)	The City and the Gardens – Development Plans	A3	No Scale
H04	The City and The Forest	A3	1:50.000
H05	The City and The Sea	A3	1:50.000
H05 (A)	The City and The Sea – Flamengo Park and Copacabana Seafront Drawings	A3	No Scale
H06	Cultural Territorialities	A3	1:125.000
PROTECTION AND MANAGEMENT			
P01	Federal Listed Landmarks	A3	1:125.000
P02	State Listed landmarks	A3	1:125.000
P03	Municipal Listed Landmarks	A3	1:125.000
P04	Federal and State Conservation Units	A3	1:125.000
P05	Municipal Conservation Units	A3	1:125.000
P06	Mosaic of Protected Areas	A3	1:125.000



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
D01
TITLE
LOCATION MAP

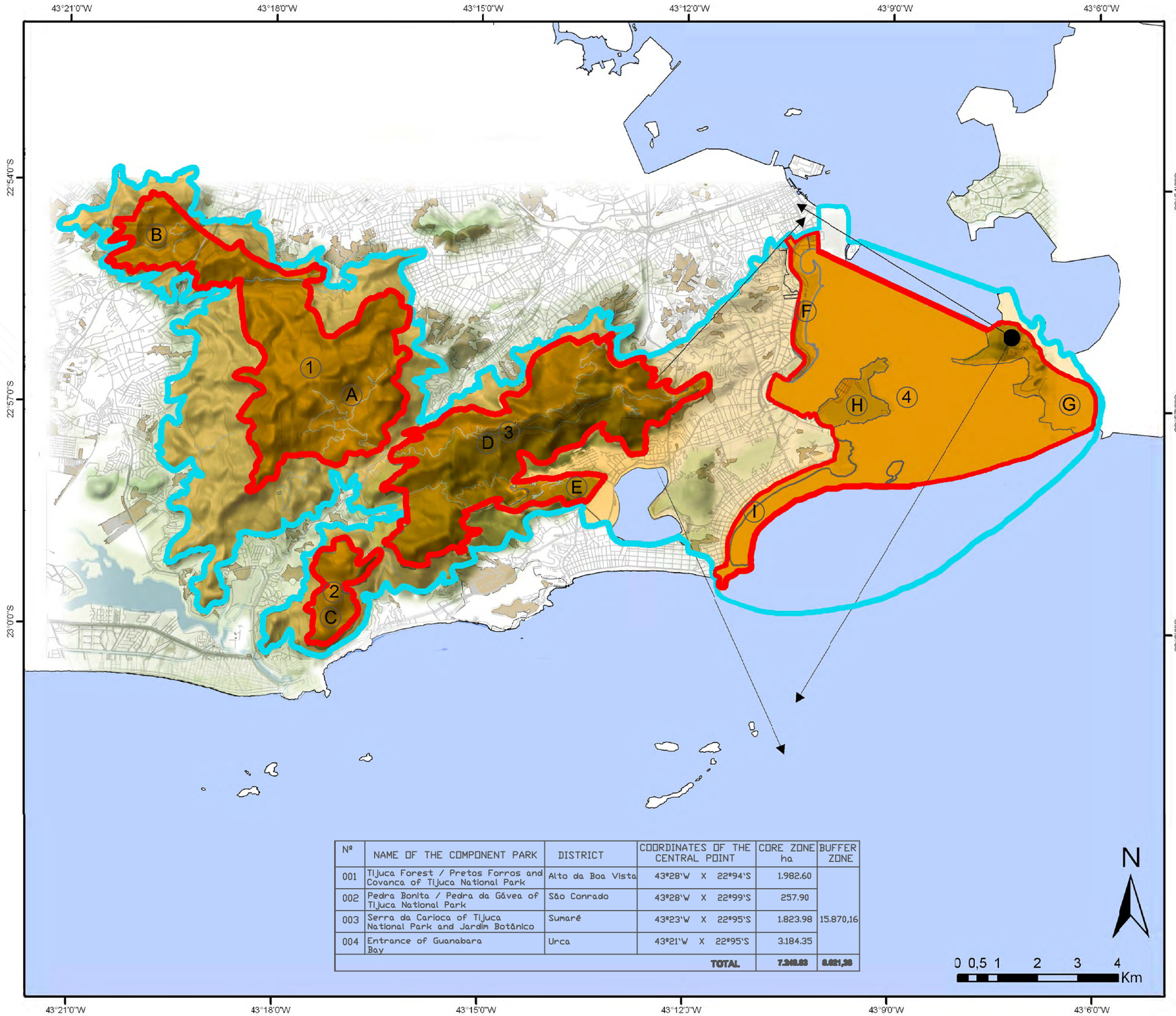
KEY

- RIO DE JANEIRO METROPOLITAN AREA MUNICIPALLIMITS
- NOMINATED SITE
- BUFFER ZONE
- NOMINATED SITE LIMITS
- BUFFER ZONE LIMITS

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 200.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



Nº	NAME OF THE COMPONENT PARK	DISTRICT	COORDINATES OF THE CENTRAL POINT	CORE ZONE ha	BUFFER ZONE
001	Tijuca Forest / Pretos Forros and Covanca of Tijuca National Park	Alto da Boa Vista	43°28'W X 22°94'S	1.982.60	
002	Pedra Bonita / Pedra da Gávea of Tijuca National Park	São Conrado	43°28'W X 22°99'S	257.90	
003	Serra da Carioca of Tijuca National Park and Jardim Botânico	Sumaré	43°23'W X 22°95'S	1.823.98	15.870,16
004	Entrance of Guanabara Bay	Urca	43°21'W X 22°95'S	3.184.35	
			TOTAL	7.248,83	8.621,35

RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAINS
AND THE SEA

MAP
D02
TITLE
SITE MAP

KEY

COMPONENT PARTS:

1 - TIJUCA FLOREST (A) / PRETOS FORROS AND COVANCA (B) OF TIJUCA NATIONAL PARK
2 - PEDRA BONITA / PEDRA DA GAVEA (C) OF TIJUCA NATIONAL PARK
3 - SERRA DA CARIOCA (D) OF TIJUCA NATIONAL PARK AND BOTANICAL GARDEN (E)
4 - ENTRANCE OF GUANABARA BAY - FLAMENGO PARK (F), COPACABANA BEACH (I), PAO DE AçUCAR NATURAL MONUMENT (H) AND HISTORIC FORTS OF NITEROI. (G)

TOTAL AREA OF PROPERTY: 7.278,83 HA
BUFFER ZONE: 8.621,35 HA

VIEWPOINTS
NOMINATED SITE LIMITS
BUFFER ZONE LIMITS

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 100.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE

RIO DE JANEIRO
CARIOCA LANDSCAPE BETWEEN THE MOUTAINS AND THE SEA

MAP: D02A
TITLE: SITE MAP

SCALE 1:20.000

KEY

COMPONENT PARTS:

1 - Tijuca Forest (A) / Pretos Forros and Covanca (B) of Tijuca National Park
2 - Pedra Bonita / Pedra da Gávea (C) of Tijuca National Park
3 - Serra da Carioca (D) of Tijuca National Park and Botanical Garden (E)
4 - Entrance of Guanabara Bay - Flamengo Park (F), Copacabana Beach (I),Pão de Açúcar Natural Monument (H) and Historic Forts of Niterói (G).

TOTAL AREA OF PROPERTY: 7.248,83 ha

Buffer Zone: 8.621,35 ha

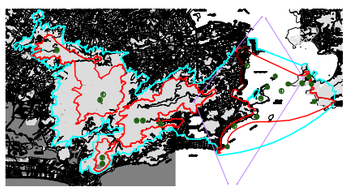
TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

VIEWPOINTS:
NOMINATED SITE LIMITS
BUFFER ZONE LIMITS

a. CORCOVADO HILL
b. PICO HILL

Nº	NAME OF THE COMPONENT PARK	DISTRICT	COORDINATES OF THE CENTRAL POINT	CORE ZONE ha	BUFFER ZONE
001	Tijuca Forest / Pretos Forros and Covanca of Tijuca National Park	Alto da Boa Vista	43°05'W x 22°57'S	1.692,00	
002	Pedra Bonita / Pedra da Gávea of Tijuca National Park	São Conrado	43°05'W x 22°59'S	597,00	
003	Serra da Carioca of Tijuca National Park and Jardim Botânico	Gumarã	43°03'W x 22°58'S	1.953,00	18.970,19
004	Entrance of Guanabara Bay	Urca	43°21'W x 22°57'S	3.104,39	
			TOTAL	7.248,83	8.621,35

A B



JANUARY / 2011

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE

RIO DE JANEIRO
CARIOCA LANDSCAPE BETWEEN THE MOUTAINS AND THE SEA

MAP: D02B
TITLE: SITE MAP

SCALE 1:20.000

KEY

COMPONENT PARTS:

1 - Tijuca Forest (A) / Pretos Forros and Covanca (B) of Tijuca National Park
2 - Pedra Bonita / Pedra da Gávea (C) of Tijuca National Park
3 - Serra da Carioca (D) of Tijuca National Park and Botanical Garden (E)
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TOTAL AREA OF PROPERTY: 7.248,83 ha

Buffer Zone: 8.621,35 ha

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

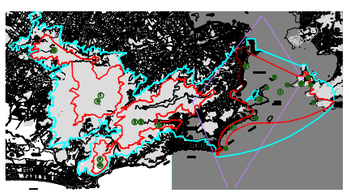
- VIEWPOINTS:
- NOMINATED SITE LIMITS
- BUFFER ZONE LIMITS

a. Corcovado Hill
b. Pico Hill

G1 - Santa Cruz Fort
G2 - Pico Fort
G3 - Rio Branco Fort
G4 - Imbuí Fort
G5 - Lage Fort
G6 - São João Fort
G7 - Duque de Caxias Fort
G8 - Copacabana Fort

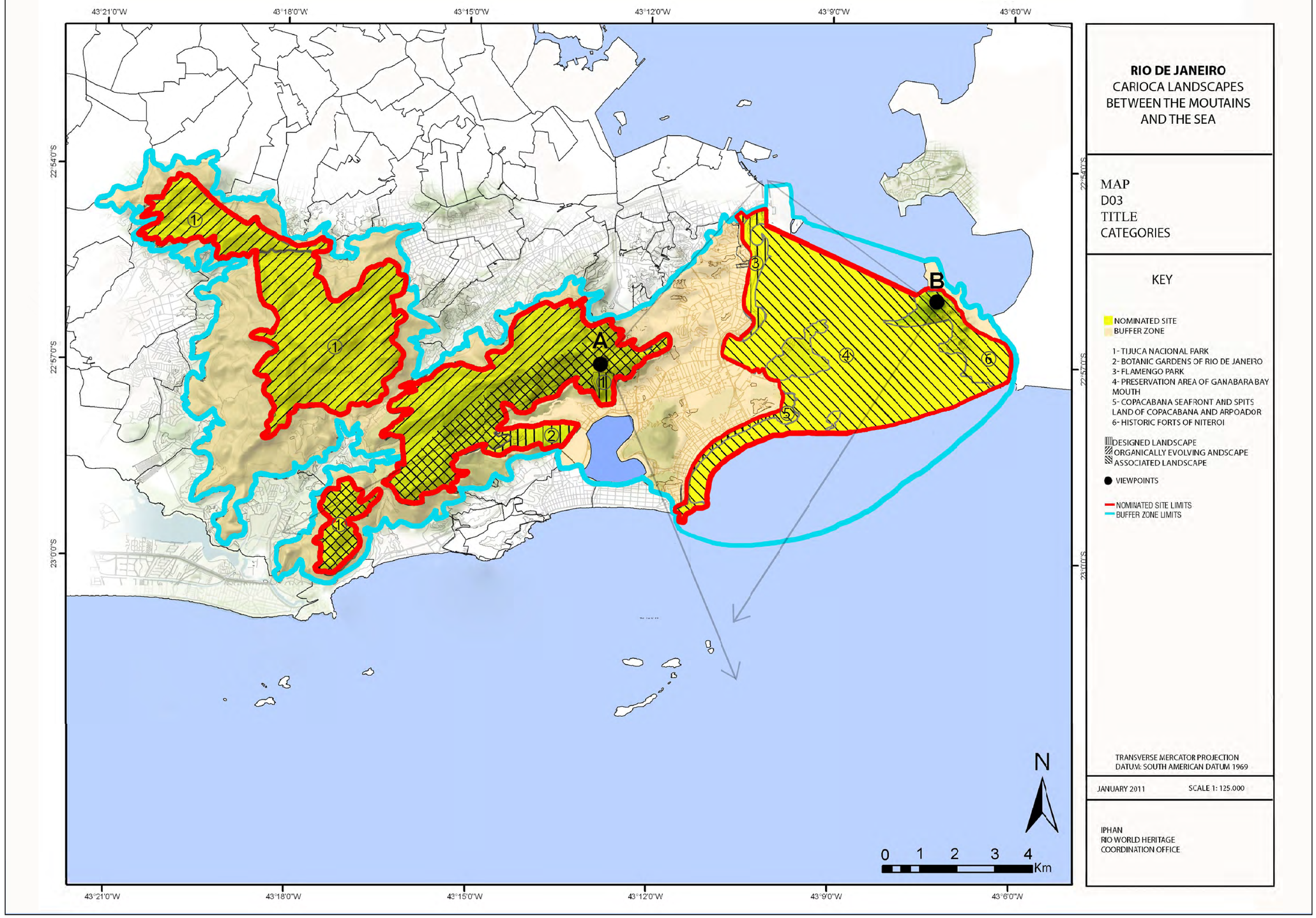
Nº	NAME OF THE COMPONENT PARK	DISTRICT	COORDINATES OF THE CENTRAL POINT	CORE ZONE ha	BUFFER ZONE
001	Tijuca Forest / Pretos Forros and Covanca of Tijuca National Park	Alto da Boa Vista	43°35'W X 22°57'S	1.590,60	
002	Pedra Bonita / Pedra da Gávea of Tijuca National Park	Alto da Boa Vista	43°35'W X 22°53'S	332,60	
003	Serra da Carioca of Tijuca National Park and Jardim Botânico	Gamboa	43°32'W X 22°55'S	1.655,63	15.870,16
004	Entrance of Guanabara Bay	Urca	43°21'W X 22°53'S	3.164,33	
			TOTAL	7.248,83	8.621,35

A B



JANUARY / 2011

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAINS
AND THE SEA

MAP
D03
TITLE
CATEGORIES

KEY

NOMINATED SITE
BUFFER ZONE

1- TIJUCA NACIONAL PARK
2- BOTANIC GARDENS OF RIO DE JANEIRO
3- FLAMENGO PARK
4- PRESERVATION AREA OF GANABARA BAY MOUTH
5- COPACABANA SEAFRONT AND SPITS LAND OF COPACABANA AND ARPOADOR
6- HISTORIC FORTS OF NITEROI

DESIGNED LANDSCAPE
ORGANICALLY EVOLVING ANDSCAPE
ASSOCIATED LANDSCAPE

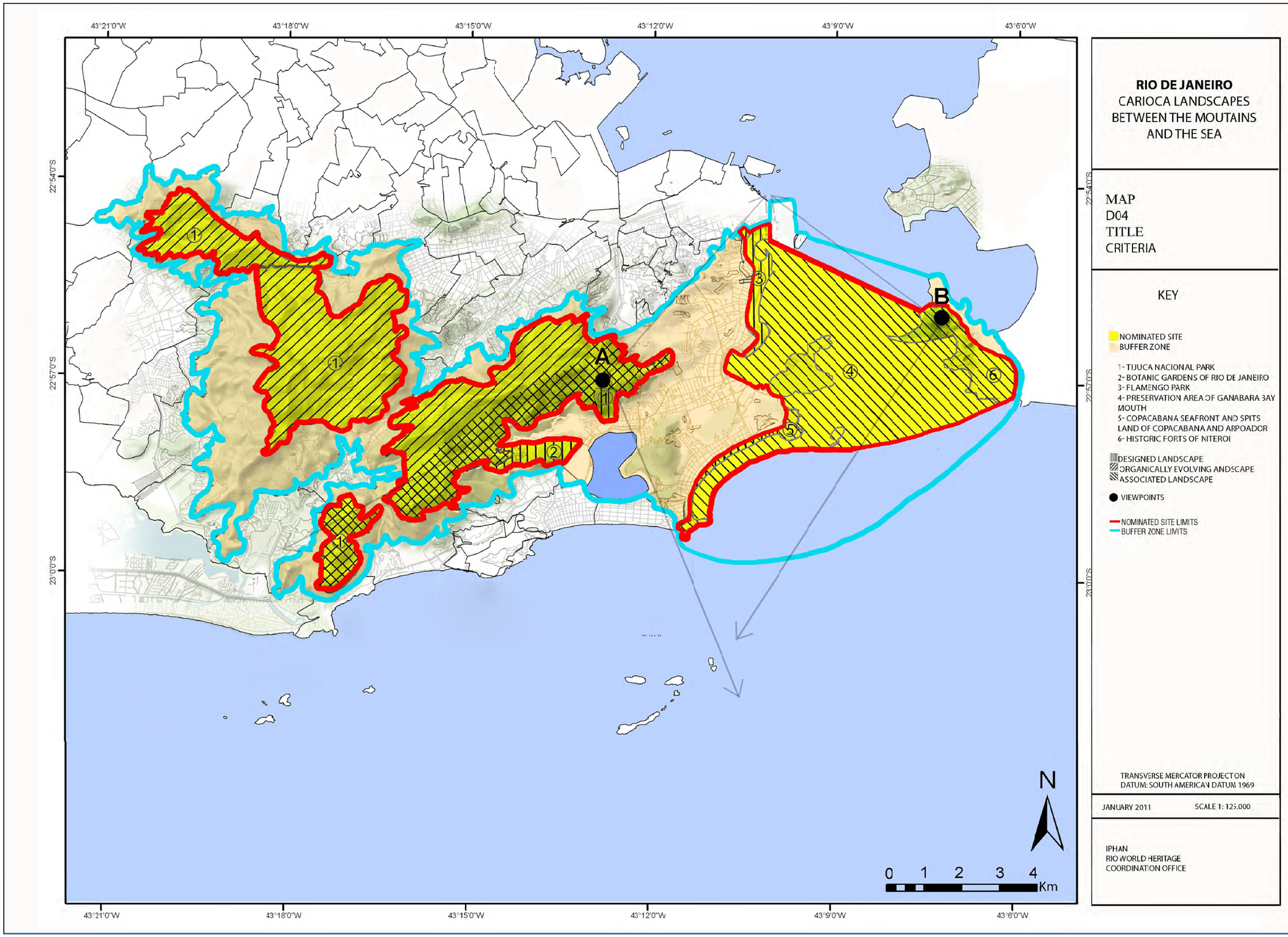
VIEWPOINTS

NOMINATED SITE LIMITS
BUFFER ZONE LIMITS

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 125.000

IPHAN
RIO WORLD HERITAGE
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAINS
AND THE SEA

MAP
D04
TITLE
CRITERIA

KEY

NOMINATED SITE
BUFFER ZONE

1- TIJUCA NACIONAL PARK
2- BOTANIC GARDENS OF RIO DE JANEIRO
3- FLAMENGO PARK
4- PRESERVATION AREA OF GANABARA BAY MOUTH
5- COPACABANA SEAFRONT AND SPITS LAND OF COPACABANA AND ARPOADOR
6- HISTORIC FORTS OF NITEROI

DESIGNED LANDSCAPE
ORGANICALLY EVOLVING ANDSCAPE
ASSOCIATED LANDSCAPE

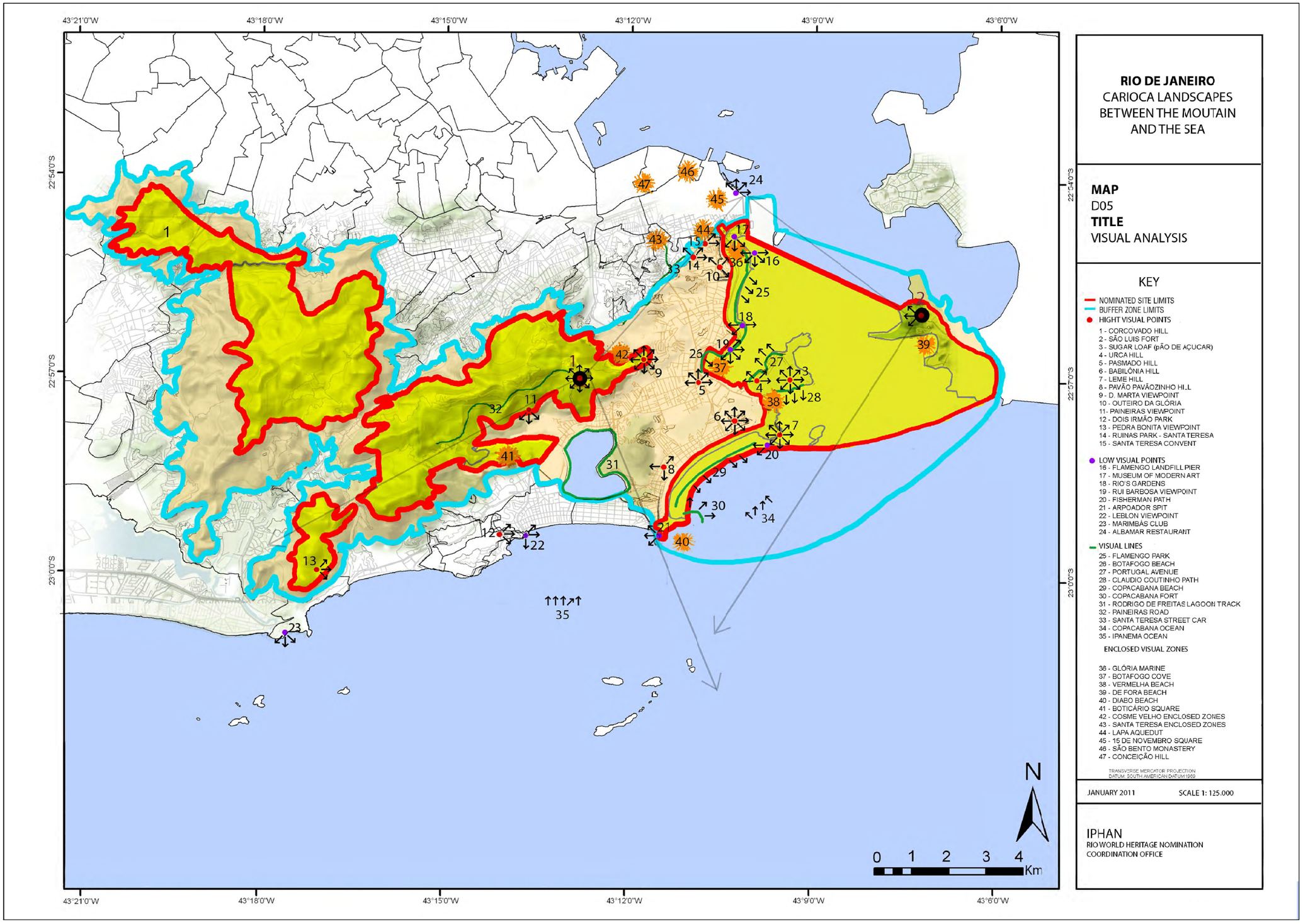
VIEWPOINTS

NOMINATED SITE LIMITS
BUFFER ZONE LIMITS

TRANSVERSE MERCATOR PROJECTON
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 125.000

IPHAN
RIO WORLD HERITAGE
COORDINATION OFFICE


43°21'0"W
43°18'0"W
43°15'0"W
43°12'0"W
43°9'0"W
43°6'0"W
22°54'0"S
22°57'0"S
23°0'0"S
N
0 1 2 3 4 Km
RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA
MAP
D05
TITLE
VISUAL ANALYSIS
KEY
NOMINATED SITE LIMITS
BUFFER ZONE LIMITS
HIGHT VISUAL POINTS
1 - CORCOVADO HILL
2 - SÃO LUIS FORT
3 - SUGAR LOAF (pÃO DE AÇUCAR)
4 - URCA HILL
5 - PASMADO HILL
6 - BABILÔNIA HILL
7 - LEME HILL
8 - PAVÃO PAVÃOZINHO HILL
9 - D. MARTA VIEWPOINT
10 - OUTEIRO DA GLÓRIA
11- PAINEIRAS VIEWPOINT
12 - DOIS IRMÃO PARK
13 - PEDRA BONITA VIEWPOINT
14 - RUINAS PARK - SANTA TERESA
15 - SANTA TERESA CONVENT
LOW VISUAL POINTS
16 - FLAMENGO LANDFILL PIER
17 - MUSEUM OF MODERN ART
18 - RIO'S GARDENS
19 - RUI BARBOSA VIEWPOINT
20 - FISHERMAN PATH
21 - ARPOADOR SPIT
22 - LEBLON VIEWPOINT
23 - MARIMBÁS CLUB
24 - ALBAMAR RESTAURANT
VISUAL LINES
25 - FLAMENGO PARK
26 - BOTAFOGO BEACH
27 - PORTUGAL AVENUE
28 - CLAUDIO COUTINHO PATH
29 - COPACABANA BEACH
30 - COPACABANA FORT
31 - RODRIGO DE FREITAS LAGOON TRACK
32 - PAINEIRAS ROAD
33 - SANTA TERESA STREET CAR
34 - COPACABANA OCEAN
35 - IPANEMA OCEAN
ENCLOSED VISUAL ZONES
36 - GLÓRIA MARINE
37 - BOTAFOGO COVE
38 - VERMELHA BEACH
39 - DE FORA BEACH
40 - DIABO BEACH
41 - BOTICÁRIO SQUARE
42 - COSME VELHO ENCLOSED ZONES
43 - SANTA TERESA ENCLOSED ZONES
44 - LAPA AQUEDUT
45 - 15 DE NOVEMBRO SQUARE
46 - SÃO BENTO MONASTERY
47 - CONCEIÇÃO HILL
TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969
JANUARY 2011
SCALE 1: 125.000
IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE

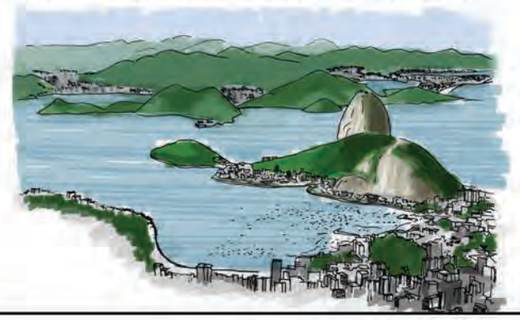
View 34 - From the Sea of Copacabana

View 35 - From the Sea of Ipanema towards the southern slope of Tijuca National Park

View 36 - From the marine coast towards Outeiro da Glória

View From Guanabara Bay to the northern slope of Tijuca NationalPark

View 1 - From the viewpoint of Corcovado



View 2 - From the Fort of São Luis

View 3 - From the Sugar Loaf towards Botafogo District

RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
D05 (A)
TITLE
VISUAL ANALYSIS

KEY

NOMINATED SITE BOUNDARY
BUFFER ZONE BOUNDARY
HIGHT VISUAL POINTS
1 - CORCOVADO HILL
2 - SÃO LUIS FORT
3 - SUGAR LOAF (pÃO DE AÇUCAR)
4 - URCA HILL
5 - PASMADO HILL
6 - BABILÔNIA HILL
7 - LEME HILL
8 - PAVÃO PAVÃOZINHO HILL
9 - D. MARTA VIEWPOINT
10 - OUTEIRO DA GLÓRIA
11- PAINEIRAS VIEWPOINT
12 - DOIS IRMÃO PARK
13 - PEDRA BONITA VIEWPOINT
14 - RUINAS PARK - SANTA TERESA
15 - SANTA TERESA CONVENT

LOW VISUAL POINTS
16 - FLAMENGO LANDFILL PIER
17 - MUSEUM OF MODERN ART
18 - RIO'S GARDENS
19 - RUI BARBOSA VIEWPOINT
20 - FISHERMAN PATH
21 - ARPOADOR SPIT
22 - LEBLON VIEWPOINT
23 - MARIMBÁS CLUB
24 - ALBAMAR RESTAURANT

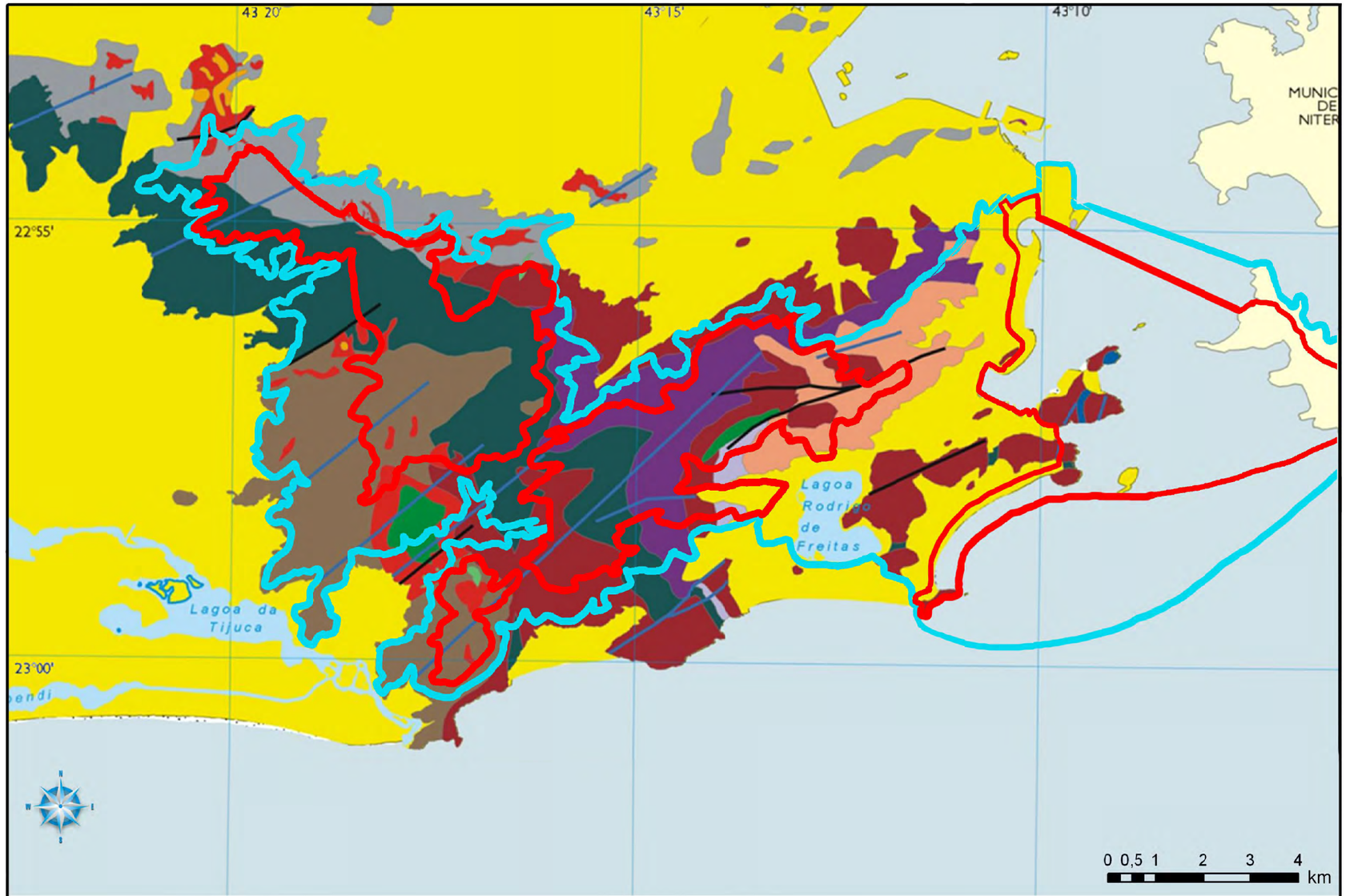
VISUAL LINES
25 - FLAMENGO PARK
26 - BOTAFOGO BEACH
27 - PORTUGAL AVENUE
28 - CLAUDIO COUTINHO PATH
29 - COPACABANA BEACH
30 - COPACABANA FORT
31 - RODRIGO DE FREITAS LAGOON TRACK
32 - PAINEIRAS ROAD
33 - SANTA TERESA STREET CAR
34 - COPACABANA OCEAN
35 - IPANEMA OCEAN

ENCLOSED VISUAL ZONES
36 - GLÓRIA MARINE
37 - BOTAFOGO COVE
38 - VERMELHA BEACH
39 - DE FORA BEACH
40 - DIABO BEACH
41 - BOTICÁRIO SQUARE
42 - COSME VELHO ENCLOSED ZONES
43 - SANTA TERESA ENCLOSED ZONES
44 - LAPA AQUEDUT
45 - 15 DE NOVEMBRO SQUARE
46 - SÃO BENTO MONASTERY
47 - CONCEIÇÃO HILL

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

AUGUST/2009

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



Cenozoic
Recent sediment
alluvium, dunes, mangroves, reclaimed land and built-up areas
Alkaline intrusions
syenites and tinguites (e.g. Mendanha mountain range)
phnolites, syenites and tinguites
Mesozoic (Cretaceous)
Basic intrusions
diabase (e.g. Pedra Branca massif)
Precambrian (Proterozoic)
Intrusive rock
grey, porphyritic granite (e.g. favela) with dykes of granite allanite and pink granite (e.g. Grajaú and Pedra Branca)
pegmatoid granite (e.g. Utinga) (e.g. Misericórdia mountain range)
gabbro and quartz diorite (e.g. Tijuca)

Paragneisses
Banded gneiss with quartz, microcline, plagioclase and biotite (e.g. Archer peak) (with Chamockite bocies)
Facoidal gneiss with microcline, quartz, plagioclase, biotite and granade (e.g. Sugar Loaf)
Biotite gneiss with biotite, quartz, plagioclase, granade, microcline, cordierite, sillimanite with numerous interspersed almost pure white quartzite and chamockite lenses
Kinzigite with biotite, quartz, plagioclase, granade, cordierite, sillimanite and microcline (e.g. Santa Teresa, Sumaré)
Leptynite with microcline, quartz, plagicclase, granade and biotte (e.g. Dona Marta)
Precambrian (Archean)
Basement gneiss
Migmatic gneiss with plagioclase, hornblend, granade, quartz and biotite
Site

RIO DE JANEIRO
RIO LANDSCAPES
BETWEEN THE MOUNTAIN
AND THE SEA

MAP
D06
TITLE
GEOLOGICAL MAP

SOURCE

RIO DE JANEIRO CITY COUNCIL
Municipal Department of Urban Planning (SMU)
Pereira Passos Municipal Institute of Urban Planning (IPP)
Scale: 1:275,000
Universal Transverse Mercator System
Source: Federal University of Rio de Janeiro (UFRJ) – 1999
Sate University of Rio de Janeiro (UERJ) – 1999
Pereira Passos Municipal Institute of Urban Planning (IPP)
Prepared by: IPP Geographical Information Area
Cartography Department – 2004 and Geoprocessing Department – 1999

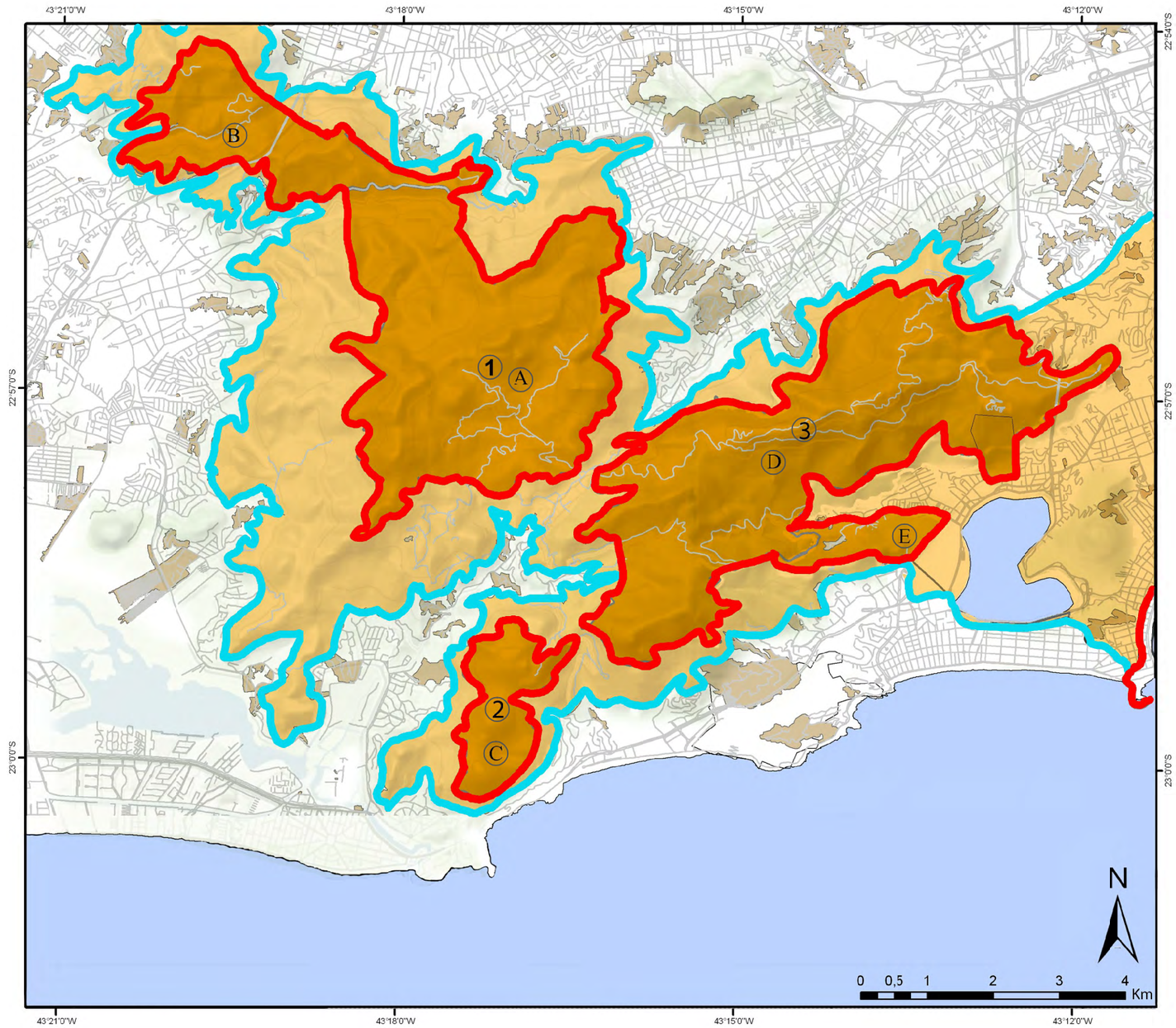
KEY

NOMINATED SITE LIMITS
BUFFER ZONE LIMITS

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 125.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
D07
TITLE
SETOR (A) MAP

KEY

- NOMINATED SITE
  1. TIJUCA NACIONAL PARK
  2. BOTANIC GARDEN OF RIO DE JANEIRO
- BUFFER ZONE
- LOW INCOME COMMUNITIES
- NOMINATED SITE LIMITS
- BUFFER ZONE LIMITS

COMPONENT PARTS:

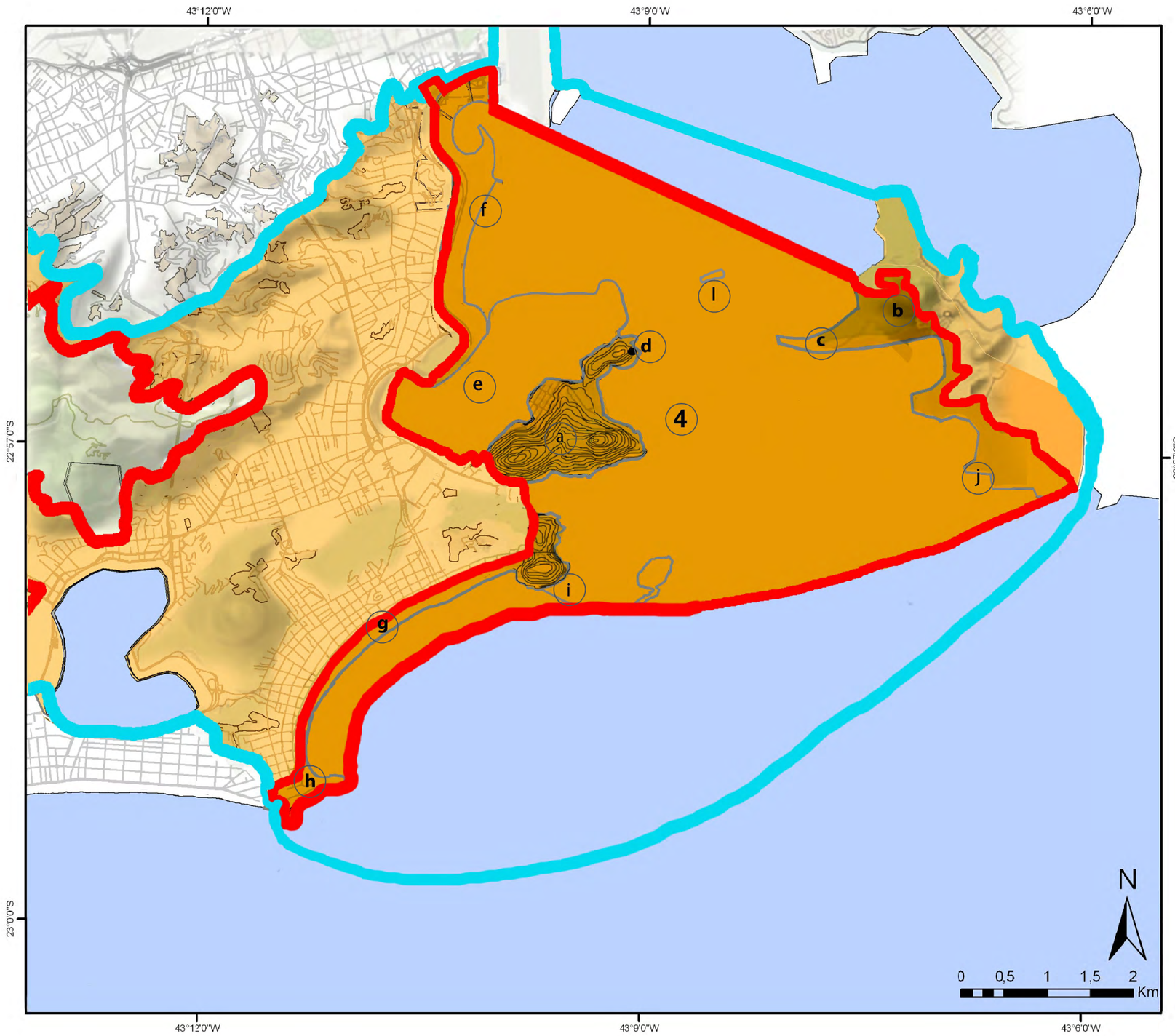
1 - TIJUCA FLOREST (A) / PRETOS FORRCS AND COVANCA (B) OF TIJUCA NATIONAL PARK
2 - PEDRA BONITA / PEDRA DA GAVEA (C) OF TIJUCA NATIONAL PARK
3 - SERRA DA CARIOCA (D) OF TIJUCA NATIONAL PARK AND BOTANICAL GARDEN (E)
4 - ENTRANCE OF GUANABARA BAY - FLAMENGO PARK (F), COPACABANA BEACT (I), PAO DE AçUCAR NATURAL MONUMENT (H) AND HISTORIC FORTS OF NITEROI. (G)

TOTAL AREA OF PROPERTY: 7.278,83 HA
BUFFER ZONE: 8.621,35 HA

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 75.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
D08
TITLE
SETOR (B) MAP

KEY

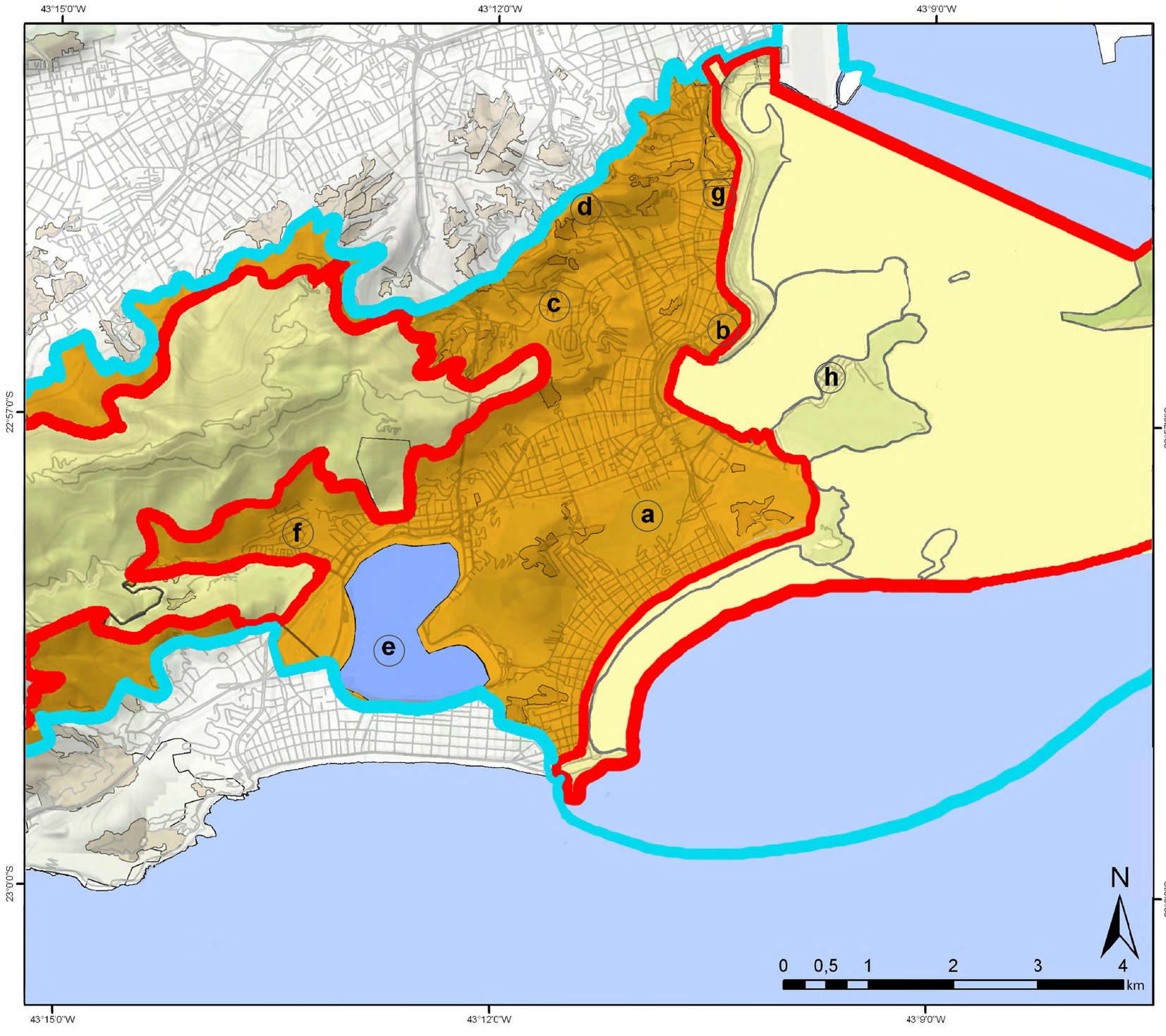
NOMINATED SITE
f. FLAMENGO PARK
4. GUANABARA BAY MOUTH AND FORTS
a. PÃO DE AÇÚCAR, CARA DE CÃO ,
URCA HILLS
b. PICO FORT
c. SANTA CRUZ FORT
d. SÃO JOÃO FORT RESS
e. BOTAFOGO COVE WATER SURFACE
g.COPACABANA SEAFRONT
l. LEME HILL / DUQUE DE CAXIAS FORT
h.COPACABANA FORT / ARPOADOR
i. DUQUE DE CAXIAS FORT
j. IMBUHY FORT
l. LAGE FORTRESS
m. RIO BRANCO FORT

NOMINATED SITE LIMITS
BUFFER ZONE LIMITS
BUFFER ZONE

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY/2011 SCALE 1: 50.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
D09
TITLE
SECTOR (C) MAP

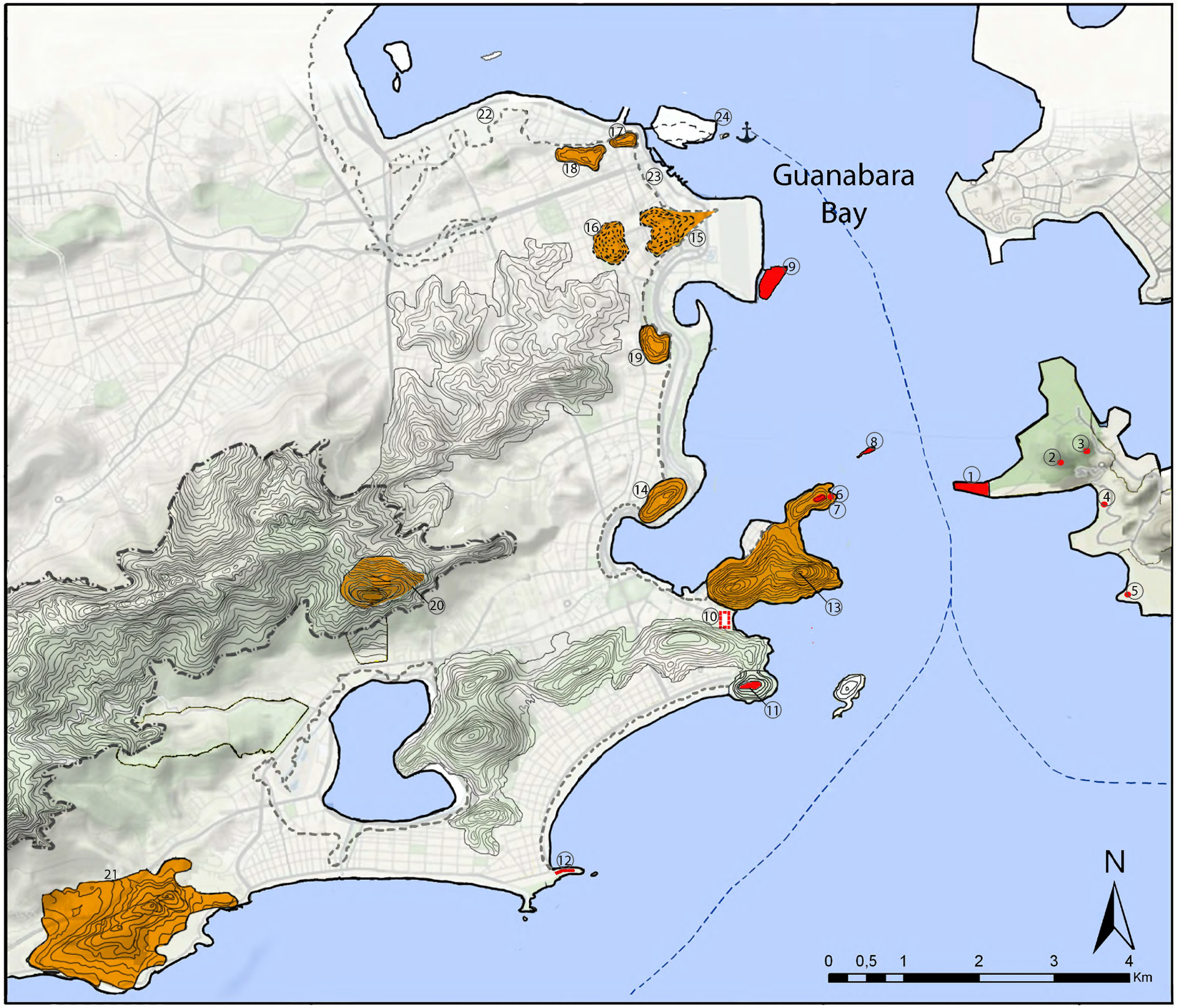
KEY

- NOMINATED SITE
- SETOR C - BUFFER ZONE
  - a BABILÔNIA, SÃO JOÃO, CABRITOS, SAUDADE, CANTAGALO, PAVÃO HILLS
  - b VIÚVA HILL
  - c. COSME VELHO AND LARANJEIRAS VALLEY DISTRICTS
  - d. SANTA TERESA HILL SLOPES
  - e. RODRIGO DE FREITAS LAGOON
  - f. JARDIM BOTÂNICO DISTRICT
  - g. ADJACENT AREAS TO FLAMENGO PARK
  - h. URCA DISTRICT
- LOW INCOME COMMUNITIES
- NOMINATED SITE LIMITS
- BUFFER ZONE LIMITS

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 50.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
H01
TITLE
THE CITY AND THE EXTERNAL
DEFENSE

KEY

- XVI TH CENTURY SEAFRONT
- CURRENT SEAFRONT
- TIJUCA NATIONAL PARK LIMITS
- DISMANTLED HILLS
- NAVIGATION LINES
- FORTS
  1. SANTA CRUZ
  2. PICO
  3. SãO LUíS
  4. RIO BRANCO
  5. IMBUí
  6. SãO JOSé
  7. SãO JOãO
  8. LAGE
  9. SANTIAGO
  10. PRAIA VERMELHA
  11. DUQUE DE CAXIAS
  12. COPACABANA
- LANDMARKS
  13. PãO DE ÁçUCAR
  14. VIúVA HILL
  15. CASTELO HILL
  16. SANTO ANTôNIO HILL
  17. SãO BENTO HILL
  18. CONCEIçãO HILL
  19. GLóRIA HILL
  20. CORCOVADO HILL
  21. DOIS IRMãOS HILLS
  22. CURRENT HARBOR
  23. OLD HARBOR - QUINZE DE NOVEMBRO SQUARE
  24. OLD BOAT'S ANCHORAGE

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 50.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE

RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
H02
TITLE
THE PRODUCTIVE CITY

KEY

- TIJUCA NATIONAL PARK LIMITS
- STREET GRID
- TIJUCA NATIONAL PARK TRAILS
- FARMS - CENTURIES XVIII E XIX
1. COCHRANE VALLEY COFFEE PLANTATION
2. SãO VICENTE MARQUESS
3. N. S. CONCEIçãO DA LAGOA
4. FURNAS DE AGASSIS
5. CASCATA GRANDE

- FARMS - CENTURIES XVIII E XIX
6. MURUMBI - VILA RICA - ELEFANTE VALLEY
7. MARIA DEVEL
8. CANTAGALO - VALE DOS CIGANOS
9. BORGES
10. TAUNAY - CASCATUNHA
11. AçUDE
12. SOUTO - MAYRINK
12. BELA VISTA - MAYRINK
13. ALVARES DE BRITO
14. FERREIRA DOS SANTOS
14. MURALHAS
15. CAVEIRA
16. MIDORI
17. HUMAITá
18. COVA DA ONçA
19. BAMBUS - BOM RETIRO
20. VISCONDE DO ITAMARATI

- SUGAR CANE MILLS - CENTURIES XVII E XVIII

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 50.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE

N

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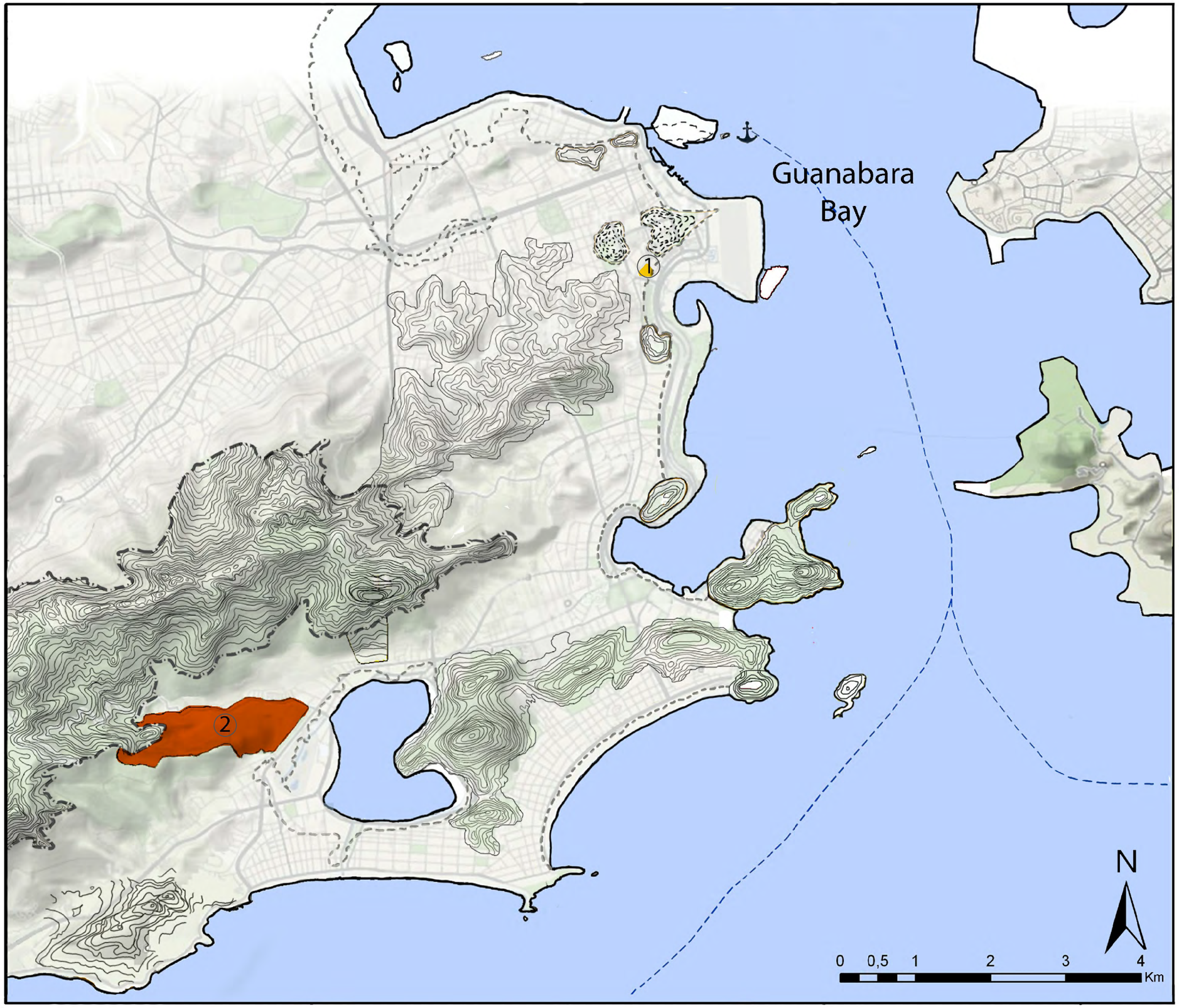


RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
H03
TITLE
THE CITY AND THE GARDENS

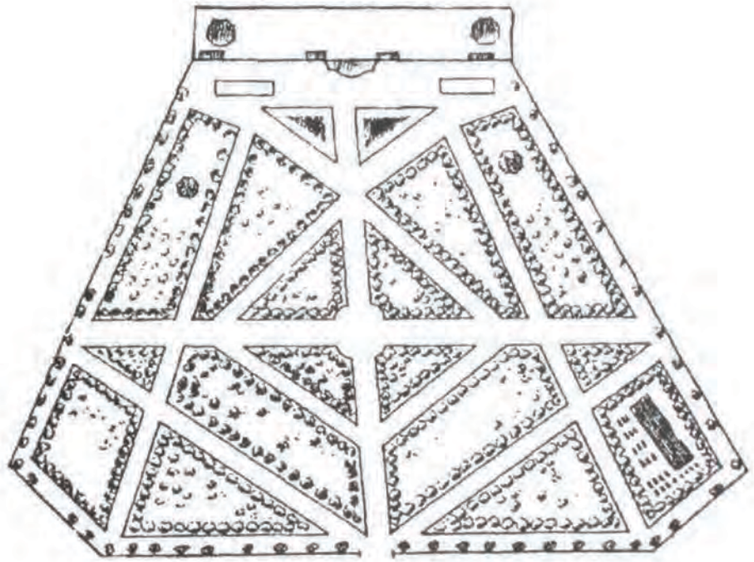
KEY

- SEAFRONT - XVI TH CENTUTY
- CURRENT SEAFRONT
- TIJUCA NATIONAL PARK LIMITS
- DISMANTLED HILLS
- NAVIGATION LINES
- PASSEIO PúBLICO - 1
- BOTANIC GARDEN -2

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

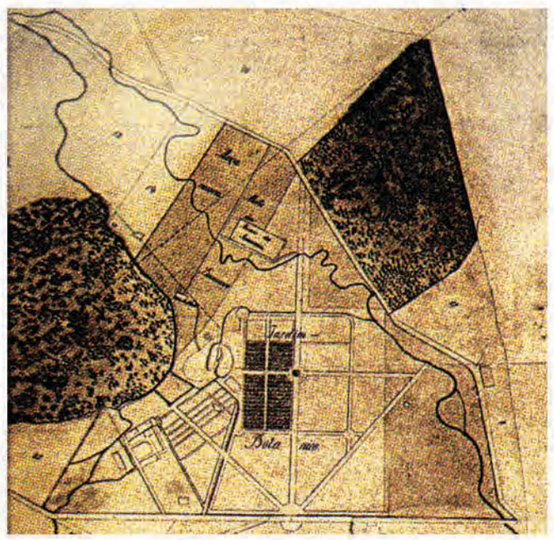
JANUARY 2011 SCALE 1: 50.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



1a. Plant by Mestre Valentim, work initiated in 1779 (Carlos G. Terra, the garden in the 19th century, Glaziou revisited, Editor Maia, 2000, pg42).

1b. Watercolour by Glaziou - plant of the reform of 1862 (C.F. moura Delphim, Manual of Interventions in Historical Gardens, Ed. IPHAN 2005, pg 17)



2a. Plant of Botanical Gardens in 1863 (RESEARCH INSTITUTE OF BOTANICAL GARDENS OF RIO DE JANEIRO, 2008, 83)

2b. Plant of Botanical Gardens in 1933 (RESEARCH INSTITUTE OF BOTANICAL GARDENS OF RIO DE JANEIRO, 2008, 88)

2c. Plant of Botanical Gardens in 2008 (RESEARCH INSTITUTE OF BOTANICAL GARDENS OF RIO DE JANEIRO, 2008, 181)

RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
H03 (A)
TITLE
THE CITY AND THE GARDENS

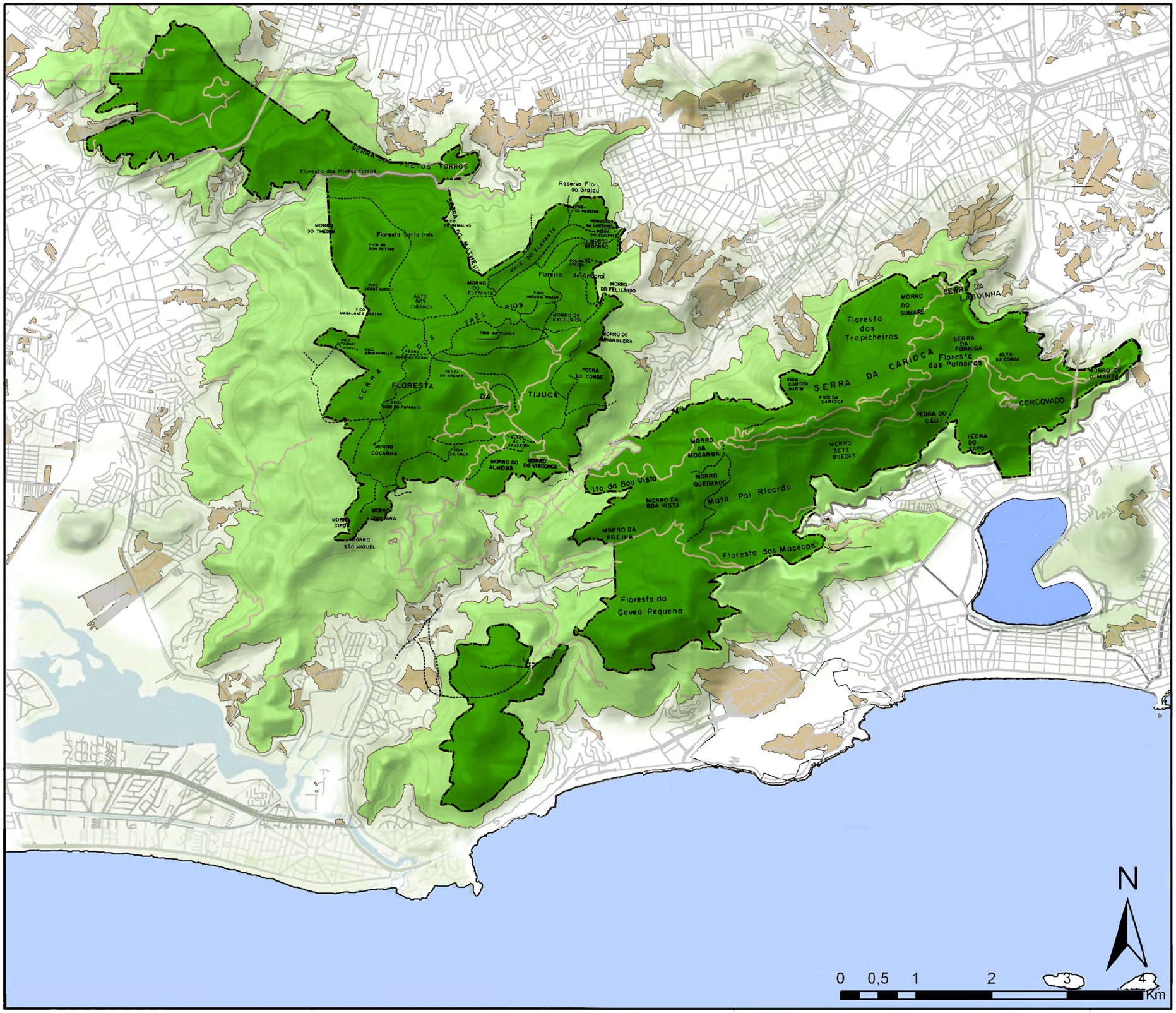
KEY

- SEAFRONT - XVI TH CENTUTY
- CURRENT SEAFRONT
- TIJUCA NATIONAL PARK BOUNDARY
- DISMANTLED HILLS
- NAVIGATION LINES
- PASSEIO PÚBLICO - 1
- BOTANIC GARDEN -2

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

AUGUST/2009

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
H04
TITLE
THE CITY AND THE FOREST

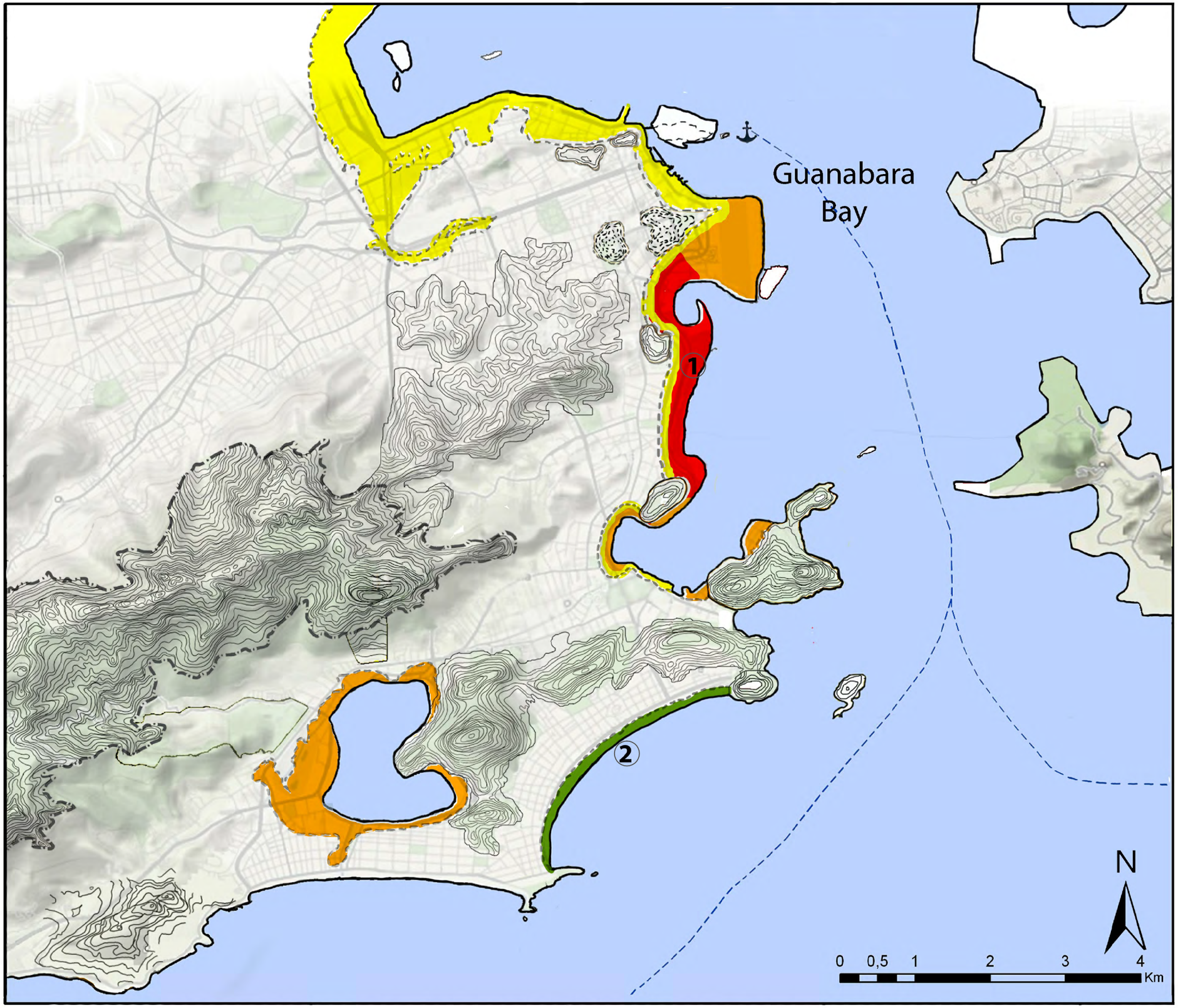
KEY

- TIJUCA NATIONAL PARK
- TIJUCA NATIONAL PARK BUFFER ZONE
- STREET GRID
- TIJUCA NATIONAL PARK ROADS
- TIJUCA NATIONAL PARK TRAILS
- LOW INCOME COMMUNITIES

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 50.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
H05
TITLE
THE CITY AND THE SEA

KEY

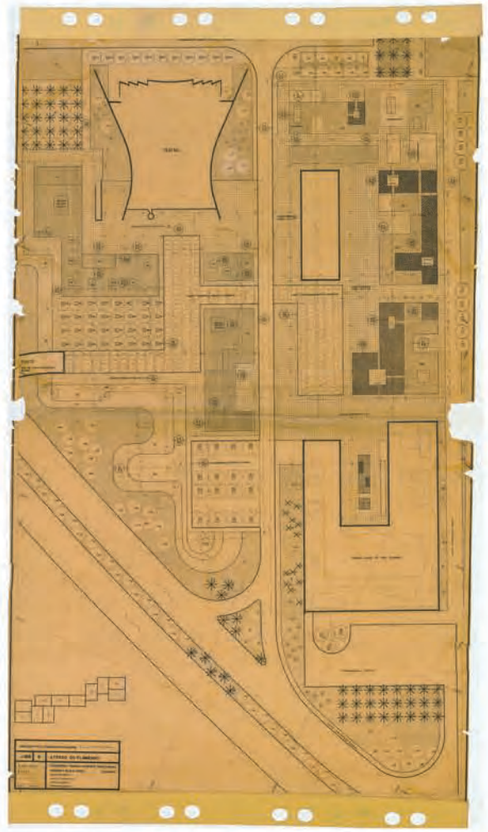
- XVI TH CENTURY SEAFRONT
- CURRENT SEAFRONT
- TIJUCA NATIONAL PARK LIMITS
- DISMANTLED HILLS
- NAVIGATION LINES
- BEGINNING OF XX TH CENTURY LANDFILL
- LANDFILL IN THE 1930 TH
- LANDFILL IN THE 1950 TH -1
- LANDFILL IN THE 1970 TH - 2

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

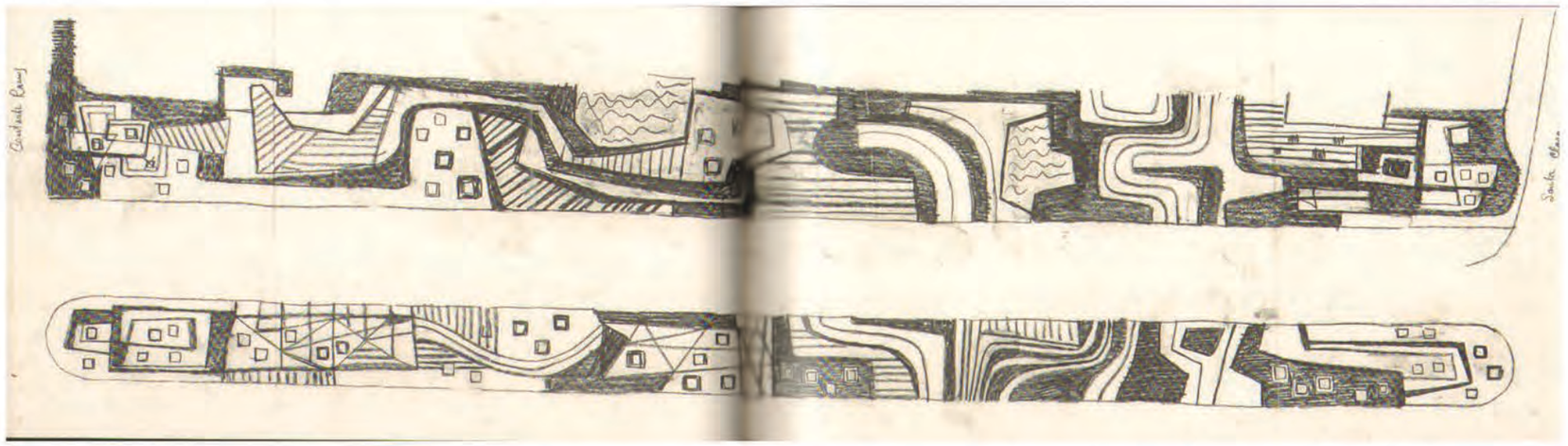
JANUARY 2011 SCALE 1: 50.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE

1 - Reidy´s original drawing for Flamengo park
Carmem Portinho Collection



1a- Drawing Nº 08 of 11 - Scale 1/250 -
Museum of Modern Art Plan - PARQUES
E JARDINS FOUNDATION COLLECTION



2 - Drawing by Burle Marx for the mosaics of Copacabana (Burle Marx & Cia Collection)

RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAIN
AND THE SEA

MAP
H05 (A)
TITLE
THE CITY AND THE SEA

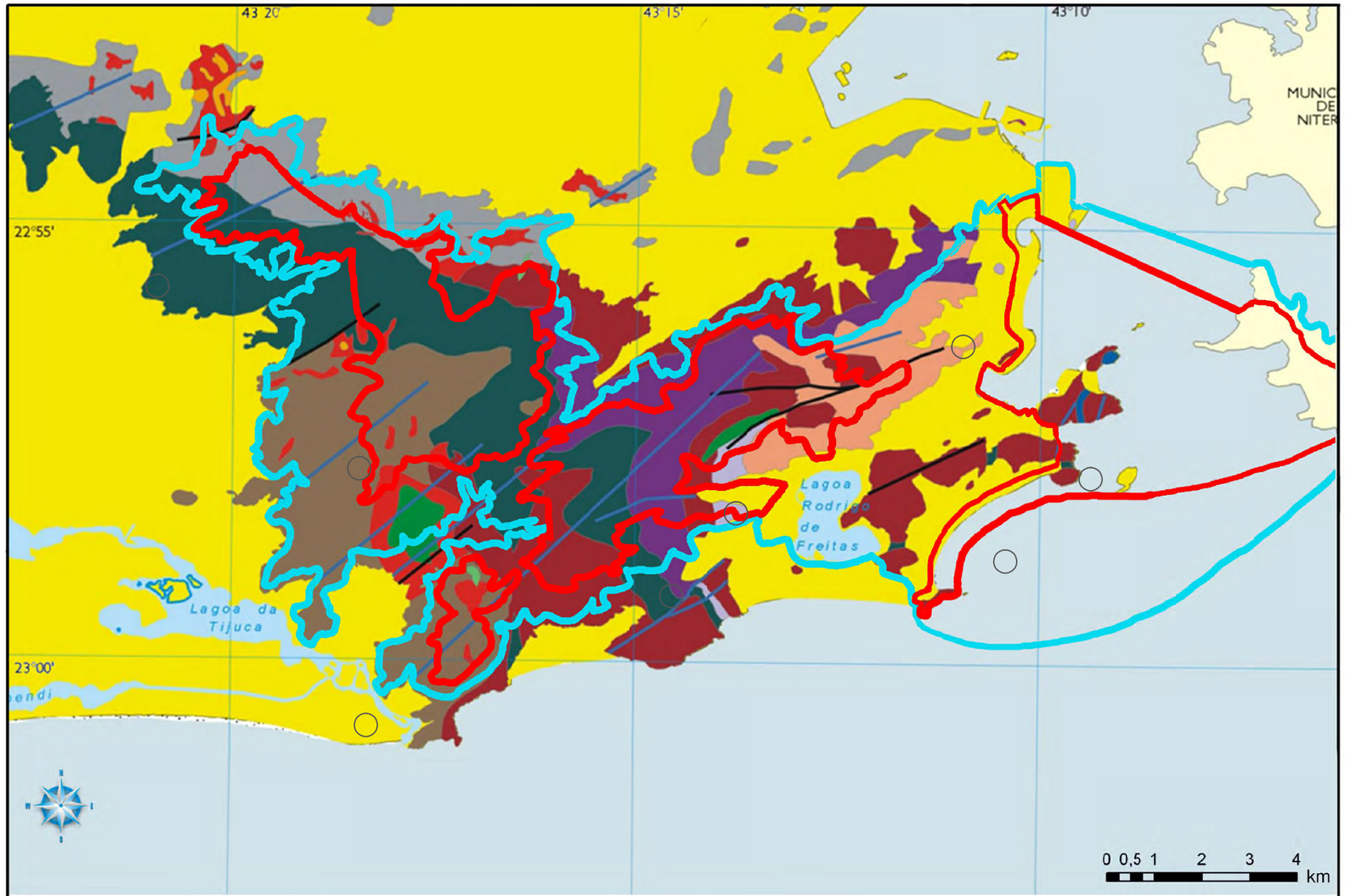
KEY

- XVI TH CENTURY SEAFRONT
- CURRENT SEAFRONT
- TIJUCA NATIONAL PARK BOUNDARY
- DISMANTLED HILLS
- NAVIGATION LINES
- BEGINNING OF XX TH CENTURY LANDFILL
- LANDFILL IN THE 1930 TH
- LANDFILL IN THE 1950 TH -1
- LANDFILL IN THE 1970 TH - 2

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

AUGUST/2009

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



Cenozoic
Recent sediment
- alluvium, dunes mangroves, reclaimed land and built-up areas

Alkaline intrusions
- syenites and tinguites (e.g. Mendanha mountain range)
- phnolites, syenites and tinguites

Mesozoic (Cretaceous)
Basic intrusions
- diabase (e.g. Pedra Branca massif)

Precambrian (Poterozoic)
Intrusive rock
- grey, porphyritic granite (e.g. favela) with dykes of granite allanite and pink granite (e.g. Grajaú and Pedra Branca)
- pegmatoid granite (e.g. Utinga) (e.g. Misericórdia mountain range)
- gabbro and quartz diorite (e.g. Tijuca)

Paragneisses
- Banded gneiss with quartz, microcline, plagioclase and biotite (e.g. Archer peak) (with Chamockite bodies)
- Facoidal gneiss with microcline, cuartz, plagioclase, biotite and granade (e.g. Sugar Loaf)
- Biotite gneiss with biotite, quartz, plagioclase, granade, microcline, cordierite, sillimanite with numerous interspersed almost pure white quartzite and chamockite lenses
- Kinzigite with biotite, quartz, plagioclase, granade, cordierite, sillimanite and microcline (e.g. Santa Teresa, Sumaré)
- Leptynite with microcline, quartz, plagioclase, granade and biotite (e.g. Dona Marta)

Precambrian (Archean)
Basement gneiss
- Migmatic gneiss with plagioclase, hornblend, granade, quartz and biotite
- Site

RIO DE JANEIRO
RIO LANDSCAPES
BETWEEN THE MOUNTAIN
AND THE SEA

MAP
D06
TITLE
GEOLOGICAL MAP

SOURCE

RIO DE JANEIRO CITY COUNCIL
Municipal Department of Urban Planning (SMU)
Pereira Passos Municipal Institute of Urban Planning (PP)
Scale: 1:275,000
Universal Transverse Mercator System
Source: Federal University of Rio de Janeiro (UFRJ) – 1999
State University of Rio de Janeiro (UERJ) – 1999
Pereira Passos Municipal Institute of Urban Planning (PP)
Prepared by: IPP Geographical Information Area
Cartography Department – 2004 and Geoprocessing Department – 1999

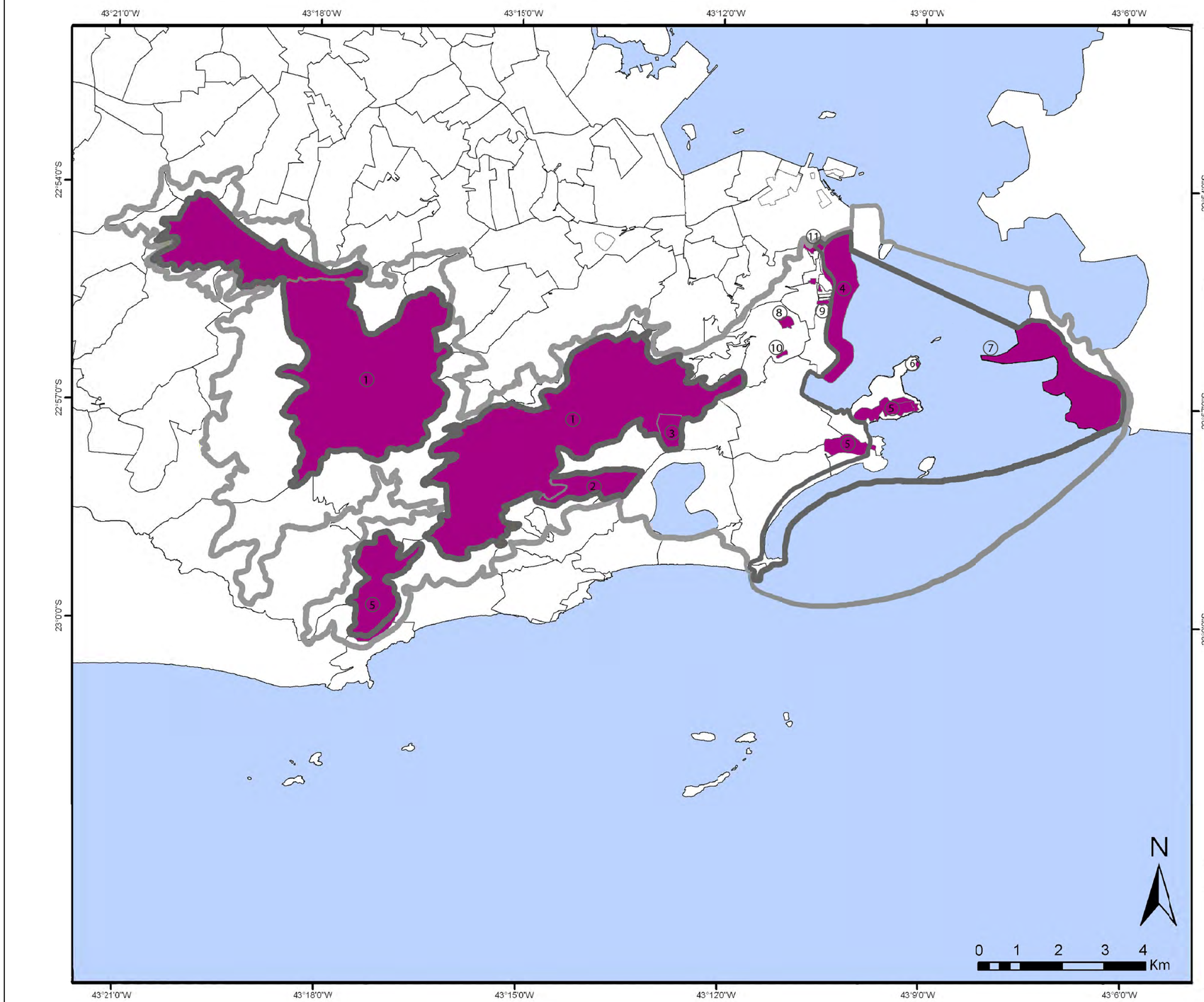
KEY

- NOMINATED SITE LIMITS
- BUFFER ZONE LIMITS

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 125.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUNTAIN
AND THE SEA

MAP
P01
TITLE
FEDERAL LISTED LANDMARKS

KEY

— NOMINATED SITE AND BUFFER ZONE LIMITS

— DISTRICT LIMITS

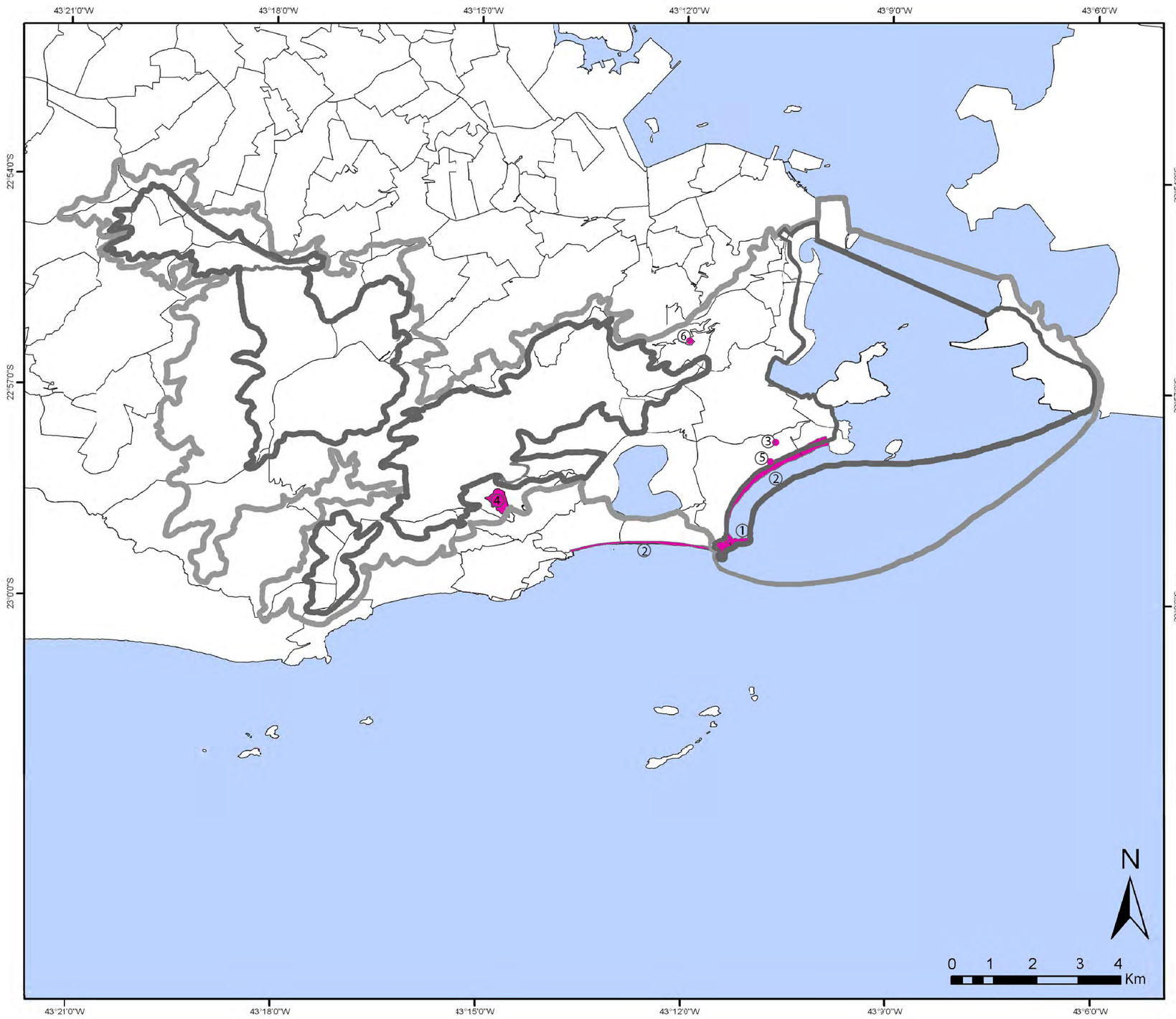
■ FEDERAL LANDMARKS

1 - TIJUCA NATIONAL PARK
2 - BOTANIC GARDEN OF RIO DE JANEIRO
3 - LAGE PARK
4 - FLAMENGO PARK
5 - CARA DE CÃO, BABILÔNIA, URCA, PÃO DE AÇÚCAR, DOIS IRMÃOS AND PEDRA DA GÁVEA HILLS
6 - SÃO JOÃO FORT
7 - SANTA CRUZ FORT
8 - LARANJEIRAS PALACE / GUINLE PARK
9 - CATETE PALACE
10 - GUANABARA PALACE
11 - PASSEIO PÚBLICO SQUARE

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 125.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUNTAIN
AND THE SEA

MAP
P02
TITLE
STATE LISTED LANDMARKS

KEY

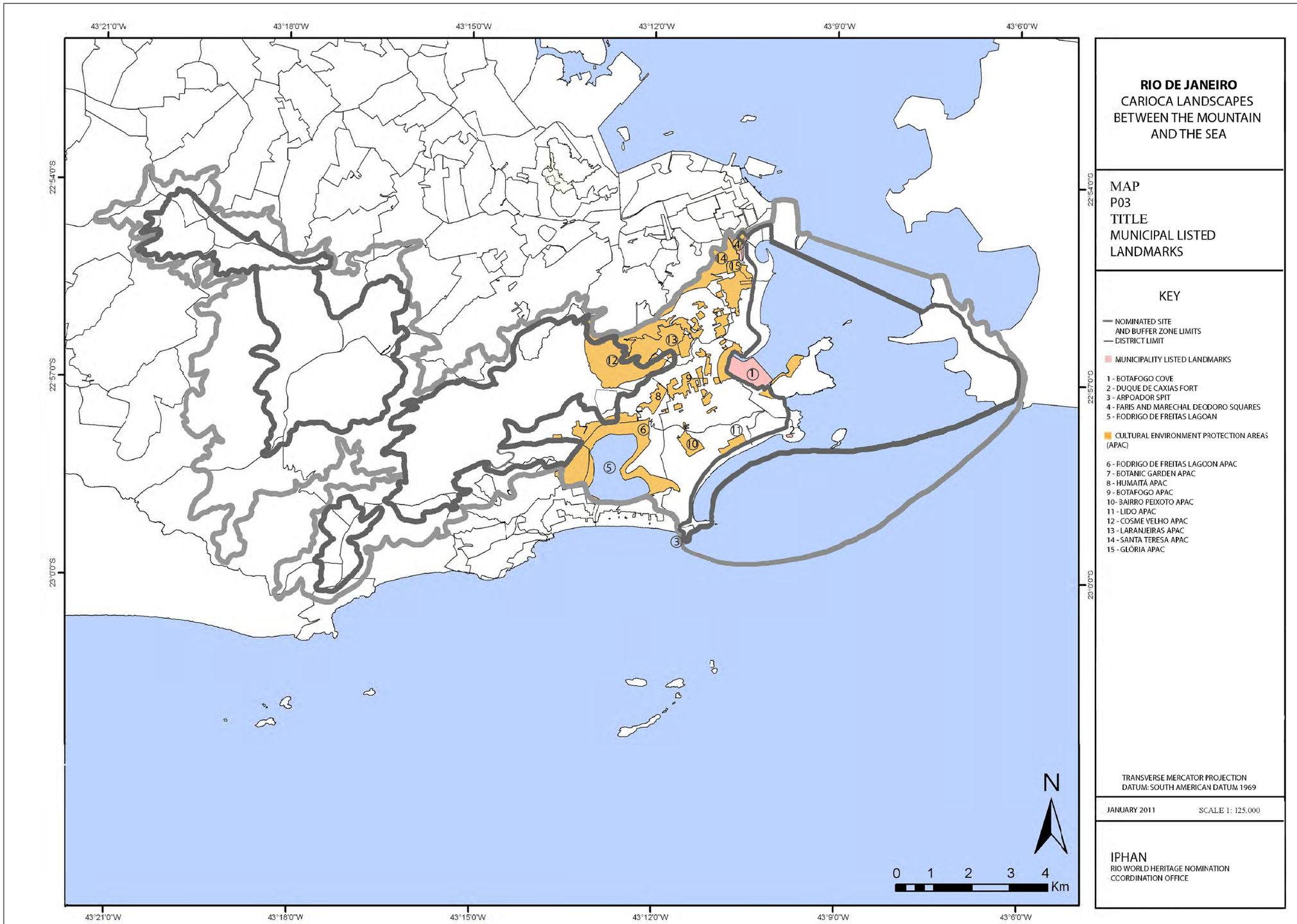
- NOMINATED SITE AND BUFFER ZONE LIMITS
- DISTRICT LIMIT
- STATE LISTED LANDMARKS

1 - COPACABANA FORT AND THE SPITS OF LAND AT COPACABANA AND ARPOADOR
2 - URBAN LANDSCAPE OF LEME, COPACABANA, IPANEMA AND LEBLON BEACHES
3 - CHACRINHA STATE PARK
4 - GÁVEA PARK
5 - COPACABANA PALACE HOTEL
6 - BOTICÁRIO SQUARE ARCHITECTURAL COMPLEX

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 125.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUNTAIN
AND THE SEA

MAP
P03
TITLE
MUNICIPAL LISTED
LANDMARKS

KEY

NOMINATED SITE
AND BUFFER ZONE LIMITS
DISTRICT LIMIT

MUNICIPALITY LISTED LANDMARKS

1 - BOTAFOGO COVE
2 - DUQUE DE CAXIAS FORT
3 - ARPOADOR SPIT
4 - FARIS AND MARECHAL DEODORO SQUARES
5 - RODRIGO DE FREITAS LAGOAN

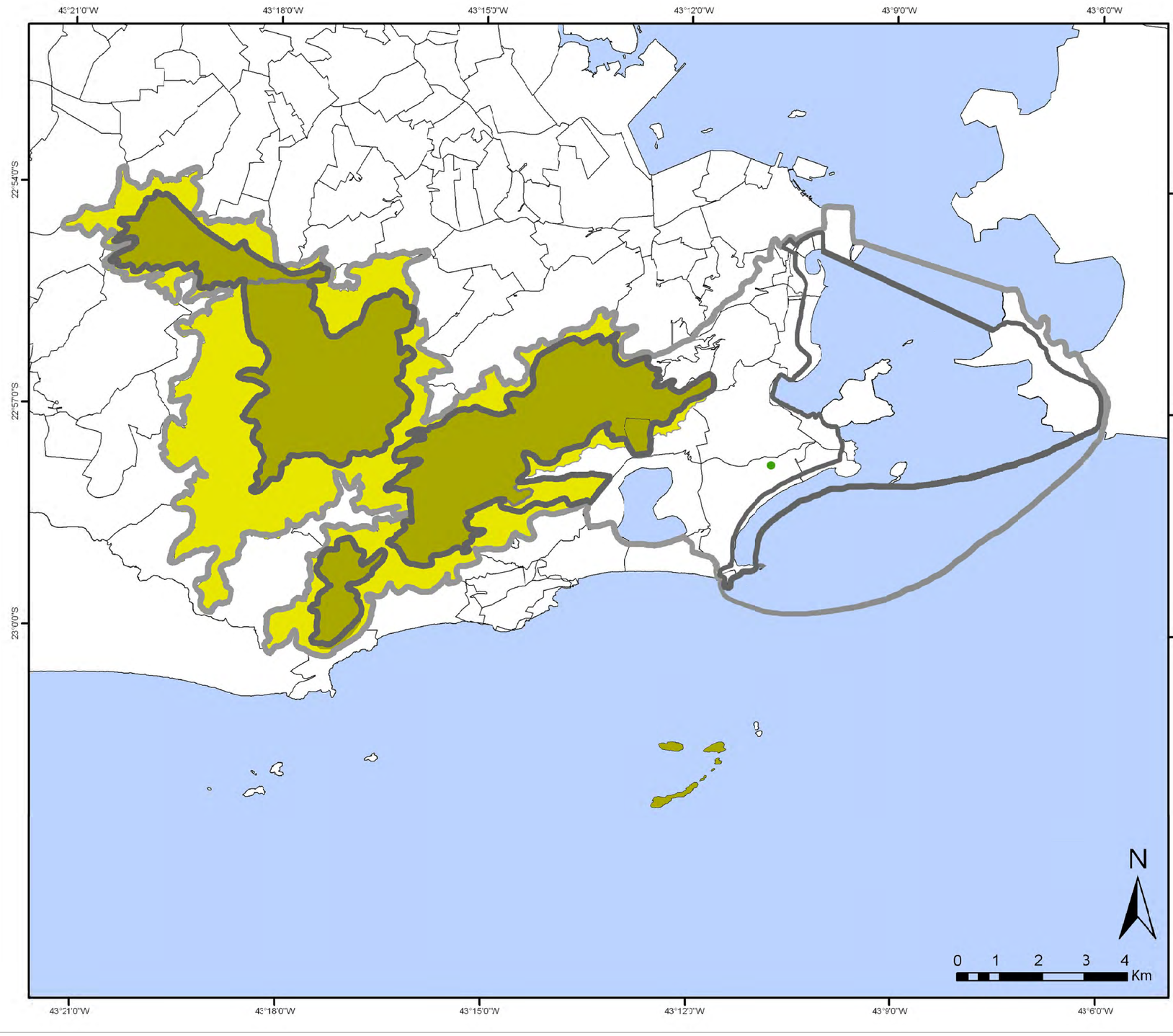
CULTURAL ENVIRONMENT PROTECTION AREAS (APAC)

6 - RODRIGO DE FREITAS LAGOON APAC
7 - BOTANIC GARDEN APAC
8 - HUMAITÁ APAC
9 - BOTAFOGO APAC
10- BAIRRO PEIXOTO APAC
11 - LIDO APAC
12 - COSME VELHO APAC
13 - LARANJEIRAS APAC
14 - SANTA TERESA APAC
15 - GLÓRIA APAC

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 125.000

IPHAN
RIO WORLD HERITAGE NOMINATION
CCORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUNTAIN
AND THE SEAT

MAP
P04
TITLE
FEDERAL AND STATE NATURAL
CONSERVATION UNITS

KEY

- NOMINATED SITE AND BUFFER ZONE LIMITS
- DISTRICT LIMIT

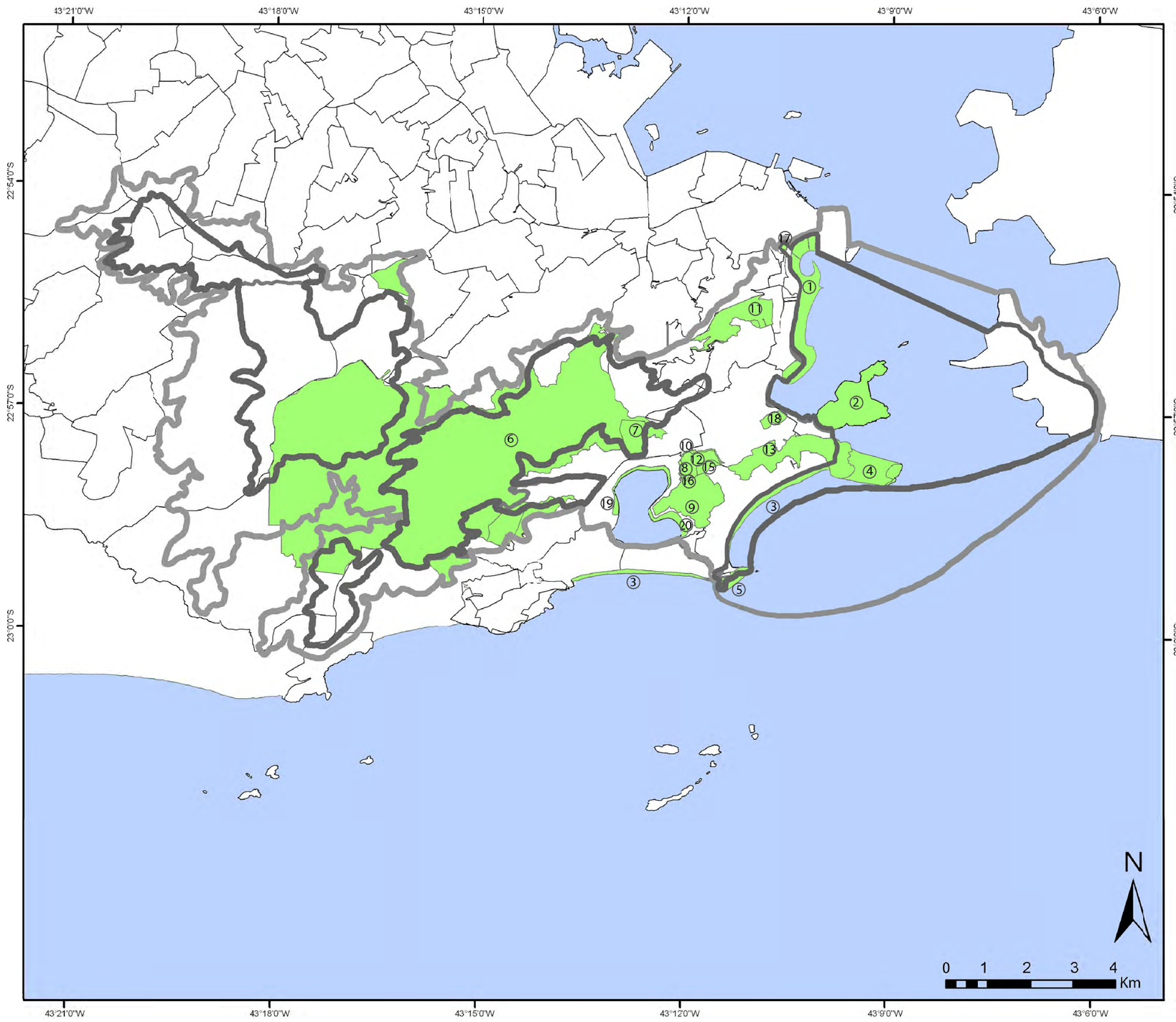
FEDERAL NATURAL CONSERVATION UNITS
- TIJUCA NATIONAL PARK
- TIJUCA NATIONAL PARK BUFFER ZONE LIMITS

STATE NATURAL CONSERVATION UNITS
- CHACRINHA STATEPARK

TRANSVERSE MERCATOR PROJECTION
DATUM SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 125.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES BETWEEN THE MOUNTAIN AND THE SEA

MAP
P05
TITLE
MUNICIPAL CONSERVATION UNITS

KEY

NOMINATED SITE AND BUFFER ZONE LIMITS
DISTRICT LIMIT

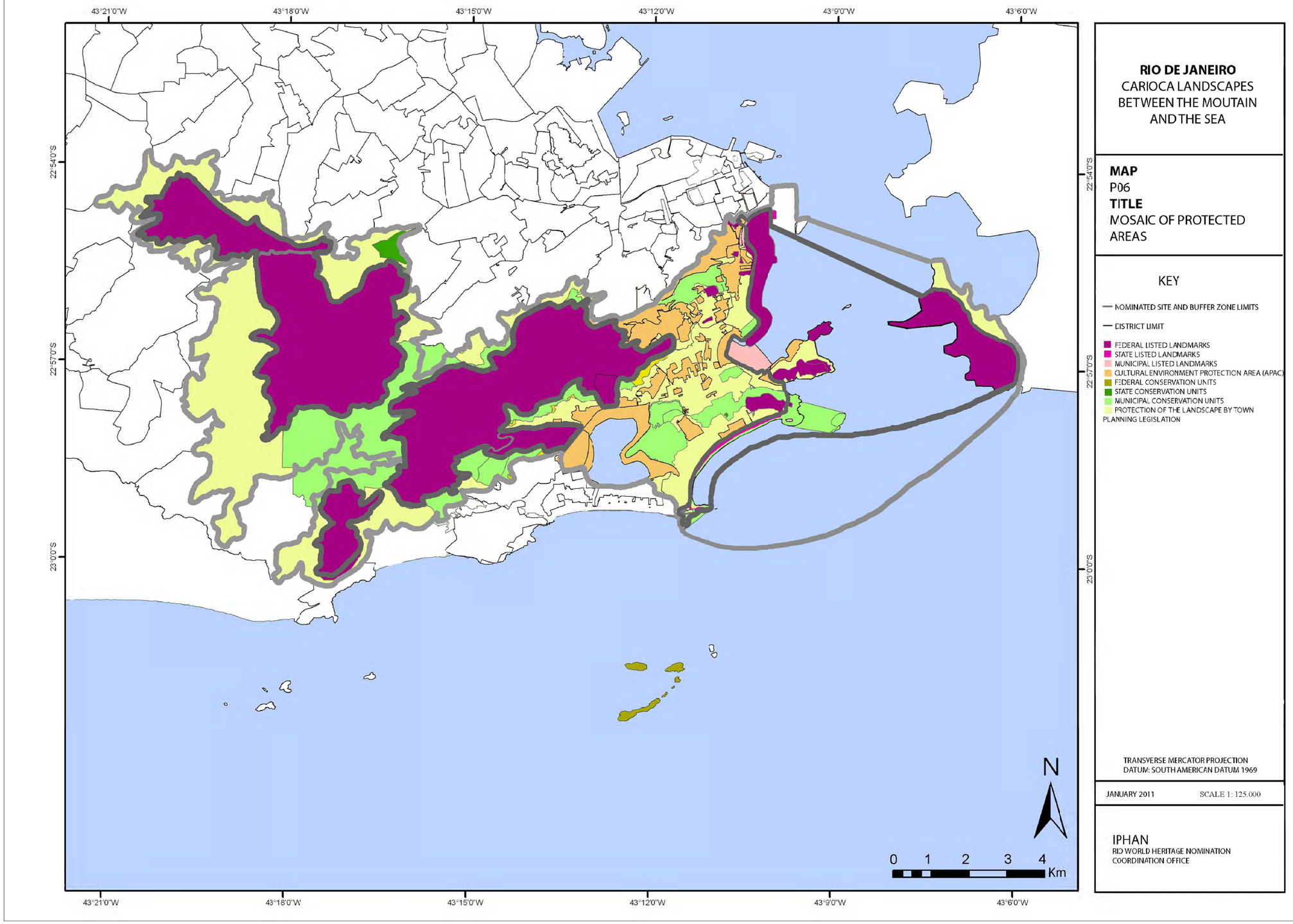
MUNICIPAL CONSERVATION UNIT, ENVIRONMENTAL PROTECTION AREAS (APA) AND ENVIRONMENTAL PROTECTION AND URBAN RECUPERATION AREA (APARU)

1 - FLAMENGO PARK
2 - SUGAR LOAF AND URCA HILL NATURAL MONUMENT
3 - SEAFRONT APA
4 - LEME HILL AND COTUNDUVA ISLAND APA
5 - COPACABANA AND ARPOADOR SPITS APA
6 - ALTO DA BOA VISTA APARU
7 - CITY NATURAL MUNICIPAL PARK
8 - FONTE DA SAUDADE NATURAL MUNICIPAL PARK
9 - CATACUMBA NATURAL MUNICIPAL PARK
10 -JOSÉ GUILHERME MERCHIOR NATURAL MUNICIPAL PARK
11 - SÃO JOSÉ APA
12 - SAUDADE HILL APA
13 - BABILÔNIA AND SÃO JOÃO HILLS APAS
14 - VIÚVA HILL APA
15 - CABRITOS HILL APA
16 - SACOPÃ APA
17 - PASSEIO PÚBLICO
18 - PASMADO HILL APA
19 - PATINS PARK
20 - CANTAGALO PARK

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1:125.000

IPHAN
RIO WORLD HERITAGE NOMINATION COORDINATION OFFICE



RIO DE JANEIRO
CARIOCA LANDSCAPES BETWEEN THE MOUTAIN AND THE SEA

MAP
P06
TITLE
MOSAIC OF PROTECTED AREAS

KEY

- NOMINATED SITE AND BUFFER ZONE LIMITS
- DISTRICT LIMIT
- FEDERAL LISTED LANDMARKS
- STATE LISTED LANDMARKS
- MUNICIPAL LISTED LANDMARKS
- CULTURAL ENVIRONMENT PROTECTION AREA (APAC)
- FEDERAL CONSERVATION UNITS
- STATE CONSERVATION UNITS
- MUNICIPAL CONSERVATION UNITS
- PROTECTION OF THE LANDSCAPE BY TOWN PLANNING LEGISLATION

TRANSVERSE MERCATOR PROJECTION
DATUM: SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1: 125.000

IPHAN
RIO WORLD HERITAGE NOMINATION COORDINATION OFFICE

SEPS 713/913 – Lote D – 5º andar
Brasília/DF – CEP: 70.390-135 Tel: (61) 2024.5500/5502
Fax: (61) 2024.5514 E-mail: gabinete@iphan.gov.br

Ministério da Cultura
Instituto do Patrimônio Histórico e Artístico Nacional

ADDITIONAL INFORMATION OF THE RIO DE JANEIRO NOMINATION AS WORLD HERITAGE

TITLE: RIO DE JANEIRO – CULTURAL LANDSCAPES BETWEEN THE MOUNTAIN AND THE SEA

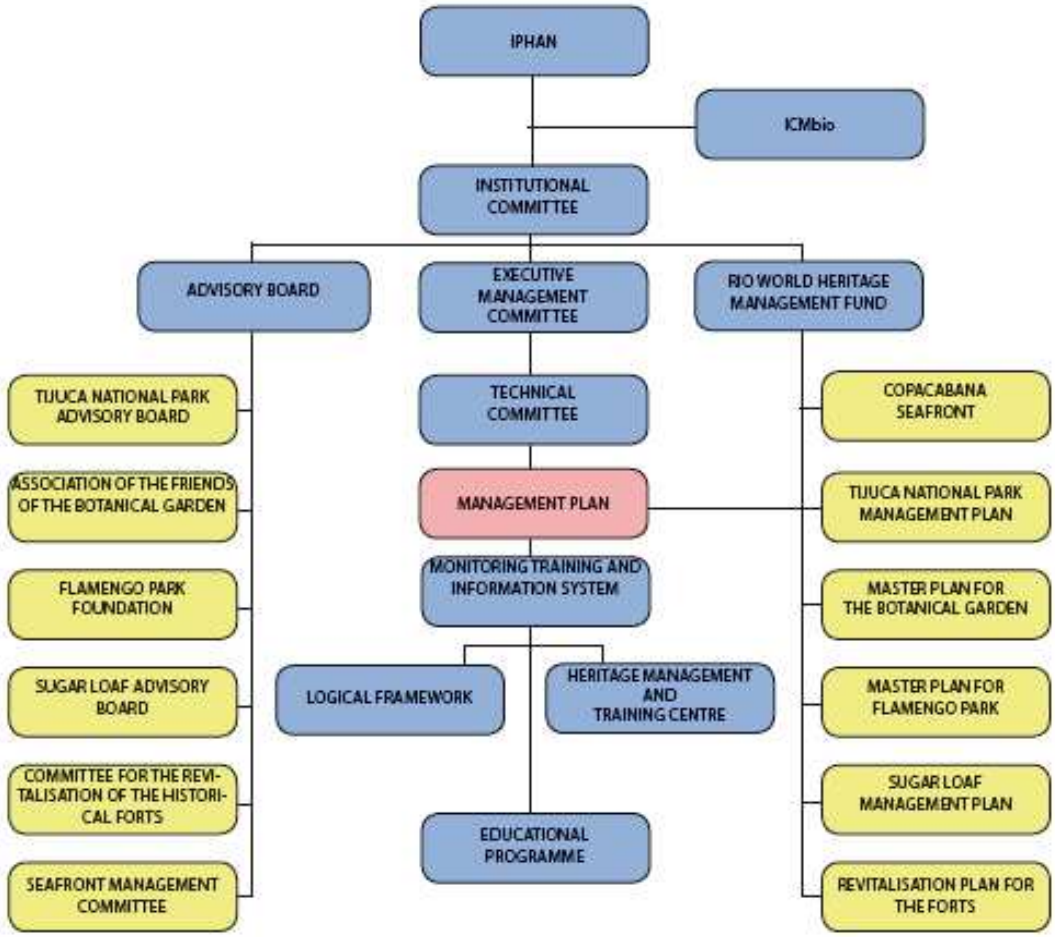
SYSTEM OF MANAGEMENT OF THE PROPOSED SITE

The proposed property is composed of four components. The management of these areas is controlled by the institutions described in the table I:

COMPONENT Nº	TITLE OF THE COMPONENT AND SUBCOMPONENT	DESCRIPTION	ENTITY RESPONSIBLE FOR MANAGEMENT
1	Tijuca Forest, Pretos Forros and Covanca	Includes the sectors Tijuca Forest, Pretos Forros and Covanca – Tijuca National Park	Ministry for the Environment - Chico Mendes Institute for Conservation of Biodiversity– Direction of Tijuca National Park
2	Pedra Bonita and Pedra da Gávea	Includes the sector Pedra Bonita and Pedra da Gávea of Tijuca National Park	Ministry for the Environment - Chico Mendes Institute for Conservation of Biodiversity– Direction of Tijuca National Park
3	Serra da Carioca	Includes the sector Serra da Carioca of Tijuca National Park	Ministry for the Environment - Chico Mendes Institute for Conservation of Biodiversity– Direction of Tijuca National Park
	Rio de Janeiro Botanic Gardens	Includes the area within the limits of Rio de Janeiro Botanic Gardens	Ministry for Science and Technology – RIO DE JANEIRO BOTANIC GARDENS RESEARCH INSTITUTE

4	Mouth of Guanabara Bay and manmade shorelines		
	Flamengo Park and its surroundings	Includes the area within the federal protection limits of Flamengo Park, Outeiro da Glória , Passeio Público and its surroundings	Rio de Janeiro City Government – Municipal Secretariat of Conservation
	Sugar Loaf Natural Monument	Includes the area within the federal and municipal protection limits of the Sugar Loaf Natural Monument and its surroundings	Rio de Janeiro City Government – Municipal Secretariat of the Environment
	Copacabana beach, Leme and Arpoador spits	Includes the area within the limits of the municipal listed area of Copacabana beach, and federal listed area of Leme and Arpoador spits	Rio de Janeiro City Government – Municipal Secretariat of Conservation and Secretariat of the Environment/ management committee of the seafront
	Historic Forts at Mouth of Guanabara Bay	Includes the area within the federal protection limits of the Historic Forts and their surroundings	Brazilian Ministry of Defence via the Brazilian Army. Directorate of Historic and Cultural Army Heritage.

The structure of the shared management proposed in the nomination demonstrated in the following chart has as its coordinating body the National Institute for Historic and Artistic Heritage (IPHAN), from to the Brazilian Ministry of Culture, with the state function of protecting, inspecting and supervising the management of Brazilian historical and cultural sites protected by federal law. A large part of the area proposed in the nomination is listed by IPHAN, and under its legal protection, which justifies its designation as coordinating body for the management of the proposed site for World Heritage.



By December of 2011, IPHAN will publish a decree designating a steering committee for the property, under IPHAN's coordination with the following attributes :

1. To conciliate the delimitation of protected areas defined by different instances of government with the area defined in the nomination as world heritage;

2. To specify the structure for the shared management of the area proposed in the nomination, defining the attributes of each managing body;

3. To specify the plan for the shared management of the area proposed in the nomination, according to the conciliation of the management tools already legally established for each one of the components and subcomponents which make up the proposed site, following the description in the Logical Framework, established between the present managing bodies;

4. To define the chronogram of the management committee, having as its goal the conclusion of the management plan proposed by October 2013, starting from the publication date of the decree.

Besides the managing bodies listed in table I, the following organizations will also be invited to be part of the steering committee: the Municipal Secretariat of Town Planning, responsible for the proposal, application and inspection of urban legislation in Rio de Janeiro City, the Municipal Secretariat of Cultural

Heritage, responsible for the proposal and inspection of protected areas listed by the City Council and the Municipal Secretariat of Town Planning of Niterói, responsible for the part of the area of the proposed buffer zone around the historical forts localized in that town. On behalf of IPHAN, the Department of Material Heritage and the Superintendence of IPHAN no Rio de Janeiro, will coordinate the work of the steering committee.

In the dossier of the nomination sent to UNESCO in January 2011, the Logical Framework of the management of the proposed site, agreed upon in 2010 by the managing bodies of the components and subcomponents, was included in the nomination. These institutions which are part of the technical committee of the nomination, designated by the decree of IPHAN, sent the following information to IPHAN in September 2011, bringing the Logical Framework agreed upon in 2010 up to date, with a description of actions already undertaken or in development by the managing bodies.

COMPONENTS 1, 2 AND 3 – SUBCOMPONENTS TIJUCA NATIONAL PARK, PRETOS FORROS, COVANCA AND SERRA DA CARIOCA - TIJUCA NATIONAL PARK

The management plan for Tijuca National Park (PARNA) was prepared in 2008 by ICMBio via decree nº 40 of 25th of June. The PARNA plan includes its area and the surrounding region, with a special focus on the surrounding neighborhoods.

The planning actions for the Park and its surrounding region were grouped into themed programs and are concentrated in strategic internal or external areas. In this way, the Actions are undertaken within the themed programs for protection and management, research and monitoring, environmental education, visiting and operation. The planning is outlined for a period of five years and the pre-established chronogram is being maintained.

RESULTS
R1) TIJUCA NATIONAL PARK, revitalised and conserved as per the Management Plan for the next five years

INDICATORS PROPOSED IN 2010	**ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT**
a) Public services adopted and in line with international tourism standards	The Park maintains a public information service at the Forest Visitors Centre, a Tourist Information Unit at Corcovado and a Visitors Centre in the process of inauguration at Parque Lage Park. It has a website and a blog to propagate information about the Conservation Unit
b) Correction of any land ownership issues and provision of	The regularization of land ownership issues is progressing. Local residents have been registered

suitable infrastructure for the needs and aims of the conservation area.	and negotiations have been initiated for their relocation. The infrastructures are not yet sufficient for present necessities.
c) Code of conduct for users of the national park PARNA	We already offer a course for guides and new personnel and we will be offering a regular course to train guides with regard to the norms of the Park and standards of behavior to be followed. Those who operate facilities in the area will also be informed and brought into line with regard to the codes of conduct. We also count on monitors to orient those who frequent the Park. There are clearly defined codes of conduct for trekkers, climbers and other sporting activities in the Conservation Unit.
d) More robust administration with priority action plans to improve its performance and functions.	The Park includes an exclusive financial administration Unit, the UAAF of Rio de Janeiro.
e)System to organise park visiting and control of revenues	We already have surveys of visitors in Tijuca National Park and the trekking trails of Pedra da Gávea, Pedra Bonita and Parque Lage-Corcovado. In Corcovado there is organised visiting and control of revenues. For ten years the Visitors' Centre in Tijuca National Park has done surveys of visitors including statistics of visitors according to continents, countries, Brazilian states, age, sex, schools catered for and guided tours.
f) Recognition of Tijuca National Park for its natural, historical and cultural value on a local, regional, national and international scale	The Park's landscape is listed and it possesses sites of historical and cultural value. The Cristo Redentor monument has been recognized internationally, as one of the seven wonders of the modern world. All the historical-cultural assets have been listed, classified and historically researched
g) Strategies to control and protect the natural resources in the conservation area	Control by monitoring of the trekking trails, periodical inspection operations are programd and a cooperation agreement between the Park and the Catholic University (PUC) has been established for monitoring by Satellite.
h) Recuperation of natural ecosystems	In the recovering zones established according to the zoning system of the Management Plan there

	are reforestation programs, as well as in parts of the surrounding areas which have suffered degradation. The reintroduction of seed-scattering fauna is also an ongoing project.
i) Systematic action to prevent forest fires	For six months of the year, at the beginning of the dry period a 12-man fire brigade is employed to combat forest fires.
j) Mechanisms for outreach from the conservation area to the local community and institutions established to prevent squatting	The Park's priority is to employ the residents from the communities around the forest and create incentives for third party operators to do the same and train them in the Park's codes of conduct, zoning system and environmental mores. The Hosts of Cosme Velho Project trained 30 young people from the community to exercise self-sufficient professional activities. The communities around the forest are periodically surveyed from the air and by land, to control eventual invasions. There is also a green line, for reports about invasions and predatory activities.
k) Institutional functions and powers established in technical cooperation processes	By means of a cooperation agreement between the shared management of the Conservation Unit, we have established a working plan, which proportions determined activities for each of the participating entities.
l) Adjustment of areas for public use in line with technical and operational criteria	The Project of the Paineiras Complex will by means of a third party contract, permit works for construction of a parking lot, a station for boarding and disembarking vans/buses, restaurants, an exhibition and convention centre and shops. The revitalization of Corcovado, with the reform of the areas of access to the elevators, road and railway boarding and disembarking areas, cafés and shops. The modernization of the trains to increase the transport capacity. A project for a new Forest Visitors Centre.
m) Economic self-sustainability and qualification in all activities undertaken within the conservation area	Various third party services programd (Esquilos and Floresta Restaurants, canopy, heliport).
n) Management activities inside and outside the protected areas,	The management plan is being gradually implemented at a slow speed as there is a

with management, research, monitoring, visiting and environmental education implemented according to the management plan for the next five years, counting from its approval	necessity for large investments both in financial and human resources.

COMPONENT 3 – SUBCOMPONENT THE BOTANIC GARDENS OF RIO DE JANEIRO

RESULTADOS
R2) conserved and managed in compliance with its Master Plan in four main areas: **1 - Arboretum** **2 – Cultural Corridor and Administration Area;** **3 – Teaching and Research Facilities;** **4 – Integration and Future Expansion.**

INDICATORS	ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT
a) Conservation of the Arboretum landscape environment, including its monuments and artworks, allowing for the greatest possible numbers of visitors as a result of the following measures: • Conservation of the heritage and enhanced value of public visits; restoration of the Mestre Valentim greenhouse, the viewing spot from the Atlantic Rainforest walk, the turrets on the main gate (snack bar and first aid unit) • Improvement of infrastructure and support services; electricity cables to be laid underground	The Botanic Gardens' priorities, included in the provisions of the 2012 budget, and making up the series of projects for fund-raising through partnerships are: the Mestre Valentim greenhouse: the recuperation of the greenhouse, the Botanic Gardens historic buildings, restoration of the works of art of Mestre Valentim, The viewing spot from the Atlantic Rainforest walk: amplification of the public visiting area with the integration of the Cactus House and the Atlantic Rainforest walk. Project in final phases of elaboration, included in the provisions of the 2012 budget. Turrets on the principal entrance gate: the turrets have been restored. Transformation of overhead electricity cables to underground: Project elaborated in partnership with Light electricity company, in phase of financing with funds from Eletrobrás. Favorable report from IPHAN.

INDICATORS	ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT
b) Visits by the public to be enhanced by improving the services and facilities in the **Cultural Corridor** by means of the following measures: • Integration of the whole area with improved road infrastructure • Expanded Cultural Corridor – Visitors Centre	The pathways of the Arboretum were recuperated and specially prepared for the use of wheelchair-users, buggies, pushchairs, and elderly people. The infrastructure was improved with the reform of all the public bathrooms of the Botanic Gardens, and the construction of new ones. A new access to the Botanic Gardens, was opened at 101 Rua Pacheco Leão street - on the corner of Rua Jardim Botânico street, adapted for special needs visitors. The Botanic Gardens has three snack bars, one beside the Tom Jobim Theatre, one beside the Visitors Centre and one in the Playground. The Playground has been reformed and its furniture changed for the comfort and security of the children. A turnstile system for visitors and a swing barrier for vehicles allows for more control over revenue and more security for public visiting. The Cultural Corridor has been consolidated and expanded, and includes the Tom Jobim Theatre, the recently Inaugurated Galpão of the Arts, and the Theatre Cafeteria. The Environmental Museum, just restored and open to the public with two inaugural exhibitions is a highlight. In 2011 it underwent an acoustic adaption to be reopened in March of 2012. The Visitors Centre caters to a public of approximately 500 thousand a year, offering maps and folders, guided visits on specific routes, on foot or in an electric cars, exhibitions and a cine club. The Environmental Education Nucleus operates with teachers and students, with an average 400 teachers and 8.200 pupils, besides working directly in Schools.
c) **Research and Education Units** integrated with the other activities taking place at the Botanic Gardens, allied to heritage protection activities by means of the following measures: • Restoration of the National School of Tropical Botany	The Solar da Imperatriz was completely restored and houses the National School of Tropical Botany which offers training and professional qualifications in botany, ecology, environment, management of Botanic Gardens and related areas, emphasizing the masters and doctors' degrees. In 2008 works were carried out for the conservation of the restored building. The integration of the Arboretum with the National School of Tropical Botany was restored making the work of conservation of

INDICATORS	ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT
(Escola de Botânica Tropical) • Surfacing of the service route to integrate the Arboretum with the National School of Tropical Botany • Integration between teaching and research activities and expanded visitor areas; Vegetation House (to be opened to the public).	the green area much easier, enabling easy access to the composting facility and the Horto Florestal, without having to use the roads. A program of integration between research into living collections, the herbarium and other collections was inaugurated, and a new border built to hold rare and extinct species from the Atlantic Rainforest
d) Improved methods for controlling the use and occupation of the land by means of the following measures: e) Improved infrastructure and support services; beds for compost f) Conciliation between different uses and support systems; expansion of visiting areas; new composting facility and garage for own vehicles.	The composting facility gained new installations and equipments, enabling the production of organic compost for the Arboretum itself and for possible commercialization. Space was made available for a new *parterre* destined to the collocation of organic material collected in the Arboretum. A New HQ for the Conservation of the Green Area, destined to house the field-workers, the administration staff, the machinery, tools and vehicles destined for the work on the Arboretum.

INDICATORS	ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT
e) Special projects and supplementary plans: • Efficient energy management; • Environmental sanitation and integrated solid waste management; • Improved water supply and sewage systems; • Rainwater drainage system; • Irrigation and water system for lakes; • Management Plan for Living Collections; • Visitor profile study; • Plan for improved accessibility to the Botanic Gardens of Rio de Janeiro.	The Botanic Gardens, through the Environmental Education Nucleus elaborated and coordinated the development of an institutional project for environmental management, entitled "Rational Use of Our Resources", with a specific methodology. This project proposes to follow the guidelines which orient the environmental educational actions established by the Ministry for the Environment, intending to generate comprehension of individual responsibility and collective commitment in actions which can result in an efficient employment of the natural, material, financial and human resources of the Botanic Gardens, through a participatory process and conscience-raising practices. The drainage system of the bathrooms was renewed, with the whole system linked to the network of the Rio de Janeiro State Company of Water and Drains - CEDAE. All the links of the water supply and sewage systems are being renewed in partnership with CEDAE. New septic tanks and gutters have been built in the places which fall outside the network, with a capacity to cope easily with demands over the next twenty years. Over the last two years, the whole rainwater drainage system has been renewed and channeled into the Macacos River which crosses the **Arboretum** The Management Plan for Collections is part of the Policy for Living Collections, already elaborated, for the research area and for the curatorship of living collections, presently in the phase of final adjustments for institutional approval. The Visitors' Centre annually applies a questionnaire to the visiting public containing a series of questions whose answers lead to the identification of some visitors' profiles, types of interests and satisfactions/ dissatisfactions. One of the priorities of the Botanic Gardens has been to facilitate the access of people with special needs to all its installations and for this reason all the avenues have been smoothed out and ramps placed in all the buildings. One of the areas contemplated is the Garden of the Senses directed to people with sight disabilities.

COMPONENT 4 – SUBCOMPONENT HISTORIC FORTS AT THE MOUTH OF GUANABARA BAY

The management of cultural assets under the responsibility of the Army included in the Rio Cultural Landscape nomination is being directed to the increase of tourism and visitors, greater facility of access, amplifying the implementation of educational activities, generating conditions of self-sustainability, contributing to the development of environmental awareness and guaranteeing the social function of this heritage, integrating it to the daily routine of Rio de Janeiro city.

This work receives the support of IPHAN, of parallel institutions in the state and city spheres, research institutions and organizations from the Third Sector (NGOs), as well as the recognition of Rio de Janeiro's population and society. This joint effort will be favored by the nomination of the Rio Cultural Landscape Site as World Heritage, resulting in the increase of investments for the execution of the projects of the Plan to Revitalise and Promote Tourism and the Cultural Use of the Historic Forts at Guanabara Bay, in the amplification of touristic-cultural interest in these areas and the subsequent intensification of the socio-cultural benefits they produce.

The shared management for the Rio Cultural Landscape Site, as far as the assets under the responsibility of the Army are concerned, possesses the elements listed below:

RESULTS	SITUATION	OBSERVATION
"Plan to Revitalise and Promote Tourism and the Cultural Use of the Historic Forts at Guanabara Bay, to be drawn up by July 2012	**Concluded**	**The plan was developed according to specifications in programs outlined in the Logical Framework .**

INDICATORS:

3.1.1 Program for the Preservation of the Cultural Heritage	
Description	- The program includes the restoration of buildings and arsenal, works of art, archives of documents and maps and other elements which compose its historical collection
Objectives	• Restoration of historical and cultural heritage represented by the fortifications and cultural areas of Guanabara Bay • To offer better conditions for opening the fortresses/cultural areas to public visitation

	• To guarantee public usage and consistent sustainability which allows for the realization of cultural activities and their organic maintenance
Restoration Projects	**Present Situation of the project**
São João Fortress	• The installation of a museum was concluded • elaboration of more projects necessary in 2012
Duque de Caxias Fort	• concluded • elaboration of more projects necessary in 2012
Santa Cruz Fortress	• elaboration forecast for 2012
Copacabana Fort	• elaborated and approved • undergoing fund-raising process
National Monument to the soldiers who died in WWII	• elaborated and approved • undergoing fund-raising process
Conceição Fortress	• elaborated and approved • undergoing fund-raising process • elaboration of more projects necessary in 2012
Laje Fort	• elaborated • undergoing approval process [1]
São Luiz Fort/Pico Fort	• In elaboration
Imbuhy Fort	• Concluded
Gragoatá Fort	• elaboration of more projects necessary in 2012
3.1.2 Historical-Cultural Program	
Description	– The program includes plans to research the origins of each fortress, the reasons behind its construction, the architectural styles, alterations suffered to the original form and the organization, origins, caliber and period of installation and deactivation of its weaponry and its use in the defense system of Guanabara Bay
Objectives	• Create incentives for new partnerships, with common interests, to be established; • Create cultural poles which diffuse the history and military values, passing them on to visitors, students and

[1] Its restoration and the installation of a restaurant is planned

	researchers; • Establish criteria for exchanges and mutual support with similar entities ; • Contribute to the interaction of the Army with Brazilian society; • Recover and analyze all documents pertaining to the object of research in order to undertake a profound study of the role of the forts in the defense strategy of Guanabara Bay. • Proportion subsidies to implement the restoration of the fortifications and armory. • To support cultural initiatives directed towards education and leisure, utilizing the ancient fortifications to support events of a cultural, social or artistic nature.
Projects	**Present Situation of the project**
Historical/archaeological research: • Historical/archaeological research of the forts, with the intention of recovering the reasons for their existence, their strategic importance, the historical highlights of their evolution, their weaponry and the combats in which they took part • Historical research of daily life, with the intention of recovering how their buildings were originally used and space defined within them, how their occupants lived, uniforms, hygiene, food and water supply, etc. • Social History research, with the intention of discovering who were the men who built and manned the forts, their contact and the relationship of their garrisons with the population living around them, the participation of indigenous people or black slaves in its construction and, later, in the composition of the military contingents which manned them.	• The research projects are being carried out as subprojects of the restoration and tourism planning projects • DPHCEx established a partnership with researchers in order to produce knowledge about the fortifications[2] • The Army's Historical Archive contains a vast amount of material about the fortifications which has been available to researchers and used in publications and research. This information is available in data banks accessible via internet.
Architectural and constructional research: • with the intention of discovering the characteristics of their architecture, the author of the project, the original model and the origins of this model, the techniques employed in its construction, the materials	

2 Partnership initiated after the presentation of the Plan for revitalization of the Historic Forts at the 6th Regional Seminar of Fortified Cities as a First Technical Encounter for Managers of Fortifications: http://cidadesfortificadas.ufsc.br/files/2011/03/2010_6sem_palestra_JoseClaudioSantosJr.pdf

(the cornerstones, the masonry, the wood, the mortar), the structure (the system of binding the walls and battlements, the vaults) and the solutions adopted for construction and maintenance.	
Heritage education: • with the intention of creating references for the construction of national identity by means of the interpretive appreciation of the architecture, the maintenance of a permanent exhibition which conveys the values which have consecrated it as cultural heritage by means of guided tours, not only for the sake of tourists, but also for the local population, paying special attention to children and young people from public and private schools.	• Heritage education activities are being regularly developed with public and private schools, as well as other groups of young people, in all the Army areas included on the site.
3.1.3 Program for Social Tourism	
Description	- with the intention of offering the necessary infrastructure to include the principal fortifications and cultural areas of Guanabara Bay, which can combine displacements by land and by sea, in the Rio de Janeiro tourist routes.
Objectives	• To create the best possible conditions for the systematic development of tourist visits to the fortifications and cultural areas of the Brazilian Army in the Guanabara Bay area; • To propagate Brazilian history; • To create conditions of self-sustainability which allow for the conservation and maintenance of the fortifications and cultural areas; realization of cultural activities and their self-sustaining maintenance • To create incentives for partnerships in other areas of Army interest, which may generate income, employment or social inclusion. • To restore the social function of these monuments, reintegrating them to the daily life of the cities of Rio de Janeiro and Niterói;
Projects	**Present Situation of the project**
Adaption or recuperation of moorings of Santa	• Conception of moorings concluded

Cruz Fort Adaption or recuperation of moorings of São João Fort Adaption or recuperation of moorings of Copacabana Fort Adaption or recuperation of moorings of Ilha de Bom Jesus island/Asilo dos Inválidos da Pátria asylum.	and inserted in the plan • elaboration of studies and technical projects planned for 2012, in partnership with other institutions
Tourist infrastructure: • preparation of tourist infrastructure for the reception of visitors: bathrooms, drinking fountains, public telephones, snack bars, resting areas, souvenir shops, improved access, security, signs, publicity, etc	• the areas are graced with a good infrastructure, thanks to the projects held there over the last years • elaboration of more projects necessary in 2012
Local Development : • tourist projects in partnership with companies operating in the same sector (marine and land transport, cable cars, restaurants, artistic events, etc), aiming at income generation and creation of conditions of self-sustainability to enable the conservation and maintenance of the fortifications and cultural areas. • Social projects related to local development , in partnership with entities from the 3rd sector (NGO and OSCIP – Civil Organization of Public Interest), universities, service clubs, etc..., resulting in great benefits for the population.	• some partnerships are being developed for social projects in the areas of the site • elaboration of more projects necessary in 2012 • a partnership was established between DPHCEx and the Laboratory of Technology and Social Development– LTDS, of COPPE/Rio de Janeiro Federal University for the development of tourist projects in the cultural areas of the site
3.1.4 Program of Environmental Education	
Description	- The program incorporates the development of environmental education activities, spreading scientific knowledge and offering community services (training junior patrolmen, the planting of vegetable species on commemorative dates, guidance for citizenship, participation in civic events etc)
Objectives	• To create incentives for partnerships where common interests may be established; • Develop and implant a system of education and environmental preservation giving value to actions

	directed towards awareness and conservation of the environment and the betterment of life quality, highlighting the preservation of the Atlantic Rainforest existing in these areas; • To give value to the physical, moral and ethical attributes on which the character of Brazilian society is based, helping to obtain a concept of full citizenship.
Projects	**Present Situation of the project**
Infrastructure and personnel: • preparation of the infrastructure (signposting pathways, safety procedures, etc) and personnel (junior patrolmen) for the realization of ecological walks, of a non-predatory, scientific nature, planned in a way that consolidates the values of environmental diligence.	• environmental education projects are being carried out in some areas with public and private schools, as well as the general public
Environmental Actions: • carrying out practical activities of environmental preservation, in partnership with civil entities, in order to recuperate the patches of the Atlantic Rainforest at the fortifications covered by the plan, and reduce any kind of environmental impact which the tourist activities may have on the same.	

COMPONENT 4 – SUBCOMPONENT COPACABANA BEACH AND SPITS

RESULTS
R5) **Copacabana beach, Leme and Arpoador Spits, with a Conservation and Revitalisation Plan drawn up and the areas duly conserved**

INDICATORS	**ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT**
a) Plan for the Recuperation and Revitalisation of Copacabana Beach drawn up by January 2010, including:	• Municipal Listing – Decree 30936 of 04.08.2009 - Rio de Janeiro City Council listed

INDICATORS	ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT
• Recuperation of all the elements in Burle Marx' original plan , especially the Portuguese cobblestone mosaics, using internationally-used conservation techniques • Reorganisation of the use of public spaces so as not to impede on or disrupt the use of the listed heritage • Removal of elements out of keeping with the original plan, such as urban facilities, awnings, iron railings, etc. • Revitalisation of the use of public spaces, encouraging different social and cultural activities in keeping with the listed heritage	the entire extension of the urbanization of Copacabana Beach, created by Burle Marx, in order to approve and monitor the implementation of projects for the Recuperation of Marx's work and the implantation of urban furniture and other elements applied over it, in its surroundings; • in August 2011, the Management Committee of the Seafront, a municipal body linked to the Municipal Secretariat for the Environment responsible for the management of the whole seafront of Rio de Janeiro city, met to discuss the interface of actions being planned or being developed by the Committee, like the proposals contained in the Logical Framework of the World Heritage nomination, arriving at the following proposals presented to the ICOMOS mission for evaluation of the nomination in September 2011: • Rio Seafront Project – 1992-93 o Removal of former trailers. o Installation of cycle-route, infrastructure and standardized kiosks. o Urban Furniture – Sunshades o Responsible body: IPP/CAU o a standard was established in 2000 with a regular design for tables, chairs and sunshades • **Urban Furniture – New Kiosks** o 36 new kiosks , 2 under construction at Post 5 and 26 yet to be modernized • **Post 6 Cultural Club – 2008** o Program for Social Get-togethers and Leisure for the elderly, Social Project. o Leisure area for card games, chess, draughts. o Built on the Portuguese cobblestone pavement, with glass panels, grade

INDICATORS	ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT
	horizontal wooden railings and a canvas awning. • **The Fishermen's Colony – 2008** o Built as a Social Project, it maintains the same character as a Cultural Club. o The traditional chapel, and the fish shop have been maintained and an aquarium built. • **Accessability – 2007** o Bamboo mat with the objective of facilitating people's access to the sandy beach, making displacement easier for elderly people, small children, baby pushchairs and people with special needs. • **Touristic Infrastructure** o The information kiosk localized at Post 3 contains tourist material about the city. o 10 information points with a map indicating the main tourist attractions of the region. • **Modernization of life-saver stations – 2011** o Modernization of life-saver stations of Rio seafront, from Flamengo to Pontal. In Copacabana, the first life-saver station to be reformed will be Posto 5. Duration of work, 24 months. o Glass and aluminum panels, instead of iron railings, and a futuristic outdoor clock, the Design of Time, conceived by Hans Donner. • Organisation of the Seafront – 2011 o A Centre of Regional Operations. o Buggies for patrolling the whole seafront. • **PLAN OF ACTION 2011 -2013** o Regulation of sporting and fishing activities near Copacabana Beach (200m) (motorboats, kite surf, etc)

INDICATORS	ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT
	o Perfecting the aerial monitoring of bathing conditions o Perfecting the monitoring of sand quality o Copacabana Landscape Project – Coastal Vegetation o Regulation of commercial activities – Refreshment stalls o Regulation of sporting areas o Selective rubbish collection on the beach o Training of sand sculptors o **AVENIDA ATLÂNTICA** o Revitalisation of Copacabana cycle-route o Conclusion of modernization of life-saver stations and kiosks o Recuperation of the Portuguese cobblestone mosaics o Regulation of the Art and Artisan Market o Regulation of interventions in urban furniture

RESULTS
R3) Flamengo Park with a Master Plan drawn up and conservation provided as per its original plan

INDICATORS	ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT
a) Master Plan drawn up and approved by January 2010	The Master Plan will be under contract from IPHAN, through its Department of Material Heritage to be drawn up by December 2011. The time forseen for its elaboration is 4 months.
b) Project drawn up for the restoration of the original	The City Council of Rio de Janeiro, through its Secretariat for Conservation elaborated a plan for the Recuperation of

INDICATORS	ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT
architectural and landscape elements in the park, to be put into practice as of July 2010	Flamengo Park in 2010. The planned investments and program for execution are: o *Phytosanitary Treatment* of the vegetation – R$ 750.000,00 – at the fund-raising stage o Planting of new seedlings from the original Burle Marx landscape project– R$ 2.600.000,00 – at the stage of specifications of the project. o Maintenance of paving – R$ 1.800.000,00 – at implementation stage o Maintenance of equipment – R$ 1.750.000,00 – at planning stage o Restoration and modernization of illumination – R$ 3.150.000,00 – at execution stage o Restoration of monuments and Fountains – R$ 1.400.000,00 – Estacio de Sá monument already undertaken. Other monuments at the project preparation stage.
c) Resumption of the restoration of the Estácio de Sá monument in October 2009 and initiation of public visits in March 2010.	Action concluded in 2010 and fully functioning.
d) Project to revitalise Glória Marina to be drawn up by December 2009 with works to begin by July 2010	Preliminary Project approved by IPHAN in 2010, In phase of specifications of the executive project, to be newly submitted to IPHAN in 2012. Prevision for initiating implementation in the 2nd semester of 2012.
e) Improved management practices through the creation of the Flamengo Park Foundation by July 2011	Action to be discussed during the development of the Master Plan in 2012.
f) Increased visitor numbers and improved tourist services and infrastructure by July 2010	Visits in open mini electric cars with a capacity for 10 visitors are already available. The visitor centre installed at the Estácio de Sá Monument is fully functioning.

COMPONENT 4 – SUBCOMPONENT Sugar Loaf Natural Monument

RESULTS
R4) Sugar Loaf Natural Monument with a Master Plan drawn up;

INDICATORS	ACTIONS ALREADY UNDERTAKEN OR IN DEVELOPMENT
a) Sugar Loaf Natural Monument: • Management Plan drawn up by July 2010 • Environmental management, conservation, maintenance, recuperation, administration and environmental controls in place as required for it to function smoothly and be enjoyed by visitors and the local people alike; • green areas conserved and of easy access for leisure activities; • Remnants of Atlantic Rainforest and landscape heritage in the area duly conserved, protected and recuperated; • Preservation of listed natural heritage assets assured.	The Management Plan is being elaborated, under contract from the Municipal Secretary for the Environment and will be finalized in December 2011. The Natural Monument is being managed by the Municipal Secretariat for the Environment. A partnership with a private company enabled the implantation of an information system for visitors in the sector denominated Cláudio Coutinho track. Partnerships between the Rio de Janeiro Botanic Gardens and universities are developing research into the region's fauna and flora.

Brasília, 24th of October 2011

Luiz Fernando de Almeida

President of IPHAN

ICOMOS

INTERNATIONAL COUNCIL ON MONUMENTS AND SITES
CONSEIL INTERNATIONAL DES MONUMENTS ET DES SITES
CONSEJO INTERNACIONAL DE MONUMENTOS Y SITIOS
МЕЖДУНАРОДНЫЙ СОВЕТ ПО ВОПРОСАМ ПАМЯТНИКОВ И ДОСТОПРИМЕЧАТЕЛЬНЫХ МЕСТ

H. E. Mrs Maria Laura da Rocha
Ambassador
Permanent Delegation of Brazil to UNESCO
Maison de l'UNESCO
Bureau MR.07
1 rue Miollis
75732 PARIS Cedex 15

Our Ref. GB/MA 1100rev

Paris, 6 December 2011

World Heritage List: Rio de Janeiro: Carioca Landscapes between the Mountain and the Sea – Additional information

Dear Madam,

ICOMOS is currently assessing the World Heritage nomination of Rio de Janeiro: Carioca Landscapes between the Mountain and the Sea and we thank you for the additional information we received on 24 October 2011.

As part of our evaluation process, the ICOMOS World Heritage Panel has now reviewed this nomination and identified a few areas where it considers that further information is needed.

Management framework and management plan
The supplementary information provided stated that by December of 2011 IPHAN will publish a decree designating a Steering Committee for the nominated property, under IPHAN's coordination.

Please could confirmation be provided that this decree has been published. And could information also be provided as to when the Steering Committee will be inaugurated, when its first meeting will take place and what its responsibilities will be – for instance will it be responsible for the implementation of the Management Plan when it is completed?

The organisation chart provided shows that the Steering Committee (or Institutional Committee as it appears in the organisational chart) would oversee an Executive Committee and that in turn would oversee a Technical Committee that would be responsible for the preparation of the Management plan. Please could information be provided as to when the Executive and Technical committees will be established and start functioning? And could information also please be provided as to when work will commence on the Management Plan which it is stated will be completed by October 2013.

In view of the large extent and complexity of the nominated property, it would also help if information could please be provided on the 'vision for the property' that the Management Plan will address and the scope of the Management Plan in relation to the attributes of the suggested Outstanding Universal Value of the overall property.

What will the Management Plan be managing over and above the management already in place for the component parts? We would like clarification that the Management Plan for the overall property will put in place management guidelines for those urban landscape aspects of the property that have been nominated as conveying Outstanding Universal Value, such as visual parameters and the inter-related views from one part of the property to another, management of the interface between the nominated property and its buffer zone, sustainable development of the whole property, management of the buffer zone.

Does adequate documentation exist for all the key attributes of OUV as baselines for management and monitoring? Or is there a need for more specific documentation?

The nomination text provides realistic details of certain threats such as antennae, water pollution and illegal settlements. Will the Management Plan set out to address these issues?

Furthermore please could information be provided as to how the Management Plan, once it is completed, will be approved and how it will be implemented within the existing legislative and planning system. Is the date of October 2013 the date by when it will be fully operational?

Legal Protection
The ICOMOS evaluation mission was provided with information of Complementary Law no 111 of February 2011. We understand that its articles set out principles and guidelines for the Municipality that include the assessment, protection and sustainable use of the cultural landscape. Please could further information be provided as to how this will relate to the nominated area?

We further understand that the Municipality of Rio created in 2009 an instrument to safeguard landscape heritage denominated as Areas of Cultural and Environmental Protection (APAAC). Please could information be provided as to how this relates to the nominated areas?

Boundaries
The delimitation of the boundaries of the property corresponds to regulatory and administrative boundaries. This approach is helpful in terms of management. However in visual terms it is has the disadvantage of excluding some areas that could be said to contribute to the nominated Outstanding Universal Value of the property. These areas are:

a) The south face of Pedra Bonita/da Gavea right down to the seashore beyond the raised roadway, and including the promontory to the south and rocky seaside outcrop to the south-east of the mountain.
b) The open hills above and around the community of Vidigal, down to and including the seashore, with Dois Irmao Park and Leblon viewpoint.
c) Westwards of the Arpoador Spit as far as Rua Francisco Otaviano to include the length of shore where buildings abut the beach without a highway along the beach.
d) The open hills behind Copacabana Beach, Morro do Cantagolo, Morro dos Cabritos probably down to the shore of Lagoa Rodrigo de Freitas, Morro da Saudade, Morro de Sao Joao and Morro da Babilonia.

Please could consideration be given to extending the property boundary to include these areas?

Buffer Zone
The suggested buffer zone encompasses large areas that provide context for the nominated sites. Some of these areas appear to provide threats to the nominated area rather than protection. The protection offered by the Buffer Zone is very unclear in the text – which mentions mainly specific historic monuments within the buffer zone. The real benefit off the buffer zone would appear to be in terms of protecting views and the broad setting of the nominated areas. Please could information be provided as to how the Buffer Zone will provide additional protection and what constraints apply to the designated buffer zone and how these constraints are or will be managed?

Although the buffer zone is extensive, we would request that consideration is given to enlarging it in two places. These are first the whole coastal area between Marimbas Club and Arpoador Spit, including all Vidigal, Leblon and Ipanema and second the area of downtown streets north of Flamengo Park. Please could a response be provided to this?

Conservation
In the supplementary information provided, certain conservation actions are set out in relation to existing plans for the component sites. In a few areas it would be helpful to have details of conservation actions for some components of the sites that are not mentioned and for others further details as follows:

i. Timetable for the conservation of the Burle Marx paving at Copacabana Bay in terms of replacing missing mosaics and missing trees;
ii. Details are needed on actions to be taken to address the deteriorated acrylic covers at the terminals of the cable car in the Urca mountain as well as on the summit of the Sugar Loaf and whether the coloured lightening will be removed;

iii. The maintenance regimes for the repair of roads and paths within the Tijuca National Park;
iv. When the avenue of Imperial Palms within the Botanical Gardens will be replanted. The action plan provided does not give details of conservation of the cultural components of the gardens.

Botanical Garden housing development
The ICOMOS Mission expert was made aware of what was described as a 'housing invasion' in the southeast part of the Botanical Garden. Please could information be provided as to how this threat will be addressed?

ICOMOS has no obligation to contact States Parties during the evaluation process. However, with a view to being as transparent as possible, ICOMOS has agreed to approach States Parties in specific cases. This does not prejudice the ICOMOS recommendation on the nomination and should be considered as preliminary information. It also does not prejudice the World Heritage Committee's decision.

We would be grateful if you could provide ICOMOS and the World Heritage Centre with the above information by **Tuesday 28 February 2012**.

We thank you in advance for your kind cooperation.

Yours faithfully

Regina Durighello
Director
World Heritage Programme

Copy to Luiz Fernando de Almeida, President, National Institute for Historic and Artistic Heritage (IPHAN)
Maria Cristina Vereza Lodi, Rio World Heritage Team Coordinator, IPHAN - Office of the Presidency
Adam Jayme Muniz, Second Secretary, Permanent Delegation of Brazil to UNESCO
Marcelo Brito, Asesor de Relaciones Internacionales, Gabinete de la Presidencia del Iphan, Ministerio de Cultura
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Ministério da Cultura
Instituto do Patrimônio Histórico e Artístico Nacional
Gabinete da Presidência

Ofício n° 272/2012-PRESI/IPHAN

Brasília, March 02, 2012.

Mr. KISHORE RAO
Director
World Heritage Centre WHC- UNESCO
7, Place de Fontenoy
75352 Paris/France

Ref.: **GB/MA 1100rev – Additional Information – World Heritage List: Rio de Janeiro: Carioca Landscapes between the Mountain and the Sea.**

Dear Director,

1. With best regards, in attention to yours correspondence GB/MA 1100rev I am sending you the additional information on the nomination of "*Rio de Janeiro: Carioca Landscapes between the Mountain and the Sea*" so that can be included in the official nomination file.

2. I would like to inform you that a hard copy of the documentation was sent to the ICOMOS International Secretariat.

Yours Sincerely,

Luiz Fernando de Almeida
Presidente

/rcbo

FEDERAL PUBLIC SERVICE
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INSCRIPTION TO WORLD HERITAGE LIST:

RIO DE JANEIRO: CARIOCA LANDSCAPES BETWEEN THE MOUNTAINS AND THE SEA

In response to the letter of 6 December 2011 from the International Council on Monuments and Sites – ICOMOS, signed by the body's director, Regina Durighello, we submit the following information:

1. STRUCTURE AND MANAGEMENT PLAN

1.1. Establishment and operation of Management Committee

The Management Committee of the World Heritage Site: Rio de Janeiro – Carioca Landscapes between the Mountain and the Sea was created through IPHAN Directive of 30 December 2011, published in the Government Gazette, Section 1, page 16, with the following text:

DIRECTIVE No. 464 OF 29 DECEMBER 2011.

Provides for the establishment of the Management Committee of the World Heritage Site: Rio de Janeiro – Carioca Landscapes between the Mountain and the Sea.

THE PRESIDENT OF THE INSTITUTE OF NATIONAL HISTORICAL AND ARTISTIC HERITAGE – IPHAN, in the exercise of the duties and powers conferred through article 21, subsection V, Annex I, of Decree No. 6844 0f 7 May 2009, considering:

the procedures for the approval of the candidacy of Rio de Janeiro as a World Heritage Site by UNESCO under the Cultural Landscape category;

the need to establish a management system for the proposed Site based on the applicable laws and regulation of the urban territory;

the development of the National Cultural Heritage System (Sistema Nacional de Patrimônio Cultural), aimed at establishing a dialogue and coordination between the three spheres of government for management of the Cultural Heritage Site;

the extension of the proposed Site, the complexity of its attributes, and the challenges in connection with joint management;

the meeting held between IPHAN and UNESCO/ICOMOS consultants;

HEREBY RESOLVES:

Article 1. To establish the Management Committee of the Site designated as "World Heritage: Rio de Janeiro – Carioca Landscapes between the Mountain and the Sea" with the following objectives:

I – To achieve compatibility between delimitation of the protected areas designated at the different levels of government and the area identified in the candidacy for World Heritage listing;

II – To determine the joint management structure for the area proposed under the candidacy, specifying the duties of each managing entity;

III – To develop the joint management plan for the area proposed under the candidacy through the compatibility of the management instruments provided for by law for each component and subcomponent of the proposed Site, as described in the agreed logical framework;

IV – To participate through consultations and collaboration in the review of IPHAN directives on the municipality of Rio de Janeiro.

Article 2. The Management Committee for the proposed Site will be composed of permanent and substitute members representing:

I – the Department of Material Heritage and Supervision (Departamento de Patrimônio Material e Fiscalização – DEPAM)

a) General Coordination for Immovable Property
b) General Coordination for Historical Cities
c) General Coordination for Natural Heritage

II – the IPHAN Superintendence in no Rio de Janeiro

- *Superintendent*
- *Head of the Technical Division*

III – invited institutions

a) Ministry of Science and Technology: Institute of Research of the Botanic Garden of Rio de Janeiro
b) Ministry of the Environment: Chico Mendes Institute for Biodiversity Conservation (ICMBio) – Tijuca National Park
c) Ministry of Defense: Office of the Director of Historical and Cultural Heritage of the Army
d) Ministry of Defense: Office of the Director of Historical Heritage and Documentation of the Navy
e) Rio de Janeiro State Government: State Institute for Cultural Heritage
f) Rio de Janeiro Municipal Government: Municipal Secretariat of Culture – Sub-Secretariat of Cultural Heritage, Urban Intervention, Architecture, and Design
g) Rio de Janeiro Municipal Government: Municipal Secretariat for Conservation
h) Rio de Janeiro Municipal Government: Municipal Secretariat of Urban Planning
i) Rio de Janeiro Municipal Government: Municipal Secretariat for the Environment
j) Niterói Municipal Government

Sole Paragraph. The Management Committee shall, with a period of 30 days, develop its work schedule, for the purpose of finalizing the management plan for the proposed Site, which must be completed by October 2013.

Article 3. The IPHAN Superintendent for Rio de Janeiro shall coordinate the activities of the Management Committee.

Article 4. The Management Committee may invite external experts to discuss specific issues, at no cost to the Institute, and convene IPHAN technical experts, as necessary.
Article 5. This Directive shall enter into force on the date of its publication.

Luiz Fernando de Almeida
President

Following publication of the Directive above, the IPHAN Superintendence for the State of Rio de Janeiro, in its capacity as Committee coordinator, sent letters to the invited institutions requesting the designation of representatives and substitutes and scheduling the inaugural meeting of the Rio World Heritage Management Committee (Comitê Gestor Rio Patrimônio Mundial) – the committee's official designation. The inaugural meeting of the Committee took place on 10 January 2012 with the participation of representatives from the following institutions:

- Maria Cristina Vereza Lodi – State Superintendent – IPHAN-RJ/Ministry of Culture (MINC);
- Letícia von Krüger Pimentel – Chief of Staff– IPHAN-RJ/Ministry of Culture (MINC);
- Guido Gelli – Director of Environment and Technology – Institute for Research of the Botanic Garden of Rio de Janeiro (IPJBRJ)/Ministry of the Environment(MMA);
- Maria de Lourdes Figueira – Director – Tijuca National Park (PNT) /ICMBio/ Ministry of the Environment (MMA);
- Edina Laura M. da Gama – Office of the Director of Historical Heritage and Documentation of the Navy/Ministry of Defense (MD);
- José Cláudio dos Santos Jr. – Office of the Director of Historical and Cultural heritage of the Army (DPHCEx)/Ministry of Defense (MD);
- Joaquim Monteiro – Deputy Secretary – Municipal Secretariat for Conservation(SECONSERVA)/Rio de Janeiro Municipal Government (PCRJ)
- Isabela Lobato – Coordinator for Planning – Municipal Secretariat of the Environment (SMAC)/Rio de Janeiro Municipal Government (PCRJ)
- Washington Fajardo – Deputy Secretary – Sub-Secretariat of Cultural Heritage (SUBPC)/Rio de Janeiro Municipal Government (PCRJ)
- Mariângela Castro – Heritage Projects Manager – Roberto Marinho Foundation (FRM);
- Márcia Nogueira Batista – Collaborating Architect and Landscaper on Candidacy Document;
- Rafael Winter – Collaborating Geographer – Department of Geography/Federal University of Rio de Janeiro (UFRJ).

The meeting was opened by IPHAN's Superintendent for Rio de Janeiro, who read the goals to be achieved by establishment of the Management Committee through enactment of IPHAN Directive No. 464/2011, followed by a reading a discussion of the ICOMOS letter of 6 December 2011 requesting additional information on the proposed World Heritage Site, with a view to obtaining the collaboration of the participating institution in the development of the response document. In addition, the decision was made to hold twice monthly meetings of the Committee.

In regard to the questions concerning the Committee's responsibilities, the Directive clearly establishes as objectives of the Committee ensuring compatibility between the protected areas determined at the different levels of government and the area specified in the candidacy to World Heritage; setting out the joint management structure of the area proposed by the candidacy, specifying, to this end, the duties of each manager; developing the joint management plan for the area proposed under the candidacy based on the compatibility of the management instruments determined by law for each component and sub-component of the proposed Site, as described in the agreed logical framework; and participating

through consultation and collaboration in the review of IPHAN'S Directives for the municipality of Rio de Janeiro.

The Directive also requires the Committee to develop the work Schedule within a period of 30 days and mandates completion of the management plan for the proposed Site by October 2013. The IPHAN Superintendence for the State of Rio de Janeiro is in the process of contracting a company to implement the decision of the Management Committee through a Management Plan. In addition, the contractor will be charged with developing a digital information system on the limits, characteristics, and management of the proposed World Heritage Site.

An administrative procedure was launched by IPHAN/RJ to record and file the Committee's meeting minutes (to date the minutes for four [4] meetings have been registered, with the body's fifth meeting upcoming) and the contributions of the participating institutions for the purpose of preparing the Site Management Plan.

1.2. Management Structure

The management structure proposed in the candidacy document will be determined by the Management Committee established by IPHAN. At this juncture, the Management Committee will assume the role of Technical Committee provided for under the management structure specified in the document, tasked with the duty to develop the management plan for the Site.

The Institution and Executive Committees (Comitês Institucional e Executivo) were created in 2009 at the time IPHAN put forth the candidacy in question. The Committees will be activated as soon as the management plan is ready for approval, as the representatives of these bodies exercise decision-making power at the 3 levels of government engaged in managing the areas within the proposed Site. Approval of the management plan for the proposed World Heritage Site and launch of its implementation is scheduled to occur in October 2013.

1.3. Protection of Attributes of Universal Value

The questions posed by ICOMOS with regard to preservation of the attributes of universal value set out in the candidacy document have been the subject of discussion at Management Committee meetings, based on the specific schedule and order established for each issue, as well as have corresponding risk factors, management, integrity/authenticity, and status of conservation of each sector within the Site, in addition to the respective Buffer Zone.

The pre-established agenda for Rio World Heritage Management Committee meetings during the initial eight months of operation include:

Date	Item/Component/Sector	Manager Responsible for Presentation of the Item
02/07/2012	Component 04 – Pão de Açucar Natural Monument Sector	SMAC/PCRJ
02/28/2012	Component 04 – Flamengo Park Sector	SECONSERVA/PCRJ e SUBPC/SPC/PCRJ
03/20/2012	Component 04 – Historical Forts Sector (Limits and documentation)	DPHCEx
04/03/2012	Components 01, 02, and 03 Tijuca National Park Sectors	PNT/ICMBio/MMA with the participation of SECONSERVA/PCRJ
04/17/2012	Component 04 –Copacabana Seafront Sectors	INEPAC, SECONSERVA/PCRJ e SUBPC/SPC/PCRJ

05/02/2012	Component 03 – Botanic Garden Sectors	IPJB/RJ
05/15/2012	Buffer Zone: Rodrigo de Freitas Lagoon	SECONSERVA/PCRJ e SUBPC/SPC/PCRJ
05/29/2012	Water Management	SMAC/PCRJ
06/12/2012	Buffer Zone valleys (Laranjeiras, Jardim Botânico, Botafogo, etc)	SUBPC/SPC/PCRJ e SMU/PCRJ
06/26/2012	Mosaic of protected areas (Environment + Cultural Corridors)	SMAC/PCRJ e SUBPC/SPC/PCRJ
07/10/2012	Historical Gardens – Passeio Público Park, Flamengo Park, Botanic Garden, and others	SMAC/PCRJ e SUBPC/PCRJ
07/24/2012	Immaterial Heritage – Associated Values	SUBPC/ PCRJ e IPHAN-SE/RJ
08/07/2012	Presentation of the Terms of Reference for development of Site Management Plan	IPHAN-SE/RJ

1.4. Documentation

The inquiries about sufficient documentation for preservation of the attributes of Outstanding Universal Value and management and monitoring were widely discussed at the 1st meeting of the Management Committee, at which the sources and locations for custody of the documentation submitted with the candidacy document were confirmed.

All documentation not yet in digital format will be converted into digital format by the company contracted by IPHAN for preparation of the Site Management Plan and the respective Information Database.

The Logical Framework for Management of the Rio World Heritage Site, which sets out monitoring benchmarks for each component/sector, will be updated and incorporated in the Management Plan completed in 2013.

1.5. Factors affecting the Site

The factors affecting the Site, as identified in 2009-2011 and included in the candidacy document, are subject to monitoring by the current managers of the areas encompassed within the proposed Site. In its meetings, the Management Committee has sought to update the information on these factors, with a view to addressing them in the Site Management Plan.

With respect to the risks for purposes of landscape apprehension and management of Components 01, 02, and 03 – Tijuca National Park, as identified in the implementation of transmission antennas at the summit of Sumaré Hill and irregular occupations within the Tijuca National Park, Maria de Lourdes Figueira (the report can be sent if requested), director of the Tijuca National Park/ICMBio/MMA), noted that a number of advances have been secured in connection with monitoring activities:

- With regard to the implementation of antennas, the Tijuca National Park Management Plan (Plano de Manejo do Parque Nacional da Tijuca), updated in 2008, provides for registration of the antennas (initiated in 2010 and completed in 2011 by the Brazilian Telecommunications Agency – ANATEL) and their reduction, both in extension, through removal of all structures and equipment found to not have public utility, and

number. Ms. Lourdes Figueira also indicated that technological advances have contributed to the reduction in equipment and that communications operators are aware of the guidelines governing this area of the Park. Further, she underscored that implementation of antennas is only permitted with the express authorization of ICMBio/PNT and that more rigorous access controls have been adopted for the Park and the sector in which antennas are located.

- In regard to irregular occupations, the director reported that all of the occupations, approximately forty-six (46) residential structures within the Conservation Unit, inhabited primarily by former Park employees and their families, had been mapped. Measures to transfer residents are in the process of being developed, within the applicable legal and financial limits, and include possible compensation payments and/or social rent, among others. In 2011, a working group was established to address the transfer issue. This was followed in November 2011 by the issuance of notices to residents on their relocation. At the same time, Park management undertook discussion with a variety of public agencies to identify lots and build housing units for the 46 irregular households.

In respect of the questions on water quality, a specific Management Committee meeting will be held to address the issue (29 May 2012). As an initial contribution for addressing this challenge in the Management Plan, the Municipal Secretariat of the Environment issued a report on the evaluation of water quality in the Rodrigo de Freitas Lagoon (the report can be sent if requested), one of the Site's key Buffer Zones, which serves to interconnection of the natural environment between the Botanic Garden and the Tijuca National Park – Components 1, 2, and 3 and component 4 – Entry to Guanabara Bay and the water edges.

The report notes that monitoring of the Lagoon's waters was resumed in December 2011, for the purpose of tracking variations in phytoplankton and water quality parameters to correct imbalance guide water replacement measures between the Lagoon and the Atlantic Ocean.

The chapter 6 addresses the irregular occupations within Botanicals Garden.

1.6. Approval/Implementation of Management Plan

As mentioned in item 1.2, the Institutional Committee, composed of the President of the Institute of National Historical and Artistic Heritage (IPHAN), the President of the Chico Mendes Institute for Biodiversity (ICBMBio), the Governor of the State of Rio de Janeiro, the Mayor of the City of Rio de Janeiro, and the other administrative authorities of the areas inscribed in the proposed Site, will approve the Management Plan for the Rio de Janeiro: Carioca Lanscapes between the Mountains and the Sea Site by October 2013.

2. LEGAL PROTECTION

2.1. Municipal urban planning legislation

The Master Plan for Sustainable Urban Development of the City of Rio de Janeiro (Plano Diretor de Desenvolvimento Urbano Sustentável da Cidade do Rio de Janeiro), enacted through Complementary Law No. 111 of 1 February 2011, is the most recent urban planning policy document issued by the city of Rio de Janeiro, substituting the previous regulations, designated Ten Year Master Plan for the City of Rio de Janeiro (Plano Diretor Decenal da Cidade do Rio de Janeiro).

As the Master Plan was developed by technical experts from different sectors of the Municipal Government during the time the city's candidacy as a World Heritage Site in the Cultural Landscape Category was being prepared with the active participation of the Technical Committee, composed of various professionals from the Municipal Government, many of the concepts widely discussed and

adopted in the dossier were also incorporated in the Master Plan. Among them, were those relating to protection, preservation, and management of the landscape.

Take, as an example, some of the principles and guidelines of current urban planning policy under the Master Plan:

- sustainable development as a means to promote economic development, social equity, ad environmental and landscape preservation;
- valuing, protecting, and sustainable use of the environment, landscape, and natural, cultural, historical, and archeological heritage in the city's development and management;
- conditioning of urban occupation to preservation of the city's identity and cultural landscapes.

Based on these new guidelines, in 2011 the Municipal Government began to apply the landscape concepts as a parameter of urban planning, through the implementation or new rules on the occupation of preserved properties in the Leblon neighborhood, as an example.

The Master Plan as conceived is a general instrument that serves for establishing planning policies and guidelines for the entire municipality. Only after each urban planning matter for the different areas into which the city is divided has been regulated, including through specific laws, will implementation of the Plan be possible. The Management Committee is working to ensure that following inclusion of the Site on UNESCO's World Heritage List the regulations governing those parts of the city encompassed within the Site or the Buffer Zone are marked by distinctive features to enable the adoption of possible additional protection measures enforced through enhanced preservation efforts, given the importance of guaranteeing the integrity and identity of the Site's elements and the sustainability of its management.

2.2. Cultural protection legislation

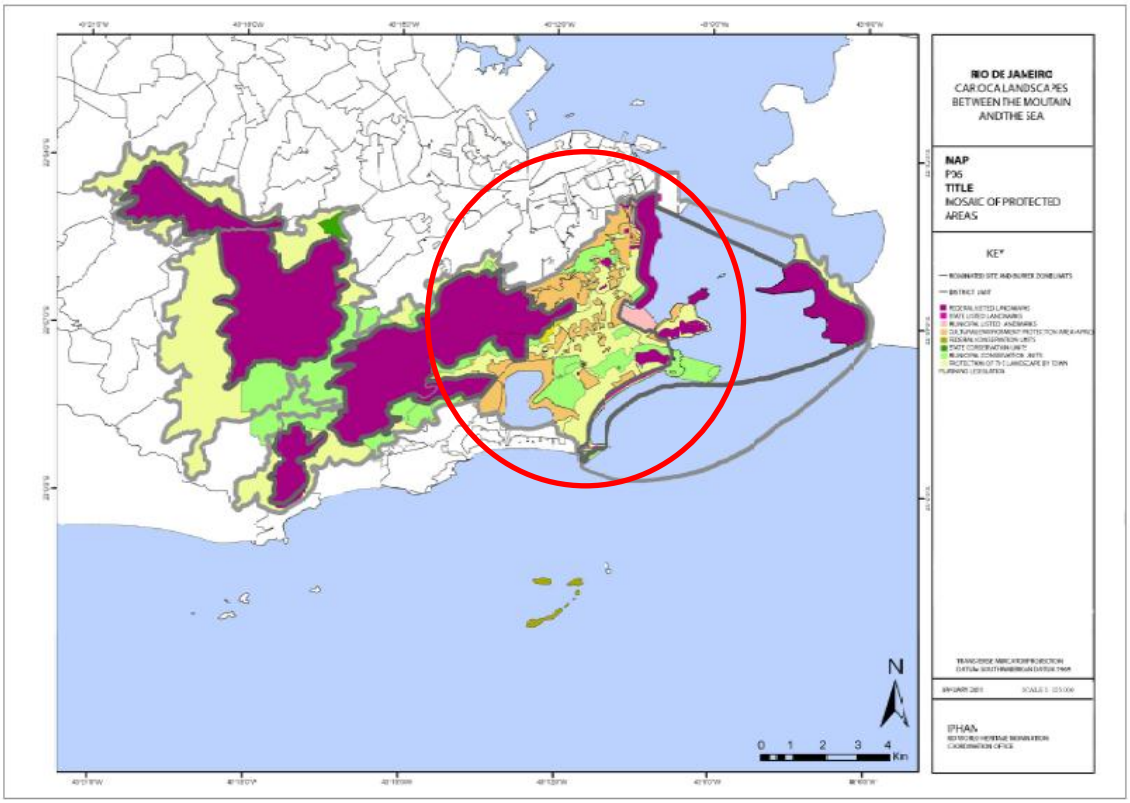
In Brazil, the protection of cultural heritage is accomplished through landmarking of sites, that is their entry in the Official Registry of Landmarks at the three levels of government – federal (since 1937), state (since 1965), and municipal (since 1980). At the same, municipality developed alternative cultural preservation models focused on landscapes through the landmarking of cultural attributes of exception local value. This led to demarcation of the Special Cultural Corridor Zone (Zona Especial do Corredor Cultural) in downtown Rio de Janeiro, in 1986, through the enactment of specific legislation for urban complexes of historical, landscape, and cultural interest; this was followed by passage of legislation to protect the hills of Santa Tereza, the port neighborhoods, São Cristóvão, and Urca. In 1992, the Ten Year Master Plan established the Cultural Environment Protection Area (Área de Proteção do Ambiente Cultural – APAC) to serve as an instrument for the preservation and management of the municipality's cultural heritage. The current Master Plan defines these areas as "A lands with a structural ensemble of relevant cultural interest, the occupation and renovation of which must be compatible with the protection and conservation of the environment and socio-spatial characteristics identified as relevant to the city's memory and the diverse urban occupation forged over time."

From the time of their creation, all public properties and spaces encompassed the APACs are placed under the protection and control of the municipality's executive cultural heritage body. The APACs include previously landmarked properties and others that are to be subject to special preservation. For the purpose of maintaining the environment, often times volumetric and use restrictions are imposed on these areas through determination of new utilization and occupation parameters that are more rigorous than those set out in the applicable legislation governing the rest of the city.

The Master Plan also requires the executive body to prepare a Management Plan for each APAC in consultation with civil society stakeholders in the area subject to the study.

As set forth in the following map P06 (the APAC's are in light orange inside the red circle) , the Buffer Zone for the Rio World Heritage Site includes the following APACs: Glória, Santa Tereza (*), Laranjeiras, Cosme Velho (*), Lido, Bairro Peixoto, Botafogo, Humaitá, Jardim Botânico (*), and area

surrounding the Rodrigo de Freitas Loagoon. The APACs identified with an (*) contain a portion of the territory encompassed in the proposed Site.



Few of the APACs currently have a specific Management Plan. As discussed above, it is our view that registration of the proposed Site on the UNESCO World Heritage List will result in the development of a Management Plan for each APAC within the Site's Buffer Zone setting out stricter guidelines on preservation, given the role of each APAC within the Buffer Zone, protection of the Site's integrity and the visual setting, and, if it'll find necessary by the Committe, more restrictive soil utilization and occupation parameters for the respective complexes.

3. BOUNDARIES

The definition of the Rio World Heritage Site boundaries, including specification of the elements of the urban grid that should be included in the proposed area, was the object of numerous discussions between members of the team charged with preparing the dossier with the full engagement of the Technical Committee, from December 2009 to January 2011. For the purpose of this effort, specific evaluation criteria were established for each proposed element and its attributes, among them:

- Contribution to the authenticity of the Site, in particular the location and setting, form, function, soil use, spirit of the place, and tradition of each urban area;
- Contribution to the integrity of the Site, in particular the functional/social aspects and its meaning, the material/structural elements, and the aesthetic/visual features of each urban area;
- Contribution to the Site's Universal Value, in particular the attributes that characterize each urban area and contribute to the Outstanding Universal Value, the presence of significant visual elements for its preservation;
- Contribution to Management and Conservation.

The delimited area, as defined in the candidacy document sent by January 2011, contains elements that meet these criteria, reflecting within the respective territory the outstanding universal

values. As such, we do not consider the inclusion of new elements within the area of the Site and buffer zone or its extension through review of the respective perimeter as appropriate, as it is our view that the delimitation presented in the candidacy document is the sole and legitimate area containing the representation of the universal values present in the proposed Site.

With regard to the additional areas recommended in the ICOMOS letter, we state:

a) South Face of the Pedra da Gávea – this proposed additional area is crossed by a large overpass with highways running along the entire extension down to the buffer zone, which, rather than adding value or protect, denigrate the image of the proposed area. This, we do not believe this area should be included;
b) Morro do Vidigal, Dois Irmãos Park, and Leblon neighborhood – these areas are the product of more recent urbanization, specifically the 1940s, and, as such, to do not contribute to protecting the historical, environmental, or aesthetic value of the proposed Site. Therefore, we have decided back in 2009, not to include this area within the Site or its Buffer Zone. The history of the initial stages of the city's urbanization and the creation of the cultural corridor relating to the beaches and Atlantic ocean is contained in Component 4, where Copacabana beach became a paradigm of the beach city and of *carioca* culture, serving as an inspiration for the arts, literature, and music that extols the outstanding universal value of the Site.
c) Area lying West of the Arpoador at Ipanema beach – the decision against including this area rests on the same arguments set forth in item b.
d) The hills behind Copacabana to the edge of the Rodrigo de Freitas Lagoon – we reiterate the limits of the proposed Site as laid out in the candidacy document. We do not advocate inclusion of these areas, because the components 1, 2, 3, and 4 contain all of the attributes for preservation of the outstanding universal values justified in the candidacy document. The hills are important elements of environmental interconnection in the Buffer Zone, where they do not represent universal values, but, instead, protect and underscore the values of the four components of the proposed Site.

4. BUFFER ZONE

4.1. Protection of the Site

We reiterate the delimitation of the Buffer Zone set out in the candidacy document submitted in January 2011 and the corresponding arguments that center on the following positions:

4.1.1. Components 1, 2, and 3 – Sectors of the Tijuca National Park and the Rio de Janeiro Botanic Garden

The Buffer Zone delimited around the National Park (North, West, and South) coincides with the Park's legal delimitation, pursuant to the Management Plan. This delimitation is characterized by the lands encompassed between the Park's dense forest and the urban area, which serves to protect the outstanding values of these sectors of the Site, forming a security belt and protecting the Park from harmful actions, including fires, the advance of exotic plants, irregular occupation, and other threats.

The Buffer Zone located to the East of Component 3 – the Serra da Carioca and Botanic Garden Sector includes the urban zone located on the fringes of the Park and the Botanic Garden. Subject to regulation under a specific IPHAN Protection Directive and an APAC, its function is to regulate the templates and volume of structures within the area, with a view to preserving the environment, the cultural heritage and to control the construction of new structures, in order to safeguard view of the forest landscape from the various vistas distributed throughout the urban area, as well as maintain a balance between developed areas and vegetation in the city.

The urban planning legislation of the Municipality of Rio de Janeiro bolsters the protection of the proposed Site and the Buffer Zone located on the edges of the hills within the Buffer Zone. The Decree regulated the occupation of land within the municipality of Rio de Janeiro located more than 80 meters above sea level, significantly restricting the occupation rate and corresponding height of the surrounding structures. No construction is allowed more than 100 meters above sea level.

The continuity of the Buffer Zone between the limits of Component 3 and Component 4 includes:

- the various legally established environmental protection areas, namely the Rodrigo de Freitas Lagoon, the Cantagalo Hills, Cabritos, São João, São José, Babilônia, Leme, Santa Teresa, Glória – these serve to ensure environmental interconnection between the Site's components, enabling the movement of wildlife (primarily birds) and guaranteeing the city's environmental conditions. These areas are also important elements for reinforcing and protecting the most important vistas of the proposed Site.
- the various legally established Cultural Environmental Protection Areas (Áreas de Proteção do Ambiente Cultural – APACs) by the Rio de Janeiro Municipal Government: Botanic Garden, Humaitá, Botafogo, Lido in Copacabana, Urca, Laranjeiras and Cosme Velho, Ipanema and Leblon, Glória and Catete, and the Cultural Corridor in Downtown Rio. As described above, the APACs are defined in the City Master Plan as "public or private lands with a structural ensemble of relevant cultural interest, the occupation and renovation of which must be compatible with the protection and conservation of the environment and socio-spatial characteristics identified as relevant to the city's memory and the diverse urban occupation forged over time." All APACs are placed under the protection and control of the municipality's executive cultural heritage body. The APACs include previously landmarked properties and others that are to be subject to special preservation. For the purpose of maintaining the environment, often times volumetric and use restrictions are imposed on these areas through determination of new utilization and occupation parameters that are more rigorous than those set out in the applicable legislation governing the rest of the city. Therefore, through the restrictions imposed by the legislation on the APACs, the preservation of the Site's outstanding universal values are assured, including vista points, key views, and a balance between developed areas, the outstanding landscape elements, and the historical heritage within the proposed Site.
- Protection of the city's immaterial heritage (samba, football, Afro-Brazilian cultural expressions, etc.) tied to protection of the territory (APACs, environmental protection areas, and directives on surrounding areas) where these cultural manifestations occur allows for preservation of the Site's associate values, as justified and described in the candidacy document.

The Buffer Zone to the North, East, and South of component 4 – Entry to Guanabara Bay and its water edges (Flamengo Park, Copacabana Beach, Pão de Açúcar (Sugarloaf), and Historical Forts at the entrance to the Bay) is compose of the waters of Guanabara Bay to the North, extending the universal value of the Site back to the colonial era, when the exceptional tropical city was explored by navigators and scientists reflected in countless works on the fractured terrain, tropical forests, and local population, who disseminated the city to the world. The hills, forts, and waters are today the areas where the city is preserved and from where it can be viewed, bestowing to the memory of visitors and users the historical values that characterize the city of Rio de Janeiro to the word.

> To the East lie the waters of the Atlantic Ocean, which, enable, through maintenance of the quality of those waters, preservation of the beaches and their suitability for swimming, while ensuring visitors and users to the beaches of Copacabana, Leme, Vermelha, Diabo, and Dentro, direct interaction with the natural environment and full appreciation of the Site's outstanding value. Indeed, use of the Site's public and recreational areas and the appropriation of the surrounding natural areas by the local population help define and perpetuate the city's tropical culture.

The Management Plan now under development for the Site has the critical role of combining existing legislation on the protection of those areas encompassed within the Site and its Buffer Zone with the correction of potential threats possible remaining gaps, through which we arrive at a new vision, namely preservation of the cultural landscape.

In this light, we reiterate the limits and extension of the proposed Buffer Zone demonstrated in the candidacy document as the legitimate delimitation of the area identified for the purpose of connecting the corresponding components and protecting, within the target territory and culture, the outstanding universal values of the proposed Site.

5. CONSERVATION

The proposed targeted conservation measures along the Copacabana walkway and improvements to the facilities at Pão de Açúcar (Sugarloaf), the Tijuca National Park trails, and the Botanic Garden will be discussed within the Management Committee on previously scheduled dates (see program agenda above) and will be submitted to plans and projects developed by the competent municipal and federal agencies. Many of these measures are already under development, such as the Pão de Açucar and Copacabana Beach Management Plans.

6. ILLEGAL OCCUPATIONS OF THE BOTANIC GARDEN

The Botanic Garden will be the subject of discussion within the Management Committee on 12 May. However, we can report at this juncture on the illegally occupied areas of the Botanic Garden:

Guido Gelli, administrator of the Botanic Garden, has noted the logistical and legal difficulties in addressing the issue of the occupations in such a condensed timeframe. He reports that over seventy (70) final judicial decisions ordering removal of the residences in question have been handed down, but that execution of the orders by the Federal Public Prosecutor's Office has proved challenging, even with the assistance of the Brazilian Federal Police Department, including as a result of direct confrontations between law enforcement officers dispatched to the area to execute the pertinent court orders and local residents. The administrator states, further, that the Federal Secretariat of Heritage (Secretaria de Patrimônio da União) established a working group with the Botanic Garden to negotiate the removal of families from the Park.

Rio de Janeiro, March 3, 2012

Maria Cristina Vereza Lodi Dias

Superintendent of IPHAN in the State of Rio de Janeiro


Rio
PATRIMÔNIO MUNDIAL
CIDADE CANDIDATA

United Nations
Educational, Scientific and
Cultural Organization

Organisation
des Nations Unies
pour l'éducation,
la science et la culture

Organización
de las Naciones Unidas
para la Educación,
la Ciencia y la Cultura

Организация
Объединенных Наций по
вопросам образования,
науки и культуры

منظمة الأمم المتحدة
للتربية والعلم والثقافة

联合国教育、
科学及文化组织

The Culture Sector
World Heritage Centre

H.E. Ms Maria Laura da Rocha
Ambassador
Permanent Delegate of Brazil to
UNESCO
UNESCO House

Ref: CLT/WHC/PSM/12/LJ/LAC/235 16 August 2012

Subject: **Inscription of *Rio de Janeiro: Carioca Landscapes between the mountain and the Sea* (C 1100 rev), Brazil, on the World Heritage List**

Dear Ambassador,

I have the pleasure to inform you that the World Heritage Committee, at its 36th session (Saint Petersburg, Russian Federation, 24 June – 6 July 2012), examined the nomination of the ***Rio de Janeiro: Carioca Landscapes between the mountain and the Sea*** and decided to **inscribe** the property on the World Heritage List. The decision of the Committee concerning the inscription is attached.

I am confident that your government will take the necessary measures for the effective conservation of this new World Heritage property. The World Heritage Committee and its Secretariat, the World Heritage Centre, will do everything possible to collaborate with you in these efforts.

The *Operational Guidelines for the Implementation of the World Heritage Convention* (paragraph 168), request the Secretariat to send to each State Party with a newly inscribed property a map of the area(s) inscribed. Please examine the attached map and inform us of any discrepancies in the information by **1 December 2012**.

The inscription of the property on the World Heritage List is an excellent opportunity to draw the attention of visitors to, and remind local residents of, the *World Heritage Convention* and the outstanding universal value of the property. To this effect, you may wish to place a plaque displaying the World Heritage emblem and the UNESCO logo at the property. You will find suggestions on this subject in the *Operational Guidelines for the Implementation of the World Heritage Convention*.

In many cases States Parties decide to hold a ceremony to commemorate the inscription of a property on the World Heritage List. Upon request to the World Heritage Centre by the State Party, a World Heritage Certificate can be prepared for such an occasion.

I would be grateful if you could provide me with the name, address, telephone and fax numbers and e-mail address of the person or institution responsible for the management of the property so that we may send them World Heritage publications.

7, place de Fontenoy
75352 Paris 07 SP, France
Tél. : +33 (0)1 45 68 18 24
Fax : +33 (0)1 45 68 55 70

www.unesco.org

Please find attached the brief descriptions of your site, prepared by ICOMOS and the World Heritage Centre, in both English and French. As these brief descriptions will be used in later publications, as well as on the World Heritage website, we would like to have your full concurrence with their wording. Please examine these descriptions and inform us, by **1 December 2012** at the latest, if there are changes that should be made. If we do not hear from you by this date, we will assume that you are in agreement with the text as prepared.

Furthermore, as you may know, the World Heritage Centre maintains a website at http://whc.unesco.org/, where standard information about each property on the World Heritage List can be found. Since we can only provide a limited amount of information about each property, we try to link our pages to those maintained by your World Heritage property or office, so as to provide the public with the most reliable and up-to-date information. If there is a website for the newly inscribed property, please send us its web address.

All the Decisions adopted by the 36th session of the World Heritage Committee are available at the following web address of the World Heritage Centre: http://whc.unesco.org/archive/2012/whc12-36com-19e.pdf.

As you know, according to paragraph 172 of the *Operational Guidelines for the Implementation of the World Heritage Convention*, the World Heritage Committee invites the States Parties to the *Convention* to inform the Committee, through the World Heritage Centre, of their intention to undertake or to authorize in the area protected under the *Convention* major restorations or new constructions which may affect the outstanding universal value of the property.

May I take this opportunity to thank you for your co-operation and for your support in the implementation of the *World Heritage Convention*.

Please accept, Ambassador, the assurances of my highest consideration.

Kishore Rao
Director

cc: Instituto do Patrimônio Histórico e Artístico Nacional (IPHAN)
ICOMOS

Annex I

Extract of the Decisions adopted by the 36th session of the World Heritage Committee (Saint Petersburg, 2012)

Decision: 36 COM 8B.42

The World Heritage Committee,

1. Having examined Documents WHC-12/36.COM/8B and WHC-12/36.COM/INF.8B1,

2. Inscribes **Rio de Janeiro, Carioca Landscapes between the Mountain and the Sea, Brazil**, on the World Heritage List on the basis of **criteria (v)** and **(vi)**;

3. Adopts the following provisional Statement of Outstanding Universal Value:

Brief Synthesis

The city of Rio de Janeiro, shaped by interaction with mountains and sea, lies in the narrow strip of alluvial plain between Guanabara Bay and the Atlantic Ocean. Its exceptionally dramatic landscape is punctuated by a series of forested mountains that tower over the city, rising to the uppermost peak of the Tijuca massif at 1,021 m high, and cascading down to the coast where the steep cone shapes of Sugar Loaf (Pão de Açúcar), Urca, Cara de Cão and Corcovado frame the wide sweeps of Guanabara Bay that shelters Rio de Janeiro from the Atlantic Ocean.

Cradled between these mountains and Guanabara Bay, the urban landscape of the city has been shaped by significant historical events, influenced by a diversity of cultures, is perceived to be of great beauty, and is celebrated in the arts, through painting and poetry in particular.

The property encompasses all the key natural, structural elements that have constrained and inspired the development of the city. These stretch from the highest points of the mountains of the Tijuca National Park with its restored Atlantic forest, down to the sea, and include the Botanical Gardens established in 1808, Corcovado mountain, with its statue of Christ, and the chain of dramatic steep green hills, Sugar Loaf, Pico, Leme and Glória, around Guanabara Bay, as well as the extensive designed landscapes on reclaimed land along Copacabana Bay which, together with Flamengo and other parks, have contributed to the outdoor living culture of the city.

The boundary includes all the best view points to appreciate the way nature has been shaped to become a significant cultural part of the city as well as the Guanabara Bay system of historic fortifications that gave Rio de Janeiro the character of a fortified city.

The city's densest buildings sit on the narrow strips of alluvial land between the mountains and the sea laid out in irregular clusters of tall white blocks which contrast vividly with the green vegetation of the mountains and the blue of the sea. None of these buildings are included in the property, but a significant number are included in the buffer zone.

Criterion (v): The development of the city of Rio de Janeiro has been shaped by a creative fusion between nature and culture. This interchange is not the result of persistent traditional processes but rather reflects an interchange based on scientific, environmental and design ideas that led to innovative landscape creations on a major scale in the heart of the city during little more than a century. These processes have created an urban landscape perceived to be of great beauty by many writers and travellers and one that has shaped the culture of the city.

Criterion (vi): The dramatic landscape of Rio de Janeiro has provided inspiration for many forms of art, literature, poetry, and music. Images of Rio, which show the bay, Sugar Loaf and the statue of Christ the Redeemer have had a high worldwide recognition factor, since

the middle of the 19th century. Such high recognition factors can be either positive or negative: in the case of Rio, the image that was projected, and still is projected, is one of a staggeringly beautiful location for one of the world's biggest cities.

Integrity

The property encompass all the key natural, structural elements that have constrained and inspired the development of the city of Rio, stretching from the highest points of the Tijuca mountains down to the sea, and including the chain of dramatic steep green hills around the Guanabara Bay, as well as the extensive designed landscapes on reclaimed land around the Bay, that have contributed to the outdoor living culture of the city.

None of these elements is under threat, although the interface between these natural elements and the built-up city is vulnerable to urban pressures, the higher peaks are marred by a profusion of antennae and the Rodrigo da Freitas Lagoon (in the buffer zone) and the sea are subject to a degree of water pollution.

Authenticity

The mountains and open green areas of the Tijuca National Park, together with Corcovado and the hills around the Guanabara Bay still retain a similar combination of forest and open observation points as at the time of colonisation and allow access to vistas of the city from many high vantage points that demonstrate very clearly the extraordinary fusion between culture and nature in the way the city has developed.

The Botanical Gardens have retained their original neoclassical design with its special alignments and the fortresses keep alive the memory of the Portuguese settlements, engraved and described by the travellers that navigated the marine routes that focused on Rio de Janeiro.

The landscape designs of Burle Marx around almost the entire coast of Guanabara Bay, comprising Flamengo Park and the redesign of Copacabana beach conserve entirely the landscape morphology of their original designs and still confer high social benefits to the city.

However, in some instances elements of the designed landscape are vulnerable to incremental change – such as the paving and planting along Copacabana and Flamengo Park, where missing trees and mosaics need replacing, and in the Botanical Garden where the Imperial Palms along the main avenue are dead and need replacing.

Protection and Management Requirements

The Tijuca National Park was created by Federal Decrees in 1961. The Research Institute of the Botanical Garden was created by a federal autarchy under the auspices of the Ministry of Environment by a Law of 2001, which establishes its legal statutes, objectives, its structure of management and administration. The Pão de Açúcar (Sugar Loaf) and Urca were declared national monuments under the Law Nº 9.985, of June 18 of 2000.

The Institute of the National Historical and Artistic Heritage (IPHAN) and its predecessors have catalogued, since 1938, the entirety of the sites and defined individual structures for national protection. They include as well as Tijuca National Park and the Botanical Gardens, the Parque Lage mansion, Flamengo Park, Cara de Cão, Babilônia, Urca, Sugar Loaf, Dois Irmãos and Pedra da Gávea hills, São João fort, Santa Cruz fort, and the urban landscape of Leme, Copacabana, Ipanema and Leblon beaches.

The Decree of IPHAN Nº 127 of 30 April 2009 – established the designation of Brazilian Cultural Landscapes and a request has been made to designate Rio de Janeiro Landscape, as a Brazilian Cultural Landscape.

In the 20th century, high buildings were regulated through the creation of a norm establishing that it was not allowed to build more than twelve stories in height. In the 1970, planning instruments were adopted to control urban growth toward the hills in order to protect the nature conservation areas, sanctioned in 1976. This means that construction is not allowed beyond 60 meters above the sea level in the surroundings of the Pão de Açúcar (Sugar Loaf) and in Urca and the limit of no more than 100 meters above the level in the

other hills of the city, considered areas of forest reserve.

A new Master Plan for Sustainable Urban Development of the City of Rio de Janeiro came into force in February 2011.The Plan establishes that the Landscape of Rio de Janeiro represents the most valuable asset of the city.

The Plan includes principles and guidelines to promote sustainable development as a means to promote economic development, social equity, and environmental and landscape preservation; sustainable use of the environment, landscape, and natural, cultural, historical, and archaeological heritage in the city's development and management; and conditioning of urban occupation to the preservation of the city's identity and cultural landscapes.

The Plan also allows for land use and occupation to be regulated by limitations of density, of economic activities, of the right to enjoy the natural landscape of the city, and of the quality of the urban environment. Heights of buildings shall be defined by the preservation and conservation of the integrity of the natural landscape.

The implementation of the Plan needs to progress through the adoption of its policies in the different areas of the city, including through specific laws.

The protection offered by the buffer zone needs strengthening with stricter guidelines on preservation, and, if found necessary by the Management Committee, more restrictive soil use and occupation parameters. The buffer zone needs to ensure the protection of views and the broad setting of the property as well as the interface with the property.

All areas of the buffer zone needs to be designated as Cultural Environment Protection Areas (APACs) and management plans for individual APACs developed accordingly further clarification is needed as to what is to be managed within the buffer zone.

A Management Committee to coordinate the management of the serial sites was established by Decree No. 464 of 29 December 2011 to develop and deliver an overall Management Plan for the property. The Management Committee, chaired by IPHAN, draws together the key stakeholders at the Federal, State and Municipal levels involved in the management of the different areas of the property. The Committee will determine the joint management structure and develop the joint management plan for the property and its buffer zone.

The Management Committee will ensure the adoption of possible additional protection measures for the sites, enforced through enhanced preservation structures.

A Management Plan needs to be finalized for the property and its buffer zone that addresses potential threats and possible remaining gaps in protection .so that preservation of the overall cultural landscape might be achieved.

As a basis for the Management Plan, there is a need to put in place a system for defining, recording and inventorying the key components of the overall cultural landscape and for defining monitoring indicators related to the attributes of Outstanding Universal Value.

The management of the property needs to address the issue of water pollution around Guanabara Bay through monitoring and positive action. In order to conserve both long views and the individual details of the property, there is a need to develop an overall Conservation Plan or Conservation approach for the property and for Conservation projects at various sites in order to conserve their important details.

4. Recommends that the State Party:

   a) Put in place an overall management framework for all the component parts of the serial property that draws together the management of the component sites and involves all key stakeholders in line with the requirements of the *Operational Guidelines*, paragraph 114,

   b) Complete the Management Plan for the property,

   c) Provide details as to how the buffer zone will be protected and managed,

d) Put in place a system for defining, recording and inventorying the key components of the overall cultural landscape,

e) Define monitoring indicators related to the attributes of Outstanding Universal Value,

f) Provide more details on plans to address water pollution,

g) Develop an overall Conservation Plan or Conservation approach for the property;

5. Requests the State Party to submit to the World Heritage Centre a report on the above recommendations, in particular with regard to the implementation of the Management Plan for the property, by **1 February 2014**, for examination at the 38th session of the World Heritage Committee in 2014.

Surface and coordinates of the property inscribed on the World Heritage List by the 36th session of the World Heritage Committee (Saint Petersburg, 2012) in accordance with the *Operational Guidelines*.

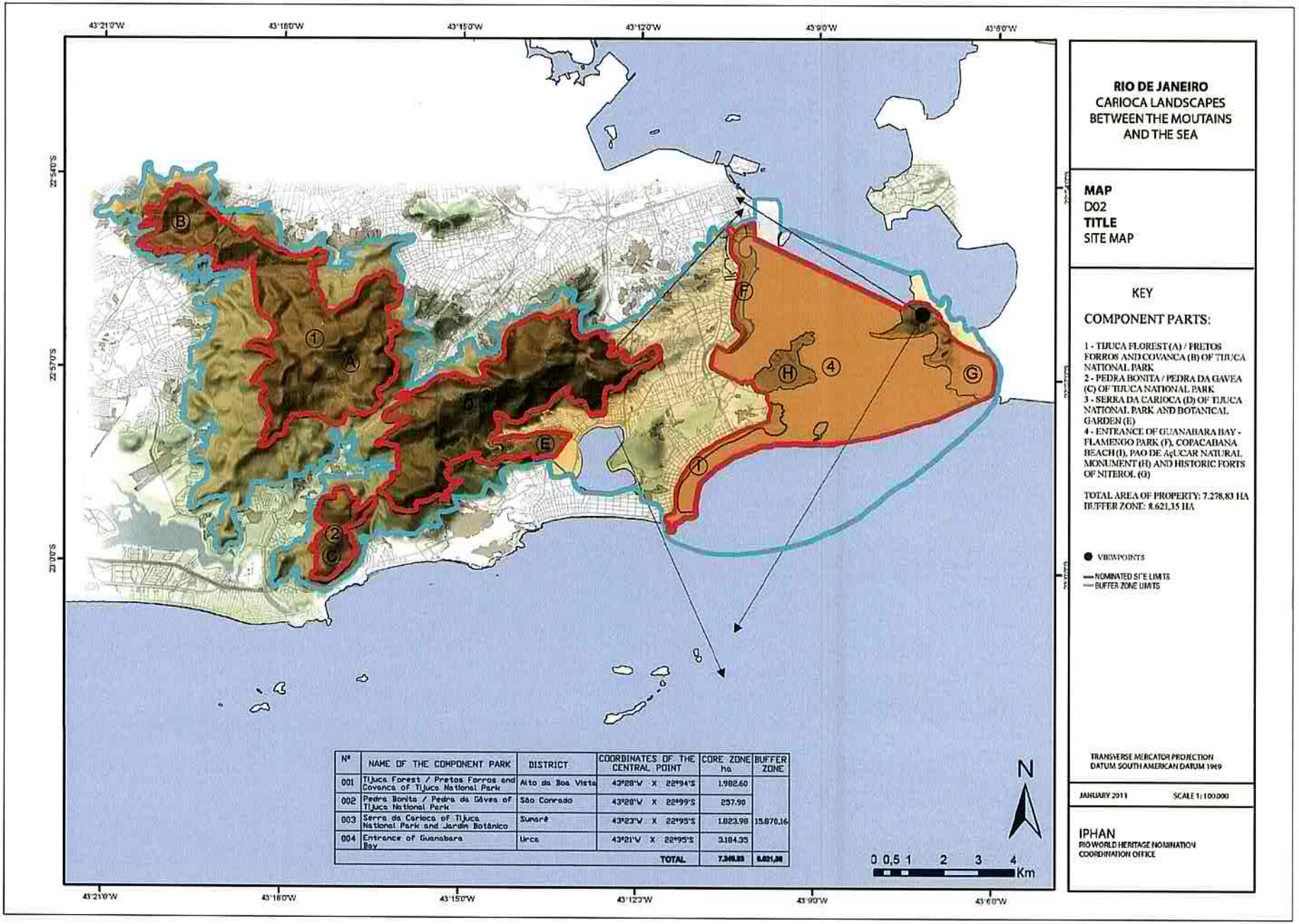
	Brazil			
C 1100 Rev	Rio de Janeiro: Carioca Landscapes between the Mountain and the Sea			
Serial ID No.	**Name**	**Property**	**Buffer zone**	**Centre point coordinates**
1100rev-001	Tijuca Forest, Pretos Forros and Covanca – Tijuca National Park	1982.58	8 621.38	S22 56 52 W43 17 29
1100rev-002	Pedra Bonita and Pedra da Gávea - Tijuca National Park	257.89		S22 59 52 W43 17 13
1100rev-003	Carioca Mountaion range - Tijuca National Park and Botanic Gardens	1823.97		S22 57 14 W43 14 50
1100rev-004	Mouth of Guanabara Bay and Manmade Shorelines – Flamengo Park, Historic Forts of Niterói, Sugar Loaf Natural Monument Copacabana Seafront	3184.34		S22 56 56 W43 09 07
	TOTAL	**7 248.78**	**8 621.38**	

Brief Description in English

The site consists of an exceptional urban setting encompassing the key natural elements that have shaped and inspired the development of the city: from the highest points of the Tijuca National Park's mountains down to the sea. They also include the Botanical Gardens, established in 1808, Corcovado Mountain with its celebrated statue of Christ, and the hills around Guanabara Bay, including the extensive designed landscapes along Copacabana Bay which have contributed to the outdoor living culture of this spectacular city. Rio de Janeiro is also recognized for the artistic inspiration it has provided to musicians, landscapers and urbanists.

Brief Description in French

Le bien consiste en un paysage urbain exceptionnel comprenant les éléments naturels qui ont régi et inspiré le développement de la ville, partant des sommets montagneux du parc national de Tijuca pour descendre vers la mer. En font partie également les jardins botaniques, créés en 1808, le mont Corcovado avec sa statue du Christ et la chaîne de collines autour de la baie de Guanabara ou encore les vastes paysages le long de la baie de Copacabana, qui ont contribué à la culture de la vie en plein air de cette ville spectaculaire. Rio de Janeiro est aussi reconnue comme une source d'inspiration pour les musiciens, les paysagistes et les urbanistes.



Nº	NAME OF THE COMPONENT PARK	DISTRICT	COORDINATES OF THE CENTRAL POINT	CORE ZONE ha	BUFFER ZONE
001	Tijuca Forest / Pretos Forros and Covanca of Tijuca National Park	Alto da Boa Vista	43°28'W X 22°94'S	1.982,60	
002	Pedra Bonita / Pedra da Gávea of Tijuca National Park	São Conrado	43°28'W X 22°99'S	257,90	
003	Serra da Carioca of Tijuca National Park and Jardim Botânico	Sumaré	43°23'W X 22°95'S	1.823,98	15.870,16
004	Entrance of Guanabara Bay	Urca	43°21'W X 22°95'S	3.184,35	
			TOTAL	7.369,83	8.621,35

RIO DE JANEIRO
CARIOCA LANDSCAPES
BETWEEN THE MOUTAINS
AND THE SEA

MAP
D02
TITLE
SITE MAP

KEY

COMPONENT PARTS:

1 - TIJUCA FLOREST (A) / PRETOS FORROS AND COVANCA (B) OF TIJUCA NATIONAL PARK
2 - PEDRA BONITA / PEDRA DA GAVEA (C) OF TIJUCA NATIONAL PARK
3 - SERRA DA CARIOCA (D) OF TIJUCA NATIONAL PARK AND BOTANICAL GARDEN (E)
4 - ENTRANCE OF GUANABARA BAY - FLAMENGO PARK (F), COPACABANA BEACH (I), PAO DE AçUCAR NATURAL MONUMENT (H) AND HISTORIC FORTS OF NITEROI (G)

TOTAL AREA OF PROPERTY: 7.278,83 HA
BUFFER ZONE: 8.621,35 HA

VIEWPOINTS
NOMINATED SITE LIMITS
BUFFER ZONE LIMITS

TRANSVERSE MERCATOR PROJECTION
DATUM SOUTH AMERICAN DATUM 1969

JANUARY 2011 SCALE 1:100.000

IPHAN
RIO WORLD HERITAGE NOMINATION
COORDINATION OFFICE