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IUCN World Heritage Evaluations 2015

IUCN Evaluations of Nominations of Natural and Mixed Properties to the World Heritage List

IUCN Report for the World Heritage Committee, 39th Session
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United Nations Educational, Scientific and Cultural Organization

World Heritage Convention

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IUCN Evaluations of Nominations of Natural and Mixed Properties to the World Heritage List

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EXECUTIVE SUMMARY TABLE OF IUCN EVALUATIONS TO THE WORLD HERITAGE COMMITTEE

State Party	Name of the property (ID number)	Note	OUTSTANDING UNIVERSAL VALUE											Further mission required	IUCN Recommendation
			Meets one or more natural criteria				Meets conditions of integrity				Meets protection and management requirements				
			Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	Integrity	Boundaries	Threats addressed	Justification of serial approach	Protection status	Management	Buffer zone / Protection in surrounding area		
Paragraphs of the Operational Guidelines for the Implementation of the World Heritage Convention			77	77	77	77	78, 87-95	99-102	78, 98	137	78, 132.4	78, 108-118, 132.4, 135	103-107		
South Africa	Cape Floral Region Protected Areas (1007 Bis)	Extension	–	–	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	I
Sudan	Sanganeb Marine NP and Dungonab Bay - Mukkawar Island Marine NP (262 Rev)		part	no	part	part	no	no	no	no	part	no	no	yes	D
Mongolia / Russian Federation	Landscapes of Dauria (1448)		–	–	no	no	no	no	no	–	no	part	no	yes	D
Thailand	Kaeng Krachan Forest Complex (1461)		–	–	–	part	part	yes	yes	–	yes	yes	yes	yes	R
Viet Nam	Phong Nha – Ke Bang National Park (951 Rev)	Renomination Extension	–	yes	yes	yes	yes	yes	part	–	yes	yes	part	no	I
Jamaica	Blue and John Crow Mountains (1356 Rev)	Mixed site	–	–	no	yes	yes	yes	yes	–	yes	yes	part	no	I

KEYS

yes	met	I	inscribe / approve
part	partially met	N I	non inscribe
no	not met	R	refer
–	not applicable	D	defer

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Viet Nam	951 Rev	Phong Nha-Ke Bang National Park (renomination and extension)	53

IUCN FIELD EVALUATORS

Site	Name
Cape Floral Region Protected Areas (extension)	Bastian Bertzky
Sanganeb Marine National Park and Dungonab Bay - Mukkawar Island Marine National Park	Naomi Doak & Hany El Shaer
Landscapes of Dauria	Maja Vasilijevic & Wendy Strahm
Kaeng Krachan Forest Complex	Bruce Jefferies
Phong Nha-Ke Bang National Park (renomination and extension)	Josephine Langley & Hag Young Heo
Blue and John Crow Mountains	Melissa Marin & Tilman Jaeger

It should be noted that the IUCN field evaluators are part of a broader evaluation approach detailed in the introduction of this report.

THE WORLD HERITAGE CONVENTION
IUCN TECHNICAL EVALUATION REPORT OF WORLD HERITAGE NOMINATIONS
April 2015

1. INTRODUCTION

This technical evaluation report of natural and mixed properties nominated for inclusion on the World Heritage List has been conducted by the World Heritage Programme of IUCN (International Union for Conservation of Nature). The World Heritage Programme co-ordinates IUCN's input to the World Heritage Convention in close cooperation with the IUCN Global Protected Areas Programme (GPAP) and other units of IUCN both at headquarters and in the regions. It also works closely with IUCN's World Commission on Protected Areas (WCPA), the world's leading expert network of protected area managers and specialists, and other Commissions, members and partners of IUCN.

IUCN's evaluations are conducted according to the Operational Guidelines that the World Heritage Committee has agreed, and which are the essential framework for the application of the evaluation process. In carrying out its function under the World Heritage Convention, IUCN has been guided by four principles:

(i) ensuring the highest standards of quality control, institutional memory and consistency in relation to technical evaluation, monitoring and other associated activities;

(ii) increasing the use of specialist networks of IUCN, especially WCPA, but also other relevant IUCN Commissions and specialist partner networks;

(iii) working in support of the UNESCO World Heritage Centre and States Parties to examine how IUCN can creatively and effectively support the World Heritage Convention and individual properties as "flagships" for conservation; and

(iv) increasing the level of effective partnership between IUCN and the World Heritage Centre, ICOMOS and ICCROM.

Members of the expert network of WCPA carry out the majority of technical evaluation missions, supported by other specialists where appropriate. The WCPA network now totals more than 1700 protected area managers and specialists from 140 countries. In addition, the World Heritage Programme calls on relevant experts from IUCN's other five Commissions (Species Survival, Environmental Law, Education and Communication, Ecosystem Management, and Environmental, Economic and Social Policy); from international earth science unions, nongovernmental organizations and scientific contacts in universities and other international agencies. This highlights the considerable "added value" from investing in the use of the extensive networks of IUCN and partner institutions.

These networks allow for the increasing involvement of regional natural heritage experts and broaden the capacity of IUCN with regard to its work under the World Heritage Convention. Reports from field missions and comments from a large number of external reviewers are comprehensively examined by the IUCN World Heritage Panel. The IUCN World Heritage Programme then prepares the final technical evaluation reports which are presented in this document and represent the corporate position of IUCN on World Heritage evaluations. IUCN has also placed emphasis on providing input and support to ICOMOS in relation to those cultural landscapes which have important natural values.

IUCN has extended its cooperation with ICOMOS, including coordination in relation to the evaluation of mixed sites and cultural landscapes. IUCN and ICOMOS have also enhanced the coordination of their panel processes as requested by the World Heritage Committee. This cooperation will be reported in Item 5B and other relevant items of the Committee's agenda.

In 2014-15 IUCN has continued to work on the Upstream Process, as will be debated in the relevant items on the Committee's agenda.

2. EVALUATION PROCESS

In carrying out the technical evaluation of nominations IUCN is guided by the Operational Guidelines to the World Heritage Convention. The evaluation process is carried out over the period of one year, from the receipt of nominations at IUCN in March and the submission of the IUCN evaluation report to the World Heritage Centre in May of the following year. The process involves the following steps:

1. **External Review.** The nomination is sent to independent experts knowledgeable about the property or its natural values, including members of WCPA, other IUCN specialist Commissions and scientific networks or NGOs working in the region. IUCN received almost 100 external reviews in relation to the properties examined in 2014 / 2015.

2. **Field Mission.** Missions involving one or more IUCN and external experts evaluate the nominated property on the ground and discuss the nomination with the relevant national and local authorities, local communities, NGOs and other stakeholders. Missions usually take place between July and October. In the case of mixed properties and certain cultural landscapes, missions are jointly implemented with ICOMOS.

3. **IUCN World Heritage Panel Review.** The Panel intensively reviews the nomination dossiers, field mission reports, comments from external reviewers and other relevant reference material, and provides its technical advice to IUCN on recommendations for each nomination. A final report is prepared and forwarded to the World Heritage Centre in May for distribution to the members of the World Heritage Committee.

4. **UNEP-WCMC Comparative Analysis**. IUCN commissions UNEP-WCMC to carry out a global comparative analysis for all properties nominated under the biodiversity criteria (ix) and (x). Following inscription, datasheets are compiled with WCMC.

5. **Communities.** IUCN has enhanced its evaluation processes through the implementation of a series of measures to evaluate stakeholder and rights holder engagement during the nomination process (see below for further details)

6. **Final Recommendations.** IUCN presents, with the support of images and maps, the results and recommendations of its evaluation process to the World Heritage Committee at its annual session in June or July, and responds to any questions. The World Heritage Committee makes the final decision on whether or not to inscribe the property on the World Heritage List.

It should be noted that IUCN seeks to develop and maintain a dialogue with the State Party throughout the evaluation process to allow the State Party every opportunity to supply all the necessary information and to clarify any questions or issues that may arise. IUCN is available to respond to questions at any time, however, there are three occasions on which IUCN may request further information from the State Party. These are:

- **Before the field mission.** IUCN sends the State Party, usually directly to the person organizing the mission in the host country, a briefing on the mission, in many cases raising specific questions and issues that should be discussed during the mission. This allows the State Party to prepare properly in advance;

- **Directly after the field mission.** Based on discussions during the field mission, IUCN may send an official letter requesting supplementary information before the IUCN World Heritage Panel meets in December, to ensure that the Panel has all the information necessary to make a recommendation on the nomination; and

- **After the first meeting of the IUCN World Heritage Panel (December).** If the Panel finds some questions are still unanswered or further issues need to be clarified, a final letter will be sent to the State Party requesting supplementary information by a specific deadline. That deadline must be adhered to strictly in order to allow IUCN to complete its evaluation.

If the information provided by the State Party at the time of nomination and during the mission is adequate, IUCN does not request supplementary information. It is expected that supplementary information will be in response to specific questions or issues and should not include completely revised nominations or substantial amounts of new information. It should be emphasized that whilst exchanges between evaluators and the State Party during the mission may provide valuable feedback they do not substitute for the formal requests for supplementary information outlined above. In additional IUCN has continued to promote additional dialogue with States Parties on the conclusion of its panel process, to allow for discussion of issues that have been identified and to allow more time to prepare discussions at the World Heritage Committee.

In the technical evaluation of nominated properties, global biogeographic classification systems such as Udvardy's biogeographic provinces and the terrestrial, freshwater and marine ecoregions of the world are used to identify and assess comparable properties at the global level. These methods make comparisons of natural properties more objective and provide a practical means of assessing similarity at the global level. At the same time, World Heritage properties are expected to contain special features, habitats and faunistic or floristic peculiarities that can also be compared on a broader biome basis. It is stressed that these systems are used as a basis for comparison only and do not imply that World Heritage properties are to be selected based on these systems alone. In addition, global conservation priority-setting schemes such as WWF's Global 200 Priority Ecoregions, Conservation International's Biodiversity Hotspots, Birdlife International's Endemic Bird Areas and Important Bird Areas, Alliance for Zero Extinction sites and IUCN/WWF Centres of Plant Diversity provide useful guidance. The decisive principle is that World Heritage properties are only those areas of outstanding universal value.

The evaluation process is also aided by the publication of a series of reference volumes and thematic studies. In early 2012 a resource manual on the preparation of World Heritage Nominations was published, under joint lead authorship of IUCN and ICOMOS, and has provided further details on best practices, including the key resources that are available to support nominations. IUCN's range of thematic studies and key references that advise priorities on the World Heritage List are available at the following web address: http://www.iucn.org/about/work/programmes/wcpa_worldheritage/resources/publications/

IUCN members adopted a specific resolution on these matters at the IUCN World Conservation Congress in 2012, and this resolution *(WCC-2012-Res-047-EN Implementation of the United Nations Declaration on the Rights of Indigenous Peoples in the context of the UNESCO World Heritage Convention)* is available at the following address: http://www.iucnworldconservationcongress.org/member_s_assembly/resolutions/. IUCN has continued to implement a range of improved practices within its evaluation process in response to these reviews and reflections, which are focused on the inclusion of a specific section headed "Communities" within each evaluation report, to ensure transparency and consistency of IUCN's advice to the World Heritage Committee on this important issue. These measures include a standard screening form for all evaluation missions, additional consultation with networks specialised in this field, and including an expert advisor in the membership of the IUCN World Heritage Panel.

In addition, IUCN has updated its format for field evaluation reports, to include specific questions on communities, and to also clarify a range of questions and expectations of feedback from evaluators to ensure consistency of reports from field missions. This material is all publicly available and posted online.

IUCN has also completed in 2013 an evalution of its World Heritage Programme, and a management response to its findings was been agreed in 2014 and is being implemented and during the course of 2015-16 will lead to a revision of the role of the IUCN World Heritage Panel. The evaluation and the management response are available online at the following address: https://www.iucn.org/knowledge/monitoring_evaluation/database/all_iucn_evaluations/. The implementation of reform on IUCN's work on World Heritage will also consider agreed actions arising from the work of the Ad-hoc Working Group of States Parties established at the 38th Session of the Committee, which has enabled valuable dialogue between States Parties and the Advisory Bodies, and also enabled IUCN and ICOMOS to consider a range of potential options to harmonise further their evaluation processes. IUCN welcomes this dialogue and considers the work of the Ad-hoc group provides a good model for possible continued dialogue towards effective new procedures for the evaluation process. This will also be considered under a specific item of the agenda of 39COM. IUCN notes that reform of the evaluation process is constrained fundamentally by the current calendar, and that many of the expections of States Parties regarding increases in dialogue and transparency require more time to be provided for the evaluation, especially for nominations that are found to not meet requirements of the Operational Guidelines. In addition the upstream process needs to be a central priority, and additional resources will be required to enable its implementation.

3. THE IUCN WORLD HERITAGE PANEL

Purpose: The Panel advises IUCN on its work on World Heritage, particularly in relation to the evaluation of World Heritage nominations. The Panel normally meets face to face once a year for a week in December. Depending on the progress made with evaluations, and the requirement for follow up action, a second meeting or conference call in the following March may be required. Additionally, the Panel operates by email and/or conference call, as required.

Functions: A core role of the Panel is to provide a technical peer review process for the consideration of nominations, leading to the formal adoption of advice to IUCN on the recommendations it should make to the World Heritage Committee. In doing this, the Panel critically examines each available nomination document, the field mission report, the UNEP-WCMC Comparative Analysis, comments from external reviewers and other material, and uses this to help prepare IUCN's advice, including IUCN recommendations relating to inscription under specified criteria, to the World Heritage Committee (and, in the case of some cultural landscapes, advice to ICOMOS). It may also advise IUCN on other matters concerning World Heritage, including the State of Conservation of World Heritage properties and on policy matters relating to the Convention. Though it takes account of the policy context of IUCN's work under the Convention, its primary role is to deliver high quality scientific and technical advice to IUCN, which has the final responsibility for corporate recommendations made to the World Heritage Committee.

Membership: Membership of the Panel is at the invitation of the IUCN Director General (or Deputy Director General under delegated authority) through the Director of the World Heritage Programme. The members of the Panel comprise IUCN staff with responsibility for IUCN's World Heritage work, other relevant IUCN staff, Commission members and external experts selected for their high level of experience with the World Heritage Convention. The membership of the Panel comprises:

- The Director, IUCN World Heritage Programme (Chair – non-voting)
- At least one and a maximum of two staff of the IUCN Global Protected Areas Programme
- Senior Advisor(s) appointed by the IUCN Director General or delegate to advise the organisation on World Heritage
- The IUCN World Commission on Protected Areas (WCPA) Vice Chair for World Heritage

- The Head of the UNEP-WCMC Protected Areas Programme
- Up to five technical advisors, invited by IUCN and serving in a personal capacity, with recognised leading expertise and knowledge relevant to IUCN's work on World Heritage, including particular thematic and/or regional perspectives.

The Panel's preparations and its meetings are facilitated through the work of the World Heritage Programme Assistant. Information on the members of the IUCN World Heritage Panel is posted online at the following link: http://www.iucn.org/about/work/programmes/wcpa_worldheritage/advisory_body_role/world_heritage_panel/

A senior manager in IUCN is delegated by the Director General to provide oversight at senior level on World Heritage, including with the responsibility to ensure that the Panel functions within its TOR and mandate. This senior manager is not a member of the Panel, but is briefed during the Panel meeting on the Panel's conclusions. The Panel may also be attended by other IUCN staff, Commission members (including the WCPA Chair) and external experts for specific items at the invitation of the Chair. This role is currently fulfilled by the IUCN Global Thematic Director, Biodiverstiy Conservation.

4. EVALUATION REPORTS

Each technical evaluation report presents a concise summary of the nominated property, a comparison with other similar properties, a review of management and integrity issues and concludes with the assessment of the applicability of the criteria and a clear recommendation to the World Heritage Committee. IUCN also submits separately to the World Heritage Centre its recommendation in the form of a draft decision, and a draft Statement of Outstanding Universal Value for all properties it recommends for inscription. Inaddition, IUCN carries out field missions and/or external reviews for cultural landscapes containing important natural values, and provides its comments to ICOMOS. This report contains a short summary of these comments on each cultural landscape nomination reviewed.

5. NOMINATIONS EXAMINED IN 2014 / 2015

Nomination dossiers and minor boundary modifications examined by IUCN in the 2014 / 2015 cycle included:

- 5 natural property nominations (including 3 new nominations and 2 extensions);
- 1 mixed property nomination, where a joint mission was undertaken with ICOMOS;
- 5 cultural landscape nominations (all new nominations); IUCN accompanied ICOMOS on 1 field mission given the high natural values of the site, and 2 were commented on by IUCN based on internal and external desktop reviews. 2 were not commented on;
- 2 minor boundary modifications.

6. COLLABORATION WITH INTERNATIONAL EARTH SCIENCE UNIONS

IUCN implements its consideration of earth science values within the World Heritage Convention through a global theme study on Geological Heritage published in 2005. In addition collaboration agreements with the International Union of Geological Sciences (IUGS) and the International Association of Geomorphologists (IAG) focus on strengthening the evaluation process by providing access to the global networks of earth scientists coordinated through IUGS and IAG. IUCN would like to record its gratitude to IUGS and IAG for their willingness to provide support for its advisory role to the World Heritage Convention.

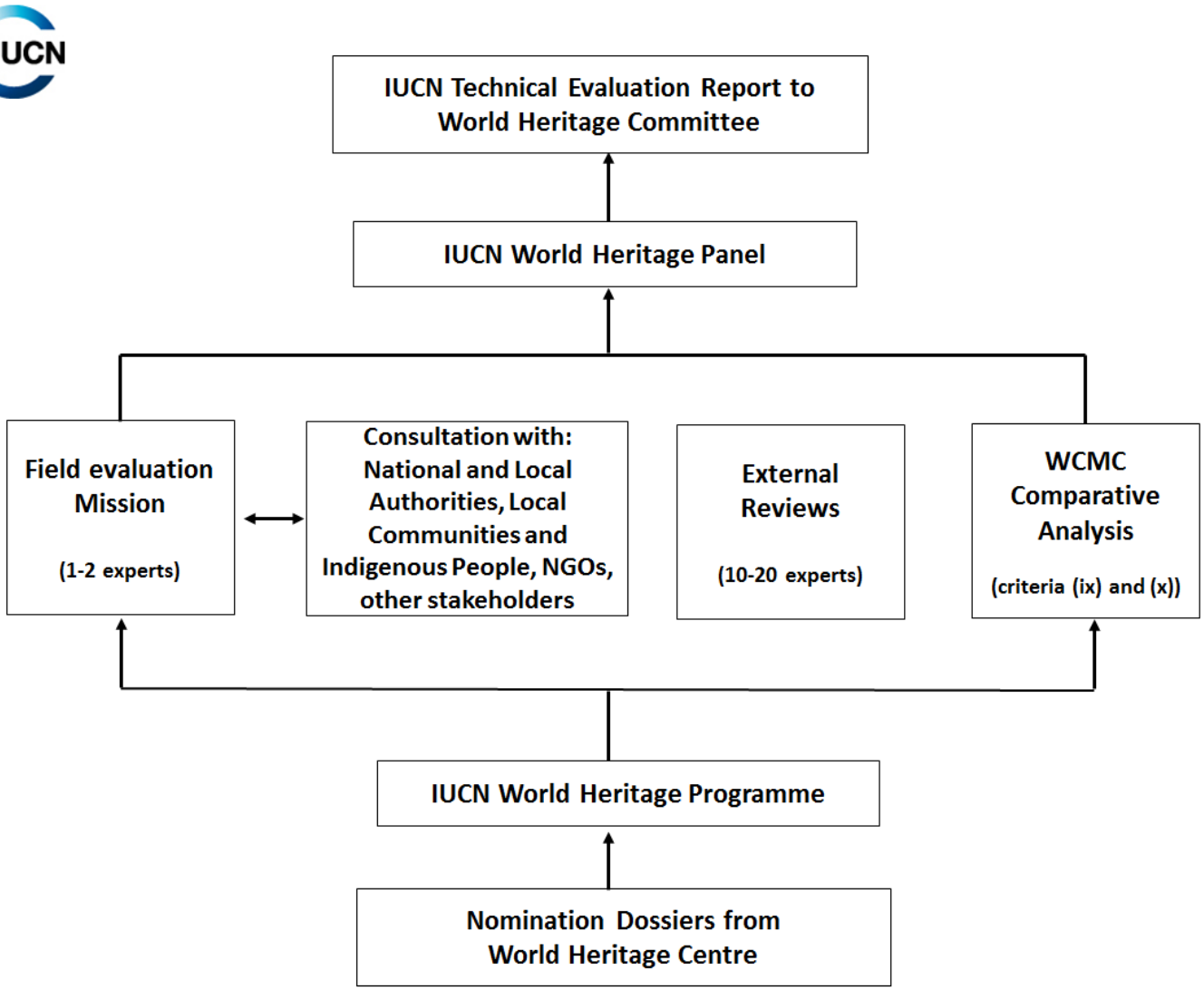
7. RECOMMENDATIONS TO THE WORLD HERITAGE COMMITTEE

In the 2014 / 2015 cycle, IUCN has sought to ensure that States Parties have the opportunity to provide all the necessary information on their nominated properties through the process outlined in section 2 above. As per the provisions of the Operatioal Guidelines, and Decision 30 COM 13 of the World Heritage Committee (Vilnius, 2006), IUCN has not taken into consideration or included any information submitted by States Parties after 28 February 2015, as evidenced by the postmark. IUCN has previously noted a number of points for improvement in the evaluation process, and especially to clarify the timelines involved.

8. ACKNOWLEDGEMENTS

As in previous years, this report is a group product to which a vast number of people have contributed. Acknowledgements for advice received are due to the external evaluators and reviewers, many of them from IUCN's members, Commissions and Networks, and numerous IUCN staff at Headquarters and in IUCN's Regional and Country Offices. Many others contributed inputs during field missions. This support is acknowledged with deep gratitude.

Figure 1: IUCN Evaluation Process



A. NATURAL PROPERTIES

A1. NEW NOMINATIONS OF NATURAL PROPERTIES

AFRICA

CAPE FLORAL REGION PROTECTED AREAS (Extension of “Cape Floral Region Protected Areas”)

SOUTH AFRICA

Rich heathlands made up of proteas, ericas and restios in Kogelberg Nature reserve - © Mark and Alida Johns

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

CAPE FLORAL REGION PROTECTED AREAS (SOUTH AFRICA) – ID 1007 Bis

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To approve the extension under natural criteria.

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property meets World Heritage criteria.
Paragraph 78: Nominated property meets integrity and protection and management requirements.

Background note: The existing Cape Floral Region Protected Areas (CFRPA) property was inscribed on the World Heritage List in 2004 under criteria (ix) and (x) (Decision 28 COM 14B.12). Following inscription, several Committee decisions have welcomed the State Party's intentions to extend the property to include additional areas of value. Previous Committee decisions have also highlighted concerns regarding the adequacy of financial resources to ensure effective management of the property (Decisions 30 COM 7B.5; 31 COM 7B.8) and the need to establish a single property-wide coordinating authority to guide management and facilitate the buffering and extension of the property (31 COM 7B.8; 33 COM 7B.6).

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1. DOCUMENTATION

a) Date nomination received by IUCN: 18 March 2014

b) Additional information officially requested from and provided by the State Party: Following the IUCN World Heritage Panel a letter was sent to the State Party seeking its response to specific proposals to adjust the boundary of the nominated extensions to the property. The State Party was also requested to update progress on preparing an integrated management plan and to advise on phosphate mining proposals in the West Coast Complex area (which has now been deleted from the nomination). The information in response was received on 10 February 2015.

c) Additional literature consulted: Various sources including Cowling, R. M., et al. (2003) **A Conservation plan for a global biodiversity hotspot- the Cape Floristic region, South Africa.** Biological Conservation 112 (1-2): 191-216. Bradshaw, P. and Holness S. (2013) **Fynbos World Heritage Site Assessments.** Internal report compiled for comparative analysis of sites appropriate for the Extension Nomination of the Cape Floral Region. Timmins, Cape Town. Rutherford, M.C. (1997) **Categorization of biomes.** In: Cowling, R., Richardson, D.M., Pierce, S.M. (eds) **Vegetation of Southern Africa.** Cambridge University Press, Cambridge, pp 91-98 ISBN 0-521-57142-1. DWAF (2004) **Development of a framework for the assessment of wetland ecological integrity in South Africa. Phase 1: Situation Analysis.** Uys, M.C. Contributors Marneweck, G. and Maseti, P. ISBN No.: 0-621-35474-0. Department of Water Affairs and Forestry, Pretoria. Van Wilgen B.W. et al, **Challenges in invasive alien plant control in South Africa.** S Afr J Sci. 2012;108(11/12), Art. #1445, 3 pages. BirdLife International (2014) **Endemic Bird Area Factsheet: Cape Fynbos.** Downloaded from http://www.birdlife.org in October 2014. Conservation International (2014) **Hotspots: Cape Floristic Region**. Downloaded from http://www.conservation.org/how/pages/hotspots.aspx, accessed in October 2014. Cowling R.M. and Heijnis C.E. (2001) **Identification of Broad Habitat Units as biodiversity entities for systematic conservation planning in the Cape Floristic Region.** South African Journal of Botany 67(1): 15–38. Friedman Y. and Daly B. (eds) (2004) **Red Data Book of the Mammals of South Africa: A Conservation Assessment: CBSG South Africa**, Conservation Breeding Specialist Group (SSC/IUCN), Endangered Wildlife Trust, South Africa. Linder P.H. (2003) **The radiation of the Cape flora, southern Africa.** Biological Reviews 78: 597–638. Mucina L. and Rutherford M.C. (eds) (2006) **Vegetation Map of South Africa, Lesotho, and Swaziland.** Strelitzia 19. South African National Botanical Institute. Pretoria. Available online at http://bgis.sanbi.org/vegmap/map.asp, Accessed in October 2014. WWF (2006) **WildFinder: Online database of species distributions: Montane Fynbos and Renosterveld, and Lowland Fynbos and Renosterveld.** Downloaded from www.worldwildlife.org/WildFinder, ver. Jan-06, accessed October 2014.

d) Consultations: 10 desk reviews received. The mission also met with representatives of the national Department of Environmental Affairs, SANParks, the two provinces concerned with the nomination (Western Cape and Eastern Cape) and their responsible agencies for provincial protected areas (Western Cape Nature Conservation Board known as CapeNature and the Eastern Cape Parks and Tourism Agency), and the City of Cape Town; managers and staff of many protected areas included in the nomination; representatives of a wide range of partners and other stakeholders.

e) Field Visit: Bastian Bertzky, 1-5 October 2014

f) Date of IUCN approval of this report: April 2015

2. SUMMARY OF NATURAL VALUES

The Cape Floral Region (CFR) is located in the southwest corner of South Africa, centred on the Western Cape Province but also expanding into the Eastern Cape and Northern Cape Provinces. The CFR is an exceptionally important region for plant biodiversity globally. It is one of the six Floral Kingdoms of the world, by far the smallest and richest in species relative to its size, and is one of 35 global terrestrial biodiversity hotspots. In less than 0.5% of the area of Africa the CFR has nearly 20% of its flora and in less than 4% of the area of South Africa it has 39% of its flora. Some 69% of the estimated 9,000 plant species in the CFR are restricted (endemic) to this region.

The State Party has advised in its supplementary information of a number of boundary adjustments to the extension areas originally nominated. The changes ensure that all proposed extension areas contribute to enhancing the values of the existing site and satisfy the conditions of integrity as required by the Operational Guidelines. Adjustments were made to five clusters of the originally nominated extension, namely West Coast Complex (deleted); Table Mountain National Park; Agulhas Complex; Langeberg Complex; and the Garden Route Complex. As a result the extended Cape Floral Region Protected Areas (CFRPA) property now covers 1,094,741.5 ha, representing approximately 6% of the total extent of the CFR and almost doubling the extent of the originally inscribed World Heritage site of 557,584 ha.

The extended property if approved includes 157 component parts (land parcels) in 13 clusters (see Table 1), corresponding to the majority of proclaimed protected areas within the CFR that are owned or managed by the State (at national or provincial level). These protected areas include National Parks, Provincial Nature Reserves, Wilderness Areas, State Forests and Mountain Catchment Areas. The property is surrounded by a buffer zone which has also been adjusted to an area of 798,513.85 ha, made up of privately owned, declared Mountain Catchment Areas and other protected areas. The functions of the buffer zone are further supported by other buffering mechanisms such as Stewardship Programmes, Landscape Initiatives, Biosphere Reserves and Critical Biodiversity Areas.

Elevations range from 2077m in the Groot Winterhoek Complex to sea level in several of the clusters. Peaks such as Table Mountain form a scenic backdrop to the Western Cape, and different parts of the property are characterised by rugged mountains, undulating hills, flat lowlands, or rocky and sandy coastlines. The region has a semi-Mediterranean climate of cool wet winters and hot dry summers in the west with summers tending to be rainier in the east. Rainfall varies markedly with topography between 300-500mm in the lowlands to 1000-3300mm in the mountains where snow falls in winter.

As was noted in IUCN's 2004 evaluation of the currently inscribed property, the distinctive flora of the CFR which comprises 80% of its floristic richness, is a sclerophyllous shrubland known as *Fynbos* (fine bush), a fine-leaved vegetation adapted to both the Mediterranean climate and to periodic fires. Its main components are heaths, *Proteaceae*, reedlike *Restionaceae* and geophytes (bulb-plants), including many *Iridaceae*. Plant diversity is based on soil types which vary from predominantly coarse, sandy, acidic, nutrient-poor soils, to alkaline marine sands and richer alluvials. There are areas of evergreen forest in fire-protected gorges and on deeper soils, valley thickets and succulent thickets in the east, and succulent Karoo shrubland in the drier north.

The property is also an outstanding example for a number of biological, ecological and evolutionary processes associated with the Fynbos vegetation. These include (1) the adaptations of the plants to fire and other natural disturbances (2) seed dispersal by ants and termites, (3) the very high level of plant pollination by insects, mainly beetles and flies, birds and mammals, and (4) high levels of adaptive radiation and speciation.

The 13 clusters and their component parts have been selected to provide good representation of the CFR's phytogeographic centres, its 119 recognized Fynbos vegetation types, endemic and/or threatened Fynbos species, and the biological, ecological and evolutionary processes associated with the Fynbos vegetation. According to the nomination, the proposed extension areas were selected because they 1) significantly strengthen the values represented within the existing site; and/or 2) significantly strengthen the integrity of the existing site.

Table 1. Summary of the protected areas or clusters included in the nomination including area of the property and buffer zone should the extension be approved. The extension areas which are the subject of this nomination are also shown.

Cluster Number	PA or Cluster Name	Province	Area of property (ha) including extension	Area of extension (ha)	Area of buffer zone (ha)
1	Cederberg Complex	Western Cape	77,945.50	12,793.80	121,039.75
2	Groot Winterhoek Complex	Western Cape	27,509.61	703.32	103,541.99
3	Table Mountain National Park[#]	Western Cape	21,630.59	4,138.3	101,400.78
4	Boland Mountain Complex	Western Cape	124,717.37	12,070.39	79,418.89
5	Hexrivier Complex	Western Cape	22,641.40	22,641.40	88,248.01
6	Riviersonderend Nature Reserve	Western Cape	26,630.52	26,630.52	42,626.23
7	Agulhas Complex	Western Cape	24,159.18	24,159.18	0
8	De Hoop Nature Reserve	Western Cape	32,481.73	0	31,806.27
9	Langeberg Complex	Western Cape	43,660.15	29,016.82	76,420.35
10	Garden Route Complex	Western Cape	176,998.35	176,998.35	60,906.95
11	Anysberg Nature Reserve	Western Cape	79,629.40	79,629.40	0
12	Swartberg Complex	Western Cape	187,337.76	75,307.69	92,295.67
13	Baviaanskloof Complex	Eastern Cape	249,399.94	73,068.14	808.96
	TOTAL[##]		**1,094,741.50**	**537,157.31**	**798,513.85**

[#] This table includes the Cecilia Plantation (area 45; 57.04 ha) in the buffer zone of Table Mountain National Park, as confirmed in the State Party's cover letter to IUCN accompanying the submitted supplementary information.
[##] The total area of the property's buffer zone includes the 42,626.23 ha buffer zone of Riviersonderend Nature Reserve which was wrongly omitted in the total area given in the State Party's supplementary information.

3. COMPARISONS WITH OTHER AREAS

The global comparative analysis provided in the re-nomination is very short, simple and general; however, the earlier evaluation and inscription of the serial property has already demonstrated the Outstanding Universal Value of the CFR's overall biodiversity values, as represented in the eight clusters of the existing property. Since the original inscription, further research and surveys have confirmed the CFR's globally exceptional biodiversity values, and the State Party, IUCN and UNESCO have long supported the idea to extend the existing site to provide a better representation of the full range of biodiversity values in the region.

Global comparative analysis confirms the overlap of the CFR with biogeographical units, where no other existing World Heritage site is located: Cape Sclerophyll and Karoo provinces; Mediterranean Forests, Woodlands, and Scrublands biome in the Afrotropic realm; and Montane fynbos and renosterveld ecoregion. The re-nominated area also belongs to a biodiversity hotspot, Cape Floristic Region, where no other existing World Heritage or Tentative List site is located and represents the terrestrial Global 200 Fynbos priority ecoregion that is not otherwise represented on the World Heritage List. Finally, it overlaps with two Endemic Bird Areas (EBAs), two Centres of Plant Diversity and nine Important Bird Areas (IBAs) / Key Biodiversity Areas (KBAs). Furthermore, the existing property has been identified as one of the most irreplaceable protected areas in the world for the conservation of amphibian, bird and mammal species.

In this re-nomination, the comparative analysis focuses rightly on the additional site selection within the region, building on an internal 2013 study that compared protected areas (PAs) and PA complexes based on several biodiversity criteria. The study's primary criteria included Fynbos extent, number of Fynbos habitat (vegetation) types, and number of these types endemic to the PA / complex – all these criteria fit well under criterion (ix). The study's supporting criteria included average plant species richness, Fynbos species richness, and endemic Fynbos species present – all these criteria fit well under criterion (x). IUCN was concerned that the inclusive approach to this analysis resulted in many, often small component parts and a potentially fragmented serial site. The site configuration which clusters smaller component areas (some as small as 0.04 ha) into larger complexes of between 15,000 to 190,000 ha alleviates this concern to some extent; however, a number of originally included areas were questionable in terms of adding substantial values and integrity to the existing property. IUCN believes the further boundary modifications referred to above have refined and strengthened the value of the extension.

In conclusion the Outstanding Universal Value of CFR under both criteria (ix) and (x) has already been recognized in the 2004 inscription. This extension would add 5 new clusters and a total of 126 protected land parcels of fynbos to the 8 existing clusters with their 31 land parcels. The extension would more than double the number of unique fynbos types that are protected in the property and nowhere else. Many of the proposed additions would be in the lowland fynbos areas which are poorly represented in the existing property. Conservation connectivity improvements would also be significant should the extension be approved.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

All of the proposed extension areas are designated as National Parks, Provincial Nature Reserves, Wilderness Areas, State Forests and Mountain Catchment Areas under various pieces of legislation including the National Environmental Management: Protected Areas Act (NEM: PAA) (57 of 2003), National Forests Act or by decree (Ordinance). The buffer zones are made up of privately owned, declared Mountain Catchment Areas and other legally protected areas.

NEM:PAA recognizes as 'protected areas' World Heritage Sites; National Parks; Nature Reserves; Special Nature Reserves; Protected Environments; Marine Protected Areas; Specially Protected Forest Areas; and Mountain Catchment Areas. Special regulations exist under NEM: PPA for the administration of World Heritage Sites, National Parks and Special Nature Reserves. Other important pieces of legislation include the Environmental Impact Assessment (EIA) Regulations, Disaster Management Act, and the Provincial Parks Board Act for the Eastern Cape. In addition, numerous plans, strategies and frameworks at national, provincial and municipal levels guide and regulate development activities in and around the property and its buffer zones. According to recent reports, the South African World Heritage Convention Act, no 49 of 1999, was amended on 18 December 2013 to be included under the Specific Environmental Management Act (SEMA) framework instead of the National Environmental Management Act (NEMA). The compliance and enforcement tools under SEMA are reportedly more stringent than those under NEMA. The present legal protection and management framework appears to be adequate.

All of the proposed extension areas are protected areas that are owned and/or managed by the State. The few protected areas which are not owned by the State, were purchased by WWF-SA and have 99-year or 'in perpetuity' lease agreements with the relevant management authority.

The use of any terrestrial resources (marine resources not relevant here) in the property and the proposed extension areas is well regulated by the environmental laws and regulations applicable to the different types and zones of protected areas. Low-intensity commercial timber (of native hardwood trees) and/or flower harvesting takes place in some areas (e.g. Garden Route National Park) and provide some revenues for park management and/or small benefits to local communities and economies.

IUCN considers that the protection status of the nominated extended property meets the requirements of the Operational Guidelines.

4.2 Boundaries

The re-nominated property covers approximately 6% of the total extent of the CFR and includes almost all currently proclaimed protected areas under State management in the region. At a coarse scale, the property is made up of 13 medium to large protected areas or clusters, however, at a finer scale, the property appears much more fragmented and includes many small and sometimes 'isolated' land parcels. All national parks and many of the other protected areas (e.g. Boland Mountain Complex) have zoning plans.

The State Party's review and refinement of the component parts contributing to this extension has resulted in adjusted boundaries which better reflect the values of the enlarged site and improve integrity and connectivity.

The property is surrounded by extensive buffer zones (made up of privately owned, declared Mountain Catchment Areas and other protected areas) and supported by various buffering mechanisms in the region. Together, these provide good connectivity and landscape integration for most of the PAs / PA clusters, especially in the mountain areas. Only two of the 13 clusters do not have a buffer zone defined: the Agulhas Complex and Anysberg Nature Reserve. If the areas within the buffer zones and buffering mechanisms are added to the area of the property, the whole 'network' covers 20% of the CFR. IUCN notes that the Cecilia Plantation (area 45) whilst indicated by the State Party as now excluded from the nomination remains shown on the maps and within the revised nomination table. This inconsistency should be clarified.

IUCN also notes that some of the longstanding issues with local communities and landowners around Table Mountain National Park result at least in part from confusion over the exact boundaries of the property. If the extension is approved, the legally gazetted boundaries of the property should be brought in line with those officially inscribed.

In conclusion the re-nominated property is of sufficient size, has adequate buffer zones and buffer mechanisms, mostly adequate zoning schemes within its PAs, and is overall relatively well connected (especially in the mountain areas, less so in the lowlands) and well integrated into the surrounding landscape.

IUCN considers that the boundaries of the nominated extended property meet the requirements of the Operational Guidelines.

4.3 Management

Individual sites all have management plans, however, some plans are outdated and others are in the process of being updated. In addition to the PA management plans, numerous plans, strategies and frameworks at national, regional and local levels concern the property and its buffer zones. As has been noted in past Committee decisions, the CFRPA serial property lacks an overall management strategy but this framework is now being commissioned. The State Party has advised that several Environmental Management Framework (EMFs) already exist for portions of the CFR which

need to be integrated within an overall EMF. It is anticipated that work on the EMF will start in earnest during the course of 2015.

A Joint Management Committee (JMC) for the whole property was established in 2010 and involves the three management authorities (SANParks, CapeNature and Eastern Cape Parks and Tourism Agency) and the national Department of Environmental Affairs (DEA). The JMC has a coordinating role but limited decision-making power over any of the individual protected areas.

Overall, the governance arrangements for the individual protected areas are considered adequate. Management planning (including zoning / re-zoning) involves stakeholder consultation, and the buffer zones and buffering mechanisms are implemented through consultation and collaboration of a wide range of stakeholders. The various Stewardship Programmes, Landscape Initiatives, Biosphere Reserves and Critical Biodiversity Areas / Corridors are particularly noteworthy in this regard.

The management organisation and capacity of the three management authorities is overall high and certainly adequate for a World Heritage property. In general, all three authorities deliver effective protection and management. Challenges exist locally in the enforcement and management of lowland / coastal areas with high human pressures / influence, while the mountain areas are overall under lower pressure / influence and thus 'easier' to enforce and manage. Resource issues have been noted in the past by IUCN and UNESCO and, based on the discussions during the mission, continue to be an issue for CapeNature and, to a lesser extent, the Eastern Cape Parks and Tourism Agency. All three authorities acknowledge the importance of the substantial external funding (e.g. from donors such as the World Bank, GEF, CEPF and many NGOs) and support (e.g. through the public works programmes) the region receives.

All three authorities are recognized for their dedicated and skilled staff. Staff numbers are greatest in the national parks, which are also subject to some of the biggest management challenges (including tourism pressure); however, numbers can be relatively low in some of the nature reserves in the mountains. The different public works programmes that supply labour for the majority of hands-on conservation work make a critical contribution to the management of the property and its buffer zones. All authorities make good use, and rely heavily, on this support.

The biggest threats to the property – invasive alien species (IAS), fire / water related issues, and climate change – are all well understood and addressed in the planning and management of the protected areas and their buffer zones and buffering mechanisms. The State Party, management authorities and their partners are in fact recognized as global leaders in several of these areas. Monitoring and evaluation takes place at the level of individual protected areas, across the portfolio of each of the three management authorities, and at regional level through the Cape Action for People and the Environment (CAPE) Monitoring and Evaluation (M&E) protocol.

Overall, the management planning, monitoring and evaluation arrangements for the individual protected areas are considered adequate, and these are well complemented by the buffer zones and buffering mechanisms.

Whilst noting the urgent need for a property-wide management strategy and concerns regarding the adequacy of financial resources, IUCN considers the management of the nominated extended property nevertheless meets the requirements of the Operational Guidelines.

4.4 Community

As evident during the mission, the preparation of the re-nomination has for the most part included consultation and collaboration of a wide range of stakeholders in the CFR, many of which have a long history of working together. Through the broader Cape Action for People and the Environment (CAPE) and its many projects, different stakeholders and rights holders in the CFR appear to have been identified and consulted. Several public works programmes such as Working for Water also involve many stakeholders and provide clear benefits to the local communities. The various mechanisms in the buffer zones, which include privately owned, declared Mountain Catchment Areas, Stewardship Programmes, Landscape Initiatives, Biosphere Reserves and Critical Biodiversity Areas / Corridors, involve landowners, local communities and other stakeholders and rights holders.

Overall, the nomination correctly states that the number of inhabitants for each inscribed or proposed PA / PA complex is 'negligible or zero' and any 'habitation is usually restricted to staffing accommodation'; however the mission noted some localized encroachments and a small, voluntary resettlement project which require ongoing attention.

South African laws governing protected areas require all management authorities to adopt a coherent spatial planning system in all National Parks and Nature Reserves and stipulate a comprehensive and consultative planning process for the management of National Parks and other protected areas. The Park Zoning and Conservation Development Frameworks of National Parks were classified through a process of iterative and consultative spatial development planning. Management planning for Nature Reserves also employs consultative planning processes.

Through CAPE and the different public works programmes that carry out the majority of the labour-intensive conservation work, the CFR protected areas already provide substantial benefits to local communities and economies, and this is unlikely to change. The goal of CAPE is to achieve joint outcomes for nature conservation and community benefits and many programmes exist in support of this goal. Over 140 environmental projects of the different public works programmes across the CFR generate

the equivalent of almost 4,500 full-time jobs per annum. Nature tourism is also an important sector in the region and likely to increase further with expanded World Heritage status, with potential benefits for local livelihoods if managed well.

4.5 Threats

Large areas of the property, especially in the mountains, have not suffered notably from past development and/or neglect. In the property's non-coastal mountain areas, human development has been largely restricted to some mountain pass roads (tarred and untarred), small dams, and a few radio transmitters / antennas. Locally, small areas have also been subject to past farming and/or grazing, with associated infrastructure (e.g. farmhouses and workers' houses) and impacts (e.g. small stands of non-native trees). All these past developments are very localized, have limited impact on the overall Outstanding Universal Value, and are thus of low concern.

The situation is somewhat different, however, in several of the lowland areas and coastal mountain areas which have had a long history of human settlement and development, including agriculture and forestry (with non-native, sometimes invasive species). The ongoing expansion of the PA network in these areas is constantly adding areas that were in the past under human use and need to be cleared of alien vegetation, returned to natural fire regimes, and/or otherwise rehabilitated and restored. Extensive rehabilitation and restoration programmes are underway in such areas, notably in the Agulhas Complex, Garden Route Complex, Langeberg Complex and Table Mountain National Park.

Some of the extension areas originally nominated were heavily affected by past development (e.g. agriculture and pine plantations) and are in the process of long term restoration. IUCN believes the revisions made to the boundaries of the originally nominated extension will if approved result in a property with improved values and integrity.

The most important and widespread threats affecting the property as a whole (in common with most regions of the CFR) are IAS, fire and water related issues, and climate change. The primary natural disasters affecting parts of the property are runaway wildfires and occasional flooding.

IAS are recognized as a critical threat to the indigenous biodiversity of the CFR, and the number, extent and impact of IAS continue to increase in the region. IAS affect all areas of the property to varying degrees; particularly problematic areas include the previously heavily infested Bontebok National Park in the Langeberg Complex (where the problem is exacerbated by the peri-urban context) and parts of the Garden Route Complex. However, successful control of IAS is possible through monitoring and management interventions, and previously infested / affected areas can be rehabilitated or restored (as demonstrated in many areas around the Table Mountain National Park for example). The main mechanisms to combat IAS are the Working on Fire and Working for Water public works programmes, the recently established DST-NRF Centre of Excellence for Invasion Biology at the University of Stellenbosch, and SANBI's Early Detection and Rapid Response (EDRR) programme for Invasive Alien Plants.

Fire is an integral part of the natural ecosystems in most areas of the property, however, disruption of fire regimes and disturbance by more frequent or more intensive fires poses a threat to species and ecosystems, as well as humans. Fire management plans / programmes and close collaboration with the Working on Fire programme and local Fire Protection Associations have been established throughout the property to address this threat. These efforts are further supported by information on active fires from the Advanced Fire Information System (AFIS).

Groundwater abstraction for agriculture and/or cities/towns is an important issue for some of the complexes of the re-nomination (especially the Agulhas Complex and Langeberg Complex including Bontebok National Park) and needs to be carefully monitored and managed in these areas in cooperation with local authorities and relevant stakeholders.

The potential impacts of climate change on the CFR have been extensively studied and some impacts are already apparent. This threat requires solutions well beyond the individual PA level and numerous assessments have helped to identify important adaptation strategies for the CFR (e.g. through improving connectivity and reducing fragmentation). Climate change is now taken into account in most if not all conservation planning, management and monitoring.

The nomination noted that, overall, development pressures in each of the nominated extension areas are "extremely low to non-existent". However, this is not entirely true for some of the complexes, especially along the coast and in the lowlands. Urban development of the city of Cape Town may impact on Table Mountain National Park, and urban development is also a potential issue around the Garden Route Complex, and the coastal and lowland areas of the Boland Mountain Complex and Langeberg Complex. However, at present, none of these pressures is out of control anywhere within the property and the existing laws, regulations and plans are expected to protect the nominated extension areas.

In conclusion threats to the property are well understood with integrated management programmes in place to address these, however, resource limitations continue to hamper effectiveness.

In conclusion IUCN considers that the integrity and protection and management requirements of the Operational Guidelines are met.

5. ADDITIONAL COMMENTS

5.1 Consideration in relation to serial properties

a) What is the justification for the serial approach?
As IUCN noted in its original evaluation, most of the natural vegetation in the CFR has been transformed during 400 years of European settlement. The remaining areas with natural habitat form an archipelago of islands separated by other land uses. Some of the remaining natural areas are covered by State owned and/or managed protected areas (existing and extended property), others are within privately owned, declared Mountain Catchment Areas and other protected areas (proposed buffer zones).

No single PA or PA cluster in the CFR can adequately represent all the outstanding values (e.g. evolutionary history, unique vegetation types, plant richness and endemism, and processes) of the region in relation to criteria (ix) and (x). This is particularly true given the very high plant species turnover (beta and gamma diversity) and the often highly localized distribution of endemic and/or threatened species and vegetation types. The originally inscribed eight clusters represented the eight main phytogeographic centres of endemism that had been identified in the CFR; however, it has long been recognized that the existing World Heritage Site does not provide adequate representation of the full range of outstanding biodiversity values in the region. The re-nomination seeks to address these shortcomings and includes additional areas that add substantial values and/or add to the integrity of the existing World Heritage Site.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the Operational Guidelines?
All the clusters and component parts of the property are functionally linked through the shared history of the Fynbos biome which has evolved in overall similar climatic and geological conditions. Many species overlaps occur between the different clusters while each also has a particular suite of species depending on variations in geology, rainfall, soil type and elevation. Many of the component parts and clusters are spatially contiguous, in relatively close proximity, and/or well connected through the extensive buffer zones and buffering mechanisms in the region. Connectivity is lower for some of the coastal clusters and several smaller, isolated component parts, often as a result of human activities including agriculture.

c) Is there an effective overall management framework for all the component parts of the nominated property?
In order to facilitate coordinated management, the Minister appointed the Director-General of the national Department of Environmental Affairs (DEA) to be the responsible authority for the property.

A Joint Management Committee (JMC) for the existing site was established in 2010 to enhance coordination whilst respecting the mandates and independence of the authorities concerned. The JMC includes DEA and the Chief Executive Officers of the three management authorities (SANParks, CapeNature and Eastern Cape Parks and Tourism Agency). One of the most important current activities of the JMC is to oversee the development of an Environmental Management Framework (EMF) which would function as an integrated management plan for the property. As noted above the development of the EMF is underway.

Improving resourcing for more effective operation of the JMC remains a priority as is completion of the EMF. Pending this, however, the individual PAs of the property appear to be effectively managed by the responsible authorities with the JMC playing a relatively weak coordinating role.

6. APPLICATION OF CRITERIA

The **Cape Floral Region Protected Areas** has been nominated as an extension of the inscribed property under natural criteria (ix) and (x).

Criterion (ix): Ecosystems/communities and ecological/biological processes
Both the existing and extended property meet this criterion. The reconfigured property contributes additional values and to improved integrity.

The property is considered of outstanding universal value for representing ongoing ecological and biological processes associated with the evolution of the unique Fynbos biome. These processes are represented generally within the Cape Floral Region and captured in the component areas that make up the 13 protected area clusters. Of particular scientific interest are the adaptations of the plants to fire and other natural disturbances; seed dispersal by ants and termites; the very high level of plant pollination by insects, mainly beetles and flies, birds and mammals; and high levels of adaptive radiation and speciation. The pollination biology and nutrient cycling are other distinctive ecological processes found in the site. The Cape Floral Region forms a centre of active speciation where interesting patterns of endemism and adaptive radiation are found in the flora.

IUCN considers that the extended property as nominated meets this criterion.

Criterion (x): Biodiversity and threatened species
Research has shown that seven of the originally inscribed eight clusters in the existing World Heritage Site alone conserved close to half the number of plant species and selected vertebrate taxa of the region. This figure was even higher for endemic plants (69%) and for Proteaceae elements (59%). Evidence also suggests that the proposed extension areas are estimated to support over 400 Fynbos plant species that are strictly endemic to these areas. As a whole, the extended property would clearly be of Outstanding Universal Value under (x), as many of the proposed extension areas add substantial numbers of endemic and/or threatened plant species associated with the Fynbos vegetation that is unique to the CFR.

The Cape Floral Region is one of the richest areas for plants when compared to any similar sized area in the world. It represents less than 0.5% of the area of Africa but is home to nearly 20% of the continent's flora. The outstanding diversity, density and endemism of the flora are among the highest worldwide. Some 69% of the estimated 9,000 plant species in the region are endemic, with 1,736 plant species identified as threatened and with 3,087 species of conservation concern. The Cape Floral Region has been identified as one of the world's 35 biodiversity hotspots.

IUCN considers that the extended property as nominated meets this criterion.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopts the following draft decision:

The World Heritage Committee,

1. Having examined Documents WHC-15/39.COM/8B and WHC-15/39.COM/INF.8B2;

2. Approves the extension of **Cape Floral Region Protected Areas (South Africa)** on the World Heritage List under natural criteria (ix) and (x);

3. Adopts the following Statement of Outstanding Universal Value for the extended Cape Floral Region Protected Areas property, replacing the Statement of Outstanding Universal approved by Decision 35COM 8E:

Brief synthesis

The Cape Floral Region has been recognised as one of the most special places for plants in the world in terms of diversity, density and number of endemic species. The property is a highly distinctive phytogeographic unit which is regarded as one of the six Floral Kingdoms of the world and is by far the smallest and relatively the most diverse. It is recognised as one of the world's 'hottest hotspots' for its diversity of endemic and threatened plants, and contains outstanding examples of significant ongoing ecological, biological and evolutionary processes. This extraordinary assemblage of plant life and its associated fauna is represented by a series of 13 protected area clusters covering an area of more than 1 million ha. These protected areas also conserve the outstanding ecological, biological and evolutionary processes associated with the beautiful and distinctive Fynbos vegetation, unique to the Cape Floral Region.

Criteria

Criterion (ix)

The property is considered of outstanding universal value for representing ongoing ecological and biological processes associated with the evolution of the unique Fynbos biome. These processes are represented generally within the Cape Floral Region and captured in the component areas that make up the 13 protected area clusters. Of particular scientific interest are the adaptations of the plants to fire and other natural disturbances; seed dispersal by ants and termites; the very high level of plant pollination by insects, mainly beetles and flies, birds and mammals; and high levels of adaptive radiation and speciation. The pollination biology and nutrient cycling are other distinctive ecological processes found in the site. The Cape Floral Region forms a centre of active speciation where interesting patterns of endemism and adaptive radiation are found in the flora.

Criterion (x)

The Cape Floral Region is one of the richest areas for plants when compared to any similar sized area in the world. It represents less than 0.5% of the area of Africa but is home to nearly 20% of the continent's flora. The outstanding diversity, density and endemism of the flora are among the highest worldwide. Some 69% of the estimated 9,000 plant species in the region are endemic, with 1,736 plant species identified as threatened and with 3,087 species of conservation concern. The Cape Floral Region has been identified as one of the world's 35 biodiversity hotspots.

Integrity

The originally inscribed Cape Floral Region Protected Areas serial property comprised eight protected areas covering a total area of 557,584 ha, and included a buffer zone of 1,315,000 ha. The extended Cape Floral Region Protected Areas property comprises 1,094,742 ha of protected areas and is surrounded by a buffer zone of 798,514 ha. The buffer zone is made up of privately owned, declared Mountain Catchment Areas and other protected areas, further supported by other buffering mechanisms that are together designed to facilitate functional connectivity and mitigate for the effects of global climate change and other anthropogenic influences.

The collection of protected areas adds up in a synergistic manner to present the biological richness and evolutionary story of the Cape Floral Region. All the protected areas included in the property, except for some of the privately owned, declared Mountain Catchment Areas, have existing dedicated management plans, which have been revised, or are in the process of revision in terms of the National Environmental Management: Protected Areas Act. Mountain Catchment Areas are managed in terms of the Mountain Catchment Areas Act. Progress with increased protection through public awareness and social programmes to combat poverty, improved management of mountain catchment areas and stewardship programmes is being made.

Protection and Management requirements

The serial World Heritage property and its component parts, all legally designated protected areas, are protected under the National Environmental Management: Protected Areas Act (57 of 2003). The property is surrounded by extensive buffer zones (made up of privately owned, declared Mountain Catchment Areas and other protected areas) and supported by various buffering mechanisms in the region. Together, these provide good connectivity and landscape integration for most of the protected area clusters, especially in the mountain areas. The

protected areas that make up the property are managed by three authorities South African National Parks (SANParks), Western Cape Nature Conservation Board (CapeNature) and Eastern Cape Parks and Tourism Agency. These authorities, together with the national Department of Environmental Affairs, make up the Joint Management Committee of the property. All of the sites are managed in accordance with agreed management plans, however, there is a recognised need for a property-wide management strategy in the form of an Environmental Management Framework.

Knowledge management systems are being expanded to advise improved planning and management decision-making, thus facilitating the efficient use of limited, but increasing, resources relating in particular to the management of fire and invasive alien species. The provision of long-term, adequate funding to all of the agencies responsible for managing the property is essential to ensure effective management of the multiple components across this complex serial site.

Invasive alien species and fire are the greatest management challenges facing the property at present. Longer-term threats include climate change and development pressures caused by a growing population, particularly in the Cape Peninsula and along some coastal areas. These threats are well understood and addressed in the planning and management of the protected areas and their buffer zones. Invasive species are being dealt with through manual control programmes that have been used as a reference for other parts of the world.

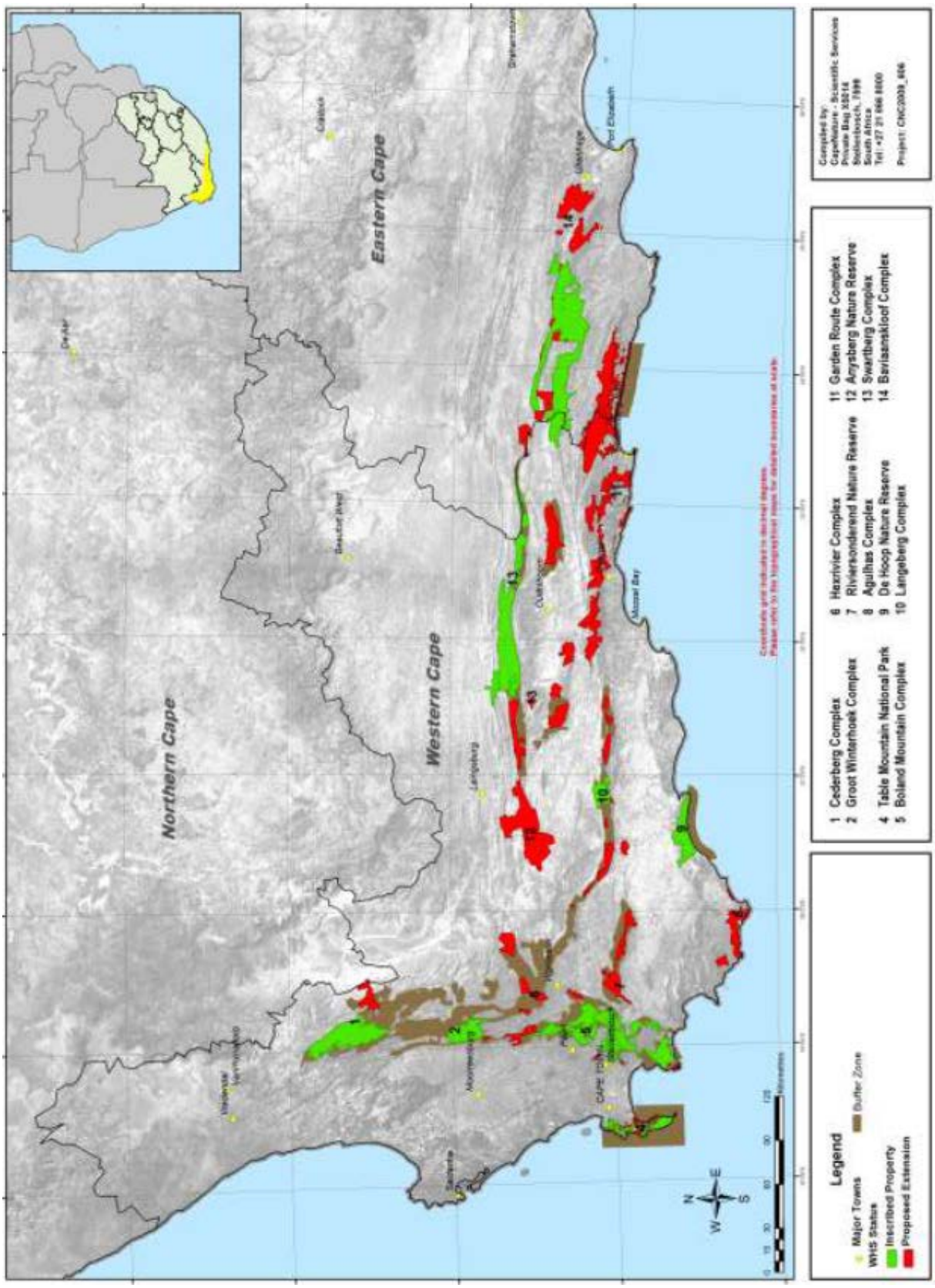
4. Commends the State Party for its review of the nomination boundaries to bring forward an extension of the property which, on the basis of fine scale scientific analysis, significantly increases the number of Fynbos vegetation types protected within the property and strengthens the property's integrity.

5. Encourages the State Party to address longstanding shortfalls in financial resources which are impeding management of the property and which will be increasingly important in light of the substantially increased area and complexity of the extended property.

6. Requests the State Party to complete the Environmental Management Framework and submit a copy to the World Heritage Centre by no later than 1 February 2017 and to strengthen the role and resources of the Joint Management Committee so that it can more effectively act as a single coordinating authority that guides management across all inscribed component parts of the property.

7. Requests the State Party to submit to the World Heritage Centre, by **1 December 2017**, an updated report, including a 1-page executive summary, on the state of conservation of the property including progress on the finalization of a property-wide integrated management plan; strengthened governance arrangements to improve coordination; and the implementation of actions to ensure adequate financial resources for the property's management, for examination by the World Heritage Committee at its 42nd session in 2018.

Map 1: Currently inscribed World Heritage Property (in green) and proposed extension (in red)



ARAB STATES

SANGANEB MARINE NATIONAL PARK AND DUNGONAB BAY - MUKKAWAR ISLAND MARINE NATIONAL PARK

SUDAN

Corals in Dungonab Bay - © IUCN Hany El Shaer

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

SANGANEB MARINE NATIONAL PARK AND DUNGONAB BAY – MUKKAWAR ISLAND MARINE NATIONAL PARK (SUDAN) – ID No. 262 Rev

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To defer the property.

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property has potential to meet World Heritage criteria.
Paragraph 78: Nominated property does not meet integrity or protection and management requirements.

Background note: Part of this property (Sanganeb Atoll) was previously nominated more than 30 years ago in 1983, and in relation to an earlier version of the World Heritage criteria. The IUCN evaluation at that time concluded that the Sanganeb Atoll represented significant ongoing geological processes, those of island formation and reef evolution and that it contained superlative natural phenomena, formations and areas of exceptional natural beauty. It was also considered to meet the conditions of integrity in ecological terms at that time. However, IUCN concluded that at that time the site lacked the necessary legal protection to qualify for World Heritage status.

The World Heritage Bureau at its 7th session in June 1983 deferred the nomination and requested "that the authorities declare this property a "Marine National Park" and provide for its extension towards the south to include the Wingate reef, towards the West to include the fringe reefs which begin at Mersa Waiai, and towards the North to include the Mersa Darur reef."

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1. DOCUMENTATION

a) Date nomination received by IUCN: 18 March 2014

b) Additional information officially requested from and provided by the State Party: Following the IUCN World Heritage Panel a letter was sent to the State Party outlining a range of concerns relating to the configuration of the property's boundaries to ensure the inclusion of all attributes of potential outstanding universal value and provide for adequate wider protection; and to address matters related to protection and management in order to meet the requirements of the Operational Guidelines. IUCN has maintained a dialogue with the State Party to address these matters. The State Party subsequently has provided additional information on 28 January 2015.

c) Additional literature consulted: Various sources, including Galil, B.S. and Zenetos, A. (2002). **A sea change: exotics in the eastern Mediterranean Sea.** In Leppäkoski, E. et al. (2002). Invasive aquatic species of Europe: distribution, impacts and management. pp. 325–36. Bosence. D.W.J. (1998) **Salt domes and their control on basin margin sedimentation: a case study from the Tihama plain, Yemen.** In: Purser B.H. and Bosence D.W.J (Eds): Sedimentation and tectonic in rift basins: Red Sea - Gulf of Aden., Chapman and Hall, London 448-464. Wilkinson, C. (2008). **Status of coral reefs of the world: 2008.** Global Coral Reef Monitoring Network and Reef and Rainforest Research Centre, Townsville, Australia, 296 p. Guilcher, A. (1988). **Coral Reef Geomorphology.** xiii, 228 pp. John Wiley, London. Crossland, C. (1939) **Some coral formations. Reports on the preliminary expedition for the exploration of the Red Sea in the R. R. S. "Mabahith" (Dec. 1934- Feb. 1935).** Publ. Mar Biol. Stat. Ghardaqa (Red Sea), 1, 21-35, Pl. 2. Mart, Y. & Ross, D.A. (1987) **Post-Miocene rifting and diapirism in the northern Red Sea.** Mar. Geol. 74, 173-190. Medio D, Sheppard C.R.C. & Gascoine J.(2000) **The Red Sea.** In: McClanahan T., Sheppard C.R.C. & Obura D.O. Coral reefs of the Indian Ocean Their Ecology and Conservation. Oxford Univ. Press 231-255. Orszag-Sperber F., Harwoog G.,. Kendall A. and Purser.B.H. (1998**) A review of the evaporites of the Red Sea - Gulf of Suez rift.** In: Purser B.H. and .Bosence D.W.J (Eds) as above. Reinicke G.B., Kroll D.K. and Schuhmacher H. (2003) **Patterns and changes of Reef-Coral Communities at the Sanganeb-Atoll (Sudan, Central Red Sea): 1980 to 1991.** Facies 49, 271-298. Scheer G. & Pillai C.S.G. (1983) **Report on the stony corals from the Red Sea.** Zoologica, 133, 1-198, Pl.1-41. McKenzie, DP, D Davies, and P Molnar. (1970) **Plate Tectonics of the Red Sea and East Africa.** Nature 226, 243–248. De Vantier, L., Turak, E., Al-Shaikh, K., De'ath, G. (2000) **Coral communities of the central-northern Saudi Arabian Red Sea.** Fauna of Arabia 18: 23-66. Gladstone, W. (2000) **Ecological and social basis for management of a Red Sea marine protected area.** Ocean & Coastal Management 43: 1015-1032. Gladstone, W. et al. (1999) **Sustainable use of renewable resources and conservation in the Red Sea and Gulf of Aden: issues, needs and strategic actions.** Ocean & Coastal Management 42: 671-697. Klaus, R., et al. (2008) **Ecological patterns and status of reefs of Sudan.** Proc 11th Int Coral Reef Sym: 722-726. BirdLife International (2014) **Important Bird Area Factsheet: Mukawwar Island and Dungonab Bay.** Downloaded from http://www.birdlife.org in October 2014. WWF (2012) **Places: Deserts and Xeric Shrublands biome.** Downloaded from http://www.worldwildlife.org/biomes,

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d) Consultations: 18 desk reviews received. The mission also met with officials from the various managing Ministries and agencies responsible for the property including the Minister for Education and the Minister of Environment, Red Sea State as well as officials from the Ministry of Tourism, Antiques and Wildlife; Wildlife Conservation General Administration (WCGA); and Man and the Biosphere Committee members. The mission also met with the two local communities located within the proposed buffer zone for the property and local NGOs working in the area. Two special sessions were organised to meet with community representatives from Mohammed Qol and Dungonab. Additional meetings were held with a local tourism operator/resort owner and Researchers from the University of the Red Sea.

e) Field Visit: Naomi Doak and Hany El Shaer, 9 - 17 September 2014

f) Date of IUCN approval of this report: April 2015

2. SUMMARY OF NATURAL VALUES

The nominated property, Sanganeb Marine National Park and Dungonab Marine National Park (SMNP-DMNP) lies on the western shore of the north-central Red Sea, and the southern boundary of the property lies some 25 kms northeast of Port Sudan. The total area covered by these parks is approximately 200,000 ha with an additional buffer zone of just over 400,000 ha. The property is nominated as a serial site of two components together with a buffer zone which is not included in the nominated area (Table 1 shows the configuration of the nominated property).

Table 1. Summary of protected areas and buffer zone areas.

Serial site component	Name of Protected Area	Area of nominated property (ha)	Area of WH buffer zone (ha)
1	Sanganeb Marine National Park (SMNP)	691.87	
2	Dungonab Marine National Park (DMNP)	198,832.04	
	Buffer Zone		401,135.66
	TOTAL	**199,523.91**	**401,135.66**

The State Party has clarified in supplementary information that both the marine national parks have designated buffer zones (SMNP - 16,749.17 ha; and DMNP - 79,152.89 ha), however, these are technically outside of the legally protected areas. The total area of the World Heritage buffer zone is 401,135.66 ha and made up of a marine area of 321,982.77 ha (SMNP buffer zone - 16,749.17 ha plus the marine area between the two MNPs of 305,233.50 ha) together with the terrestrial buffer zone of DMNP, some 79,152.89 ha.

The nominated property and its buffer zone cover an expanse of coastline and associated marine area which encompasses significant reef formations including the only atoll (an atoll-like feature according to the nomination) in the Red Sea. The property includes a large bay with islands, islets and some of the most northerly coral reefs in the world, with species at the limits of their global range. Linked to DMNP by a buffer zone of coastal waters extending approximately 125km and including terrestrial habitats, SMNP includes Sanganeb Atoll, a submerged and overhanging predator dominated coral reef ecosystem.

DMNP contains the bay and its associated peninsular, Mukkawar Island and several small islands and islets along with globally important seagrass and mangrove habitats that provide significant areas for birds. The site is recognised internationally as an Important Bird Area. The fossil reef of the bay reaches heights of 150m and hosts fish and coral communities which are typically separated by several hundred kilometres.

The property contains impressive natural phenomena, formations and areas of great natural beauty and is a relatively undisturbed area that serves as a standard to assess the health of the central Red Sea's regional ecosystems. As an excellent example of a coral deep-water offshore reef, Sanganeb provides an outstanding opportunity for comparative studies with similar systems in other regions including the Indian and Pacific Oceans and a place to understand the interactions of biota and environment. Located within the Red Sea's centre of biodiversity the incredible clarity of the water makes the diving some of the best in the entire Red Sea.

The origins of the Sanganeb Atoll or atoll-like feature are not clear, although it is believed to be an example of a major biogeographical feature and the best example of a coral deep-water offshore reef within the Red Sea. Its origin may be a salt dome and it is considered unlikely to have been formed in the same process as the classic Darwinian evolutionary model of atoll formation. Experts consider it may be an example of a rare and little known type of reef (Ridge Reef). Sanganeb also has coral pinnacles or patch reefs, which are very large compared to other sites.

Both SMNP and DMNP contain a diversity of habitats that are mostly in very good condition, and a diversity of species including populations of several globally threatened or endangered species. The nominated property is sited in an important transition zone between northern and southern Red Sea biogeographic zones and consequently exhibits pronounced biogeographical transition from reef communities that are characteristic of the northern Red Sea to those more representative of the southern Red Sea. The buffer zone linking the two sites is therefore critical to this ecological connectivity and helps to support the wealth of marine life contained in the two protected areas. Hosting at least 361 fish species, including both endemic and rare species, the property also provides important nursery and spawning grounds, and is home to populations of seabirds (20 species), marine mammals (11 species), fish (300 species), corals (260 species), sharks, manta rays and marine turtles, and provides important feeding grounds for what is perhaps the most northerly population of endangered Dugong.

The predator dominated coral reef ecosystem of Sanganeb contains 13 different bio-physiographic reef zones, each supporting a wealth of marine life and remarkable underwater vistas, including striking drop offs from the reef flat to the deeper surrounding open water. In contrast Dungonab, with its unspoilt coastal landscapes and diverse seascapes contains a number of large submerged reefs and islands including an almost continuous reef complex extending from the northern end of Mukkawar Island to the southern end of Dungonab Bay. DMNP contains an array of habitats including mangroves, seagrasses, intertidal and mudflats in addition to the complex coral reef ecosystems.

IUCN notes that a number of areas and features of significant value lie outside of the nominated area, within the buffer zone of the property. In particular the Wingate Reef in the SMNP area and the fringing reefs at Mersai Waiai and Mersa Darur to the west are not inside the marine national park but within the buffer zone. In addition, the terrestrial lands within DMNP are an integral part of the ecosystem and provide the visually contrasting backdrop to the scenic qualities of the marine environments of the park yet they are outside of the nominated area.

3. COMPARISONS WITH OTHER AREAS

To understand the relative values of SMNP-DMNP the comparative analysis in the nomination assessed the values of the nominated property against 14 globally and regionally comparable biological sites, all currently included on the World Heritage List. The dossier reviewed an array of relevant sites, however, the analysis lacked depth in a number of cases. The analysis also included sites with significant size variation resulting in corresponding significant variation in the numbers of species and habitats. The comparison of the SMNP-DMNP with other sites is further complicated by the fact that other sites are home to migratory species whereas many of the species highlighted in the dossier for the nominated property have restricted ranges or exhibit habitat specificity within the Red Sea. Unfortunately the analysis did not include specific details regarding the number of endemic species or species diversity differences across the sites included in the comparison. The comparison of habitats was conducted for a sub-set of the 14 sites and is missing a number of similar properties, such Aldabra Atoll. Arguments supporting the significance of SMNP-DMNP centre on the global uniqueness of the Red Sea, the fact that it has been identified as a gap on the World Heritage List and that no other Red Sea World Heritage sites exist.

The nomination makes the case for criterion (vii) on the grounds that the property contains superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance. Several marine sites including coral reefs are already inscribed on the World Heritage List under criterion (vii) and similar landscapes including atolls can be seen in other properties already inscribed on the list. While particularly challenging to compare objectively the diverse range of habitats included in the property combined with the complex reef systems contrasted against the rugged landscape of the coastline offer exceptional natural beauty and aesthetic importance. The natural phenomena, relatively undisturbed areas and areas of exceptional natural beauty contained within the property provide perhaps the best example in the region of the deep-water offshore reefs of the central Red Sea and together they combine to produce stunning landscapes and seascapes. The nominated property is renowned for its clarity of water and high visibility diving.

The nomination presents the case under criterion (viii) on the grounds that the property represents major stages of earth's history, including the record of life, significant ongoing geological processes in the development of landforms or significant geomorphological or physiographic features. While Sanganeb atoll is the only atoll-like feature contained in the Red Sea and includes 13 different bio-physiographic zones, a clear case for inscription under criterion (viii) was not presented in the nomination document and it remains unclear which, if not all, of the aspects of this criteria the property is claimed to meet. Whilst it can be argued that the spectacular natural phenomenon of the Sanganeb atoll like

structure itself contributes to the case under criterion (vii) the property is not considered to be the only, or best, place in the world demonstrating the processes of Arabian-African plate tectonics to create the Great Rift Valley.

With respect to biodiversity criteria, IUCN has undertaken further comparative analysis to complement the State Party's analysis. It is noted that the location of the property in the Red Sea is unique, making it difficult to compare it with existing World Heritage sites. The additional analysis concludes that the biodiversity that characterizes the nominated property is potentially of global importance based on spatial analyses and literature review. SMNP-DMNP has consistently been identified as a gap in representation of World Heritage sites: Sanganeb was noted by IUCN (1982) in the indicative inventory of natural sites of World Heritage quality as the most important coral reef area in the Red Sea and IUCN's evaluation of the smaller Sanganeb nomination of 1983 concluded positively on the global biodiversity values of the site. Sanganeb has also been highlighted as one of the possible priorities for African Natural Heritage and is found in a biogeographic region, the Red Sea, which has also been mentioned as a gap.

With respect to criterion (ix) the nominated property represents marine ecosystems within the Red Sea that are not yet represented on the World Heritage List (marine ecoregion and priority ecoregion). The Red Sea has a highly diverse flora and fauna, and exceptionally rich coral reefs and the nominated property was found to potentially be one of the most representative sites of these ecosystems. Several reviewers have highlighted the ecological associations of SMNP-DMNP, namely the significance of the site existing in an important transition zones between northern and southern Red Sea biogeographic zones.

With respect to criterion (x), although the property has relatively low overall levels of species diversity across taxa, especially when compared to existing World Heritage sites of similar size and nature, it possesses a rich coral diversity, and also hosts a number of other marine species. While the nomination does not provide detailed numbers in regards to the levels of endemism, estimated to be 17%, it is important to note that the geographical location of the property within the Red Sea and the lack of other inscribed properties in this realm support its importance. The nominated property is also recognized as an Important Bird Area.

Surveys of the Red Sea have shown that key coral, fish and macro invertebrate species are often in greater abundance in areas outside of the nominated property reflecting the fact that Sudan's 750 km long coastline and numerous uninhabited islands and offshore reefs are all within the centre of marine diversity in the Red Sea. This points to the fact that the ecological values of the Red Sea extend beyond the boundaries of the nominated area including within the larger marine buffer zone.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

There is a legal commitment from the Government of Sudan at both the National and State level towards the protection and conservation of resources within its coastal waters. Several laws and regulations are in place and Sudan has signed and abides to regional and international protocols and conventions. Both SMNP (1990) and DMNP (2004) have been declared as marine protected areas by Presidential Decrees. Both are the responsibility of the Government of Sudan and various pieces of national legislation pertain to the nominated property including the Federal Environmental Law (2001); State Environmental Law (2006); Wildlife Conservation and National Park Act, (1987); National Parks, Sanctuaries and Reserves Regulation, (1939); and the Game Protection and Federal Parks Act (1986). Other laws govern matters related to wildlife protection, fisheries, shipping and water quality.

The management of the property spans both national and state level Government organizations with the main responsibility for management assigned to the WCGA (Wildlife Conservation General Administration), under the Ministry of Tourism and Wildlife at the Federal Level. The State level is also involved in the management through the Ministry of Agriculture, Animal Wealth and Natural Resources, which is responsible for all environmental matters in the Red Sea State. IUCN considers that collaboration between the different levels of government and the relative strength of different pieces of legislation needs to be strengthened. There is a potential risk that the protection of the property may be compromised given the strongly growing regional push for increased coastal development, commercial fishing, aquaculture and oil exploration.

IUCN is also concerned regarding the relative strength of legal protection of the buffer zone given this area includes attributes that are of very high conservation value, and its importance to the ecological functioning of the nominated area.

IUCN, whilst noting concerns regarding coordination between levels of government and the relative protection of the buffer zone, considers that the protection status of the property meets the requirements of the Operational Guidelines.

4.2 Boundaries

The boundary of the nominated property aligns with the boundaries of the two marine national parks. Both SMNP and DMNP appear to be quite intact at the moment, both in terms of habitats and species. The nominated property covers a wide range of habitats that are ecologically and functionally interconnected and are necessary to maintain viable plant and animal populations, including shallow coastal areas, reef formations and deep-sea areas. The large marine buffer zone is critical to sustain ecological connectivity

between the two protected areas and vital to the value of SMNP-DMNP as a Red Sea transitional zone.

The boundary of SMNP adheres to the atoll itself and the State Party has advised that a 5km buffer zone designated around the atoll protects "the pelagic and deep water areas which are (an) integral part of the Atoll." IUCN agrees that this 5 km SMNP buffer zone is critical to the ecological integrity of Sanganeb and also contains significant habitat. The buffer zone is also important to support the ongoing process of potential reef enlargement and should therefore be included within the nominated area.

The boundary of DMNP is restricted to marine areas, various islands (including Mukkawar Island) and a number of smaller islets. Landward areas are not included within the protected area but are within the designated DMNP buffer zone. The surrounding terrestrial areas, including but not limited to the land included in the buffer zone of the property, are also rich in biodiversity and complement the superlative natural phenomena and aesthetic value of the property. In addition the terrestrial buffer zone contributes to the aesthetic values of the site, for example the scenic backdrop of the Red Sea hills and contrasting coastline. While the case for inscription based on the terrestrial values is not made in the nomination, there are clearly important values within this area and the terrestrial-marine interface is critical to ensure the integrity, protection and management of the property. IUCN recognises that there are some challenges relating to human populations and resource use in the landward buffer zones of DMNP. A considered review should be undertaken to assess the feasibility of including all or part of the surrounding terrestrial buffer zone areas into the nominated area.

The IUCN evaluation also noted a number of other areas and features such as reef systems which have potential Outstanding Universal Value and which exist within the marine linking buffer zone (outside of the smaller buffer zones designated around the two MNPs). For example reefs extending from SMNP including the Wingate Reef to the south and to the fringing reefs in the west and north. Consideration should be given to revising the boundaries and protection measures to include all areas of value within the nominated area.

Furthermore there are concerns regarding location of boundaries, awareness among local communities and fishers and the specific management framework that applies. Differences in the level of method of fishing allowed in areas across the property remain unclear with local communities allowed to fish in the buffer zone and no clear difference outlined of what is allowed in the different areas of the property.

IUCN considers that the boundaries of the property do not meet the requirements of the Operational Guidelines, notably as key attributes of potential Outstanding Universal Value are not included in the nominated property.

4.3 Management

The management of the property is complex as it spans both national and state level Government organisations. The main responsibility for management sits with the WCGA under the National Government, however the state level government is also involved in the overall management of the property. The multi-agency and National and State level management presence in the area results in somewhat complex procedures. For example, currently rangers from the National agency aware of infringements are required to report these to the relevant state level authority and then these incidents, if serious enough to warrant further action, are reported to the police.

In 2004, the Regional Organization for the Conservation of the Environment of the Red Sea & Gulf of Aden (PERSGA) formulated a Specific Master Plan for SMNP, and followed that with a Management Plan for DMNP. Currently management is following these plans, however, no common management plan for the property is in place. WCGA is aware that the serial site will need a common management plan, if inscribed on the World Heritage List.

IUCN notes that serious concerns exist regarding the resources and management capacity which are being applied to the protection of the property. PERSGA has identified generic concerns related to the management capacity for all 75 marine protected areas (MPA) across the region: "There are a number of issues of concern relating to the existing and proposed MPAs. Few of the declared MPAs are managed appropriately. There is limited technical capacity and experience throughout the Region in MPA management. Some countries lack the necessary pool of experts to provide the knowledge, training and skills necessary for MPA management. Lack of surveillance and enforcement of regulations in MPAs is widespread".

There are currently 15 rangers for both SMNP and DMNP and 7 marine biology graduates trained as park wardens. However, staffing levels were evaluated as highly inadequate relative to the needs of the nominated property and capacity remains low. While the level and degree of threats remain low, the resources and capacity of management staff is such that it risks hindering on going effective management of the property, particularly in the face of increasing tourism and other threats. Very limited budgets are made available to the management agencies. The small staff numbers lack even basic equipment and transport. While inscription on the World Heritage list may help to ensure on going future funding this should be provided prior to inscription. The State Party has advised of a pending submission by WCGA for the provision of basic management equipment.

A greater level of coordination and communication with neighbouring countries will be needed in order to regulate the level of tourism with many live-aboard vessels now moving into the area during the peak tourism season. In addition threats from mineral exploration and pollution from neighbouring countries

will require greater coordination if they are to be assessed and planned for.

Business planning to diversify and secure future financing is not yet being undertaken in Sudan despite low levels of Government funding for current management. There is scope to undertake business planning on community-based activities such as guided tours especially with the expected increase in tourism.

IUCN does not consider that the management of the property meets the requirements of the Operational Guidelines.

4.4 Community

Consultation meetings during the field evaluation indicated little consultation has been undertaken with local communities and stakeholders in the World Heritage nomination process. The nomination does not appear to have been accompanied by awareness-raising efforts either locally or nationally. Despite this low level of awareness and consultation no local opposition to the nomination was detected, although many people within the community had limited understanding of the impact inscription of the property would have beyond the hope of increased tourism. A similar lack of consultation with local communities living within the buffer zones was evident. Nevertheless communities appear motivated by their pride and passion for the islands and expressed a desire to adjust their current lifestyles to include increased tourism and potential changes in livelihood. Local communities also indicated a desire to continue conservation and management of the property.

Discussions with the local communities during the evaluation mission indicated that there is little impact on their activities within the area from the current MNP boundaries with local communities allowed to fish within the Marine Park as well as the buffer zone. Restrictions on fishing activities are related to the type of fishing gear which can be used and no commercial fishing is allowed. However, the use of fishing nets was observed on a number of occasions, despite being prohibited.

The nomination dossier and field evaluation did not highlight any significant or ongoing cultural rights regarding the local communities. It is unclear if this is because there are no existing cultural rights to the property or if these will not be impacted by inscription to the World Heritage List.

4.5 Threats

The property and surrounding buffer zone are largely unaffected by human activity and the key threats to the property are currently at a relatively low level. Any concerns regarding threats to the property include possible future impacts from issue such as increased tourism and associated development, coastal development in general, biological impacts, the expected consequences of climate change and increased activity from local residents. The property presently has almost no on-ground management presence, and unless rectified there will be very limited capacity to cope with escalating threats.

Several reviewers have noted the growth of coastal development along the Sudanese Red Sea coastline, especially focused in the 70kms of coastline south of Port Sudan to Suakin, where there are two major ports, oil refineries, a desalination plant, saltworks, power station, a shrimp farm and the new Red Sea Economy Free Trade Zone. Increased development has also begun to spread northwards from Port Sudan. Whilst the nominated property remains in good condition this context reinforces the need to protect landward areas which are integral to the values of the marine areas and to upscale resources and management capacity.

A general increase in tourism to the site and associated pressures could follow World Heritage inscription thus potentially impacting on the property through pollution from tourism activities, anchor damage from an increase in the number of vessels and direct damage to reef ecosystems from diving-related activities including boat damage. Monitoring of impacts from tourism activities should be conducted to detect any impact on key habitat types and species in anticipation of increased visitation. Residential and resort/tourism development in terrestrial areas both within the buffer zones and areas adjoining the property should be closely monitored to ensure population size and tourist numbers do not exceed the limits of infrastructure and ecosystems.

Human activities have until very recently remained at relatively low levels with subsistence fishing being the key direct human impact on the property. There are currently two local communities residing within the proposed buffer zone of the property and utilizing the area for subsistence fishing. Given the harsh conditions in the area and an expressed interest from the communities to move away from livelihoods dependant on fishing it is unlikely the communities will expand in number significantly. However, increased monitoring of impacts from fishing should be conducted to ensure no adverse impacts on the values of the property and further awareness of the natural values of the site and the boundaries of the Marine Park are needed.

Coral bleaching is considered to be the single most significant impact on the corals present in both parks in recent years. Previous surveys have indicated that reefs were relatively healthy, supporting a diverse fish population, and bleached corals covered relatively small areas. However, no recent surveys have been included in the dossier or reported.

The mission found that coral predators such as the Crown of Thorns starfish (*Acanthaster plancii*) and Drupella, a small gastropod snail, were present in high abundances at some sites. The Crown of Thorns is a potentially serious threat, especially to the relatively small and isolated but very important and valuable coral communities inside Dungonab Bay. Monitoring of impacts from species such as these should be

established and measures taken to counteract identified threats. This is one of a number of areas where international support could be focused.

In summary whilst the nominated property is at risk from both direct and indirect impacts from activities outside the buffer zone, it is currently subject to legal protection that recognises the range of potential impacts and is attempting to consider these in both the legal protection and on the ground management of the property. Direct threats from local communities are somewhat restricted but without careful management and planning could increase.

In conclusion, for the reasons outlined above concerning boundaries and management capacity, IUCN considers that the integrity, protection and management of the property do not meet the requirements of the Operational Guidelines.

5. ADDITIONAL COMMENTS

5.1 Justification for Serial Approach

IUCN notes that the nominated property comprises two geographically separated areas with the linking marine buffer zone not included in the nominated area.

a) What is the justification for the serial approach?
A serial approach is proposed in the nomination on the basis that the two components of the property display different aspects of the values and together present the evidence to potentially meet World Heritage requirements. For example the biodiversity and habitats in Sanganeb while similar to Dungonab represent different complexity and corresponding species diversity. However, IUCN consider the linking marine and landward terrestrial buffer zone areas also contain important values. The nominated property is sited in an important transition zone between northern and southern Red Sea biogeographic zones and exhibits characteristics of the pronounced biogeographical transition between the northern and southern Red Sea. In addition the landward buffer zone areas of the DMNP function as an essential backdrop to the aesthetic natural beauty of the site. Thus a serial approach is not fully justified, and should be reconsidered when the site's boundaries are reviewed.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the Operational Guidelines?
The two separate component parts of the property are ecologically connected via the open flows that facilitate the exchange of biotic and abiotic elements within the marine ecosystems of the Red Sea. The large marine buffer zone between DMNP and SMNP creates a functional linkage. The fact that surveys of the Red Sea have shown that key coral, fish and macro invertebrate species are often in greater abundance in areas outside of the nominated property suggest that the ecological values of the Red Sea extend beyond the boundaries of the nominated area including within the larger marine buffer zone. IUCN therefore considers that areas and features outside of the nominated area, and within the buffer zone, have the potential to contribute to a more complete representation of the Outstanding Universal Value of a reconfigured property.

c) Is there an effective overall management framework for all the component parts of the nominated property?
Management Plans exist for both SMNP and DMNP and although both plans are in need of updating, they guide current management. No Integrated Management Plan is in place for the property as a whole, however, the State Party has acknowledged the need to prepare such a plan should SNMP-DMNP be inscribed onto the World Heritage List. The existing individual Management Plans commit the managing interests for the two components to common objectives and are detailed enough to assist with harmonized management until a single management plan for the property should be developed to improve coordination and communication between the agencies at the Federal and State Level given the shared mandate for the management of environmental issues.

6. APPLICATION OF CRITERIA

Sanganeb Marine National Park and Dungonab Bay - Mukkawar Island Marine National Park has been nominated under all four natural criteria (vii), (viii), (ix) and (x).

Criterion (vii): Superlative natural phenomenon or natural beauty and aesthetic importance
Sanganeb is an isolated, atoll-shaped coral reef structure in the central Red Sea, 25 km off the shoreline of Sudan. Surrounded by 800 m deep water, the atoll coral reef systems are part of the northernmost coral reef systems in the world. Sanganeb is a largely pristine marine ecosystem providing some of the most impressive dive sites on earth resulting from the very high diversity of physiographic zones and reefs characterized by an extraordinary structural complexity. Dungonab Bay and Mukkawar Island is situated 125 km north of Port Sudan and includes within its boundaries a highly diverse system of coral reefs, mangroves, seagrass beds, beaches, intertidal areas, islands and islets. The clear visibility of the water, coral diversity, marine species and pristine habitats and colourful coral reef communities contrasted against a backdrop of the Red Sea Hills, rising over 1,500 m above sea level, creates a striking land and seascape. Key attributes of Outstanding Universal Value are not currently included in the nominated area.

IUCN considers that a reconfigured nomination, addressing integrity issues, including in relation to boundaries, has the potential to meet this criterion.

Criterion (viii): Earth's history and geological features
The nomination dossier did not present a clear and well supported case for inscription under criterion (viii). While Sanganeb Atoll is the only atoll-like feature contained in the Red Sea, its origins are not currently thought to be linked to tectonic plate movements or volcanics, and the basis for possible application of criterion (viii) is therefore not clear. Dungonab Bay and its islands and islets contain overlying fossil reefs, sometimes up to 150m in height with diverse coral reef structures resulting from dynamic changes linked to deposition and reef accretion; these features are of national/regional significance but not of Outstanding Universal Value. While Sanganeb Atoll and Dungonab Bay represent ongoing geological processes including those of island formation and reef evolution, these processes are already well represented in the World Heritage List.

IUCN considers that the nominated property does not meet this criterion.

Criterion (ix): Ecosystems/communities and ecological/biological processes
SMNP-DMNP is located in an ecologically and globally outstanding region, the Red Sea, which is the world´s northernmost tropical sea, the warmest and most saline of the world´s seas. The serial site is located in a Global 200 priority biogeographic region: the Red Sea and a priority marine province, the Gulf of Aden. The nominated property is part of a larger transition area between northern and southern Red Sea biogeographic zones and contains diverse and mostly undisturbed habitats which are outstanding examples of the northernmost tropical coral reef system on earth. The nominated property and its surrounding area includes reef systems (13 different bio-physiographic reef zones in SMNP), atoll, lagoon, islet, sand flats, seagrass, and mangrove habitats and displays a diversity of reefs, from living reefs to ancient fossil reefs. These habitats are home to populations of seabirds (20 species), marine mammals (11 species), fish (300 species), corals (260 species), sharks, manta rays and marine turtles, and the site provides important feeding grounds for what is perhaps the most northerly population of endangered Dugong. SMNP is an important larvae export area and hosts spawning sites for commercial fish species. The nominated property contains features that are central to potential Outstanding Universal Value, but important attributes of the global significance of the region are not included in the nominated area.

IUCN considers that a reconfigured nomination, addressing integrity issues, including in relation to boundaries, has the potential to meet this criterion.

Criterion (x): Biodiversity and threatened species
The property represents a complete and relatively intact marine ecosystem of global and regional significance, within the Red Sea. It is home to a rich reef ecosystem, containing over 300 fish species and includes some of the most expansive seagrass beds of the Red Sea, and containing at least 9 of the 10 regional seagrass species. It is also home to globally significant populations of endangered species including sharks, cetaceans, and marine turtles with the eastern shore of Mukkawar Island being one of the most important marine turtle nesting sites in the Red Sea.

Dungonab Bay supports a globally significant dugong population, significant given that the Red Sea and the Persian Gulf host the last remaining healthy populations in the Indian Ocean. The whale and manta ray seasonal aggregations in DMNP are unique to the entire Western Indian Ocean Region and the marine park is internationally recognized as an Important Bird Area for both resident and migratory birds. DMNP is also unique as a home to species from different biogeographic origins: both northern and southern Red Sea species. SMNP lies in a regional hotspot for reef fish endemism. The property generally supports a higher than average subset of endemics found in the Red Sea, including the richest diversity of coral west of India and a number of coral species which are at the limits of their global range. Key attributes of Outstanding Universal Value are not currently included in the nominated area.

IUCN considers that a reconfigured nomination, addressing integrity issues, including in relation to boundaries, has the potential to meet this criterion.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopt the following draft decision:

The World Heritage Committee,

1. Having examined Documents WHC-15/39.COM/8B and WHC-15/39.COM/INF.8B2;

2. Defers the nomination of the **Sanganeb Marine National Park and Dungonab Bay - Mukkawar Island Marine National Park (Sudan),** taking note of its potential to meet natural criteria (vii), (ix) and (x), in order to allow the State Party to prepare a revised nomination taking into account the need to:

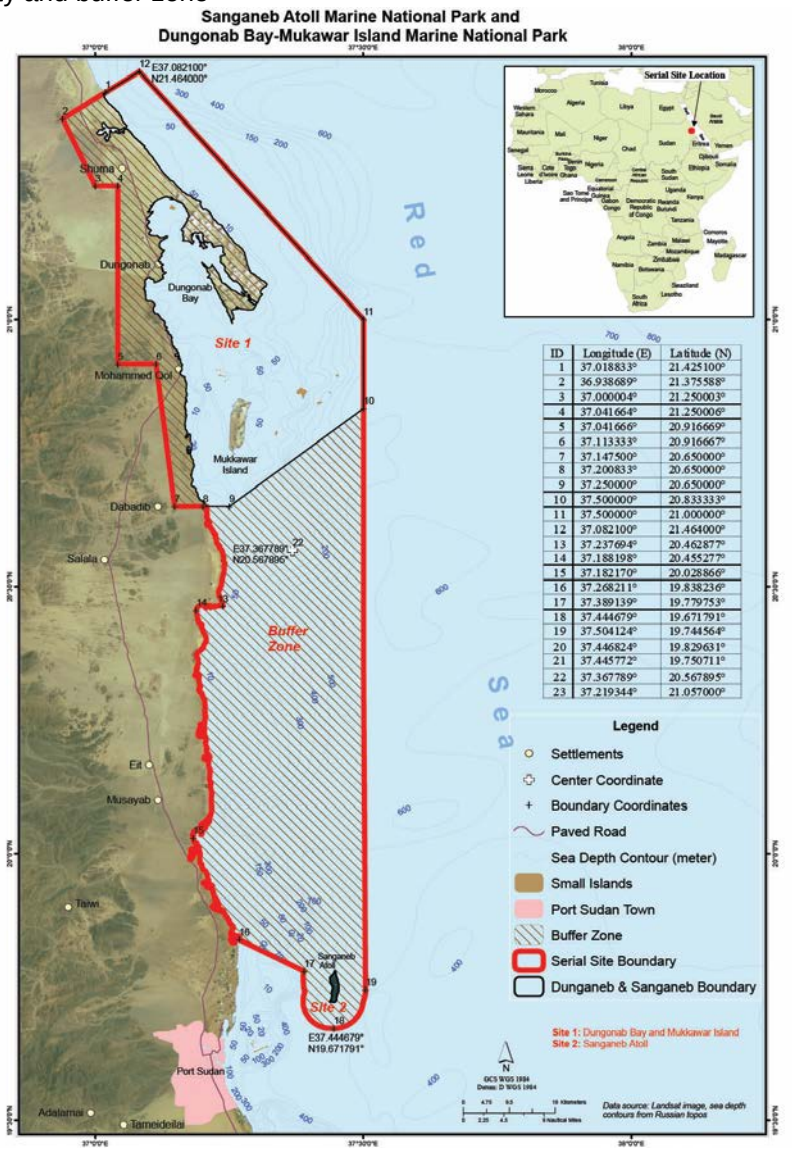
a) Review, with the support of IUCN, the boundaries of the property to better define the nominated area and buffer zones to ensure that all the natural attributes which contribute to the globally significant values are appropriately included and that integrity is enhanced. Specifically consideration should be given to including the designated marine buffer zone area of Sanganeb Marine National Park and other reefs (included in the buffer zone) within the nominated area; to expanding the nominated area to include more of the terrestrial component of Dungonab Marine National Park designated buffer zone; and to incorporating other attributes contributing to Outstanding Universal Value which lie within the linking buffer zone.

b) Update the management plans for SMNP and DMNP and develop an integrated management framework for the whole property that guides coordinated inter-agency policy and management and promotes the effective involvement of different stakeholders including local communities.

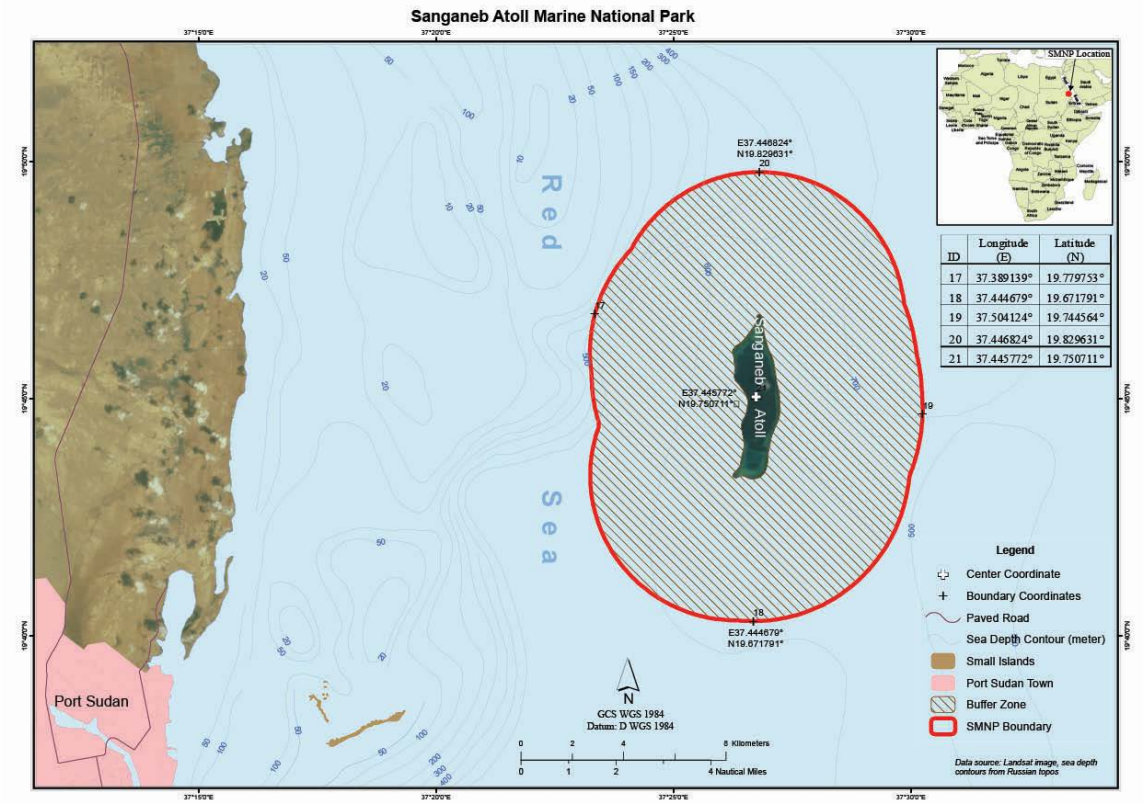
c) Demonstrate significantly increased financial resources and staffing capacity to ensure an adequate level of effective management of the nominated property and provide assurances to the World Heritage Committee on commitments to maintain ongoing sustainable financing.

3. Commends the State Party for its efforts to legally protect SMNP and DMNP; improve interagency cooperation and for collaborative initiatives to engage local communities in the management of the area.

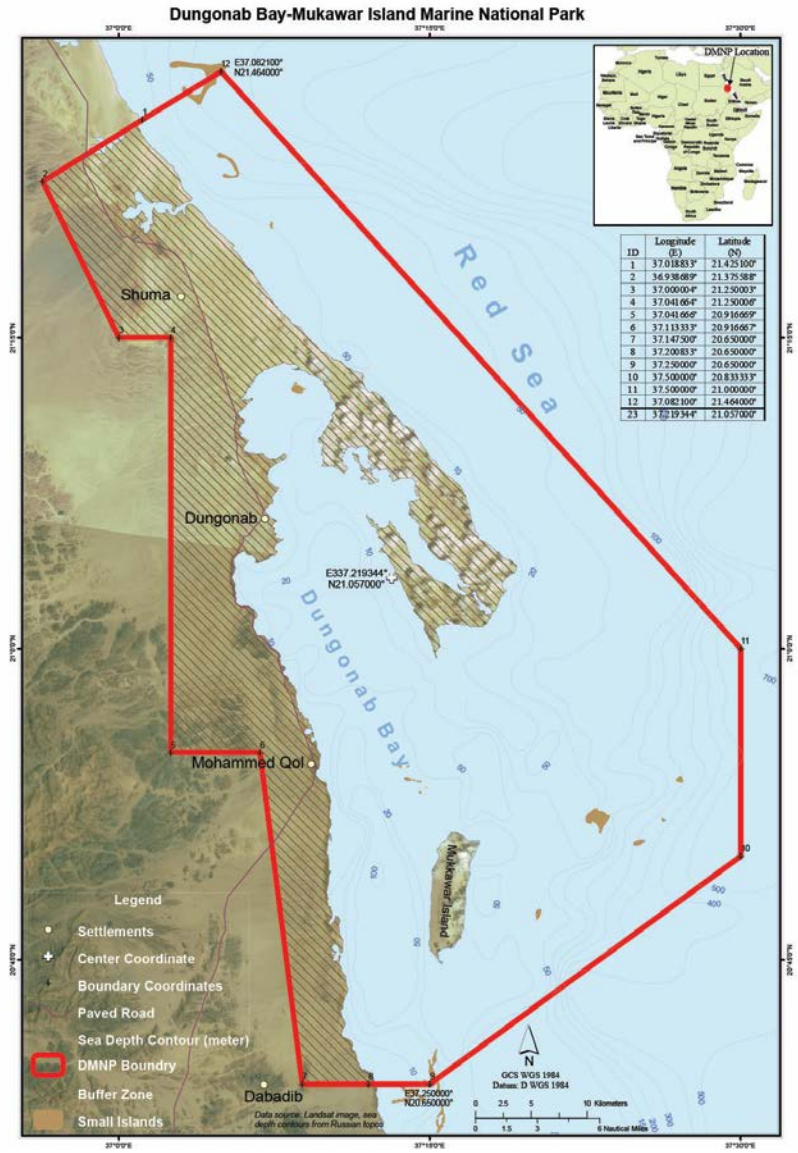
Map 1: Nominated property and buffer zone



Map 2: Sanganeb Atoll Marine National Park component



Map 3: Dungonab Bay-Mukawar Island Marine National Park



ASIA / PACIFIC

LANDSCAPES OF DAURIA

MONGOLIA / RUSSIAN FEDERATION

Huh Nuur lake, Mongolia - © IUCN Maja Vasilijevic

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

LANDSCAPES OF DAURIA (MONGOLIA/RUSSIAN FEDERATION) – ID No. 1448

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To defer the property.

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property has potential to meet World Heritage criteria.
Paragraph 78: Nominated property does not meet integrity or protection and management requirements.

1. DOCUMENTATION

a) Date nomination received by IUCN: 18 March 2014

b) Additional information officially requested from and provided by the State Party: Following the IUCN World Heritage Panel a letter was sent to the States Parties outlining a range of concerns relating to values (additional information needs, choice of criteria, comparative analysis), integrity (boundaries, the exclusion of key attributes) and protection and management requirements. IUCN invited dialogue with both State Parties on the basis that the issues were wide-ranging and interrelated. IUCN has maintained a regular and constructive dialogue with the States Parties to consider further these matters, and anticipates a meeting with the States Parties to consider the findings of this report after it is made public.

c) Additional literature consulted: Various sources, including Batsaikhan N. et al. (2014) **Conserving the World's Finest Grassland Amidst Ambitious National Development.** Conservation Biology. Heiner M. at al. (2011) **Identifying Conservation Priorities in the Face of Future Development: Applying Development by Design in the Grasslands of Mongolia.** www.developmentbydesign.tnc.org/. Accessed October 2014. IUCN (2014) **Red Listing - Mongolian Gazelle (*Procapra gutturosa*).** www.iucnredlist.org/details/18232/0. Accessed October 2014. Nyambayar B, Tseveenmyadag N (eds) (2009) **Directory of Important Bird Areas in Mongolia: key sites for conservation.** Ulaanbaatar: Wildlife Science and Conservation Center, Institute of Biology and BirdLife International. Lkhagvasuren, B., Chimeddorj, B. & Sanjmyatav, D. (2011) **Barriers to migration: Case study in Mongolia. Analysing the Effects of Infrastructure on Migratory Terrestrial Mammals in Mongolia.** Report, UNEP/CMS and WWF. Ito, T at al. (2013) **Fragmentation of the habitat of wild ungulates by anthropogenic barriers in Mongolia.** PLOS One 8(2). Ito, T. Y., M. Tsuge, B. Lhagvasuren. B. et al. (2013) **Effects of interannual variations in environmental conditions on seasonal range selection by Mongolian Gazelles.** J. Arid Environ. 91: 61–68. Gubanov, I. A. (1996) **Conspectus on Mongolian Flora (Vascular Plants).** Valang, Moscow, 33. Wildlife Conservation Society **The Eastern Steppe Living Landscape (Mongolia)** http://pdf.usaid.gov/pdf_docs/PDACP722.pdf. Marinus, J.A., Werger, M. A., (eds) (2012) **Eurasian Steppes. Ecological Problems and Livelihoods in a Changing World.** Plant and Vegetation Volume 6. BirdLife International (2014) **Important bird Area Factsheets: Mongol Daguur, Khukh Lake and Torey Lakes.** http://www.birdlife.org. Accessed October 2014. Liu G., et al. (2013a) **Plant Functional Diversity and Species Diversity in the Mongolian Steppe.** PLOS ONE 8(10). Liu Y.Y. et al. (2013b) **Changing Climate and Overgrazing Are Decimating Mongolian Steppes.** PLOS ONE 8(2). WWF (2014) **List of ecoregions: Daurian/Mongolian Steppe and Russian Far East Rivers and Wetlands.** http://wwf.panda.org/about_our_earth/ecoregions/ecoregion_list/. Accessed in October 2014. Anon. (2010). **Onon-Balj National Park. Guidebook.** Onon-Balj NP administration. Available at http://www.econet.mn/ononGol/en/area-of-onon-river. Buuveibaatar, B., Smith, J. K., Edwards, A. and Ochirkhuyag, L. (Eds). (2014) **Proceedings of the International Conference of China-Mongolia-Russian Daurian International Protected Area. June 25-27, 2014.** Wildlife Conservation Society Mongolia, Ulaanbaatar. Chimed-Ochir, B. et al. (2010) **Filling the Gaps to Protect Biodiversity of Mongolia.** WWF Mongolia Programme Office. Gombobaatar, S. et al. (eds.) (2011) **Mongolian Red List of Birds.** Regional Red List Series Vol. 7. Birds. Zoological Society of London, National University of Mongolia and Mongolian Ornithological Society. Ulaanbaatar. IUCN WCPA (2009). **Temperate Grasslands Conservation Initiative.** https://www.iucn.org/about/work/programmes/gpap_home/gpap_biodiversity/gpap_wcpabiodiv/gpap_grasslands/. Accessed October 2014. Simonov, E. at al. (2013) **UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes.** Peoples Daily Press, Beijing.

d) Consultations: 11 desk reviews received. The mission also met with representatives of both the Russian and Mongolian States Parties and various stakeholders. In the Russian Federation this included Deputy Governor of Zabaikalsky krai in Chita, staff and scientists of Daursky State Nature Biosphere Reserve (SNBR), representatives of the Institute of Natural Resources and Ecology of Russian Federation (Russian Academy of Sciences), Head of Ononsky District Administration (Zabaikalsky krai), local community officials and representatives from the Borzinsky District (Solovyevsk and Kulusutay) and NGOs. In Mongolia consultations took place with the

Minister of Environment and Green Development, Director and staff of the Department of Protected Area Management, Director and staff of Mongol Daguur Strictly Protected Area (SPA), Head of ornithology, Mongolian Academy of Sciences, Governor of Chuluunkhoroot soum, Vice Governor of Dornod province, Director WWF Mongolia and local families.

e) Field Visit: Wendy Strahm and Maja Vasilijević, 2-11 September 2014

f) Date of IUCN approval of this report: April 2015

2. SUMMARY OF NATURAL VALUES

The Landscapes of Dauria, situated in Central Asia, is a transboundary nomination between the Russian Federation and Mongolia covering 859,102 ha. It is designed to represent an outstanding example of about 15% of the "Daurian Steppe Ecoregion", which covers an area of over one million square kilometres and is located primarily in eastern Mongolia, extending into Russian Siberia and north-eastern China. Composed of Daurian forest steppe and Mongolian-Manchurian grassland, the Daurian Steppe Ecoregion constitutes one of the best-preserved examples of Eurasian steppe which supports one of the last truly mass ungulate migrations in Central Asia, that of the Mongolian Gazelle (locally called dzeren). Its wetlands and rivers are of critical importance to a number of migratory bird species, and are particularly rich in biodiversity due to cyclical changes in climate.

In the Russian Federation, the nomination proposes inclusion of the core and buffer zones of most of the Daursky State Nature Biosphere Reserve (SNBR) and the Valley of Dzeren Federal Nature Refuge (FNR). For Mongolia, the two strictly protected core zones of the Mongol Daguur Special Protected Area (SPA) as well as a large part of its buffer zone are included within the nominated area. The nomination dossier is titled "The First Property of the Serial Transnational Nomination - Landscapes of the Dauria". IUCN notes, however, that the subject of this nomination is not a serial property as the areas comprising the nomination are contiguous, albeit transnational. Table 1 illustrates the composition of the Landscape of Dauria and shows the mix of areas that comprise the nomination and which are shown in the maps. A World Heritage buffer zone of an additional 310,719 ha mostly surrounds the property and is not included within the nominated area.

The property overlaps with Ramsar areas and UNESCO Biosphere Reserves (BR) on both sides of the border. Mongol Daguur in Mongolia was designated a Ramsar site in 1997 and a BR in 2007; Torey Lakes in the Russian Federation was designated a Ramsar site in 1994 and a BR in 1997.

Table 1. Components of the Landscape of Dauria nominated property:

Protected area / buffer zone	Area (ha)	
	Nominated Property	WH Buffer Zone
Russian Federation		
Daursky SNBR	49,764	124,929
Daursky SNBR buffer zone	117,690	
Valley of Dzeren FNR	111,568	
Sub-total area in Russian Federation	279,022	124,929
Mongolia		
Mongol Daguur SPA "A"	87,780	185,790
Mongol Daguur SPA "B"	15,236	
Mongol Daguur SPA buffer zone	477,064	
Sub-total area in Mongolia	580,080	185,790
Total	**859,102 ha**	**310,719 ha**

The main natural values of the nominated property reside in its large area of mostly intact steppe interspersed by hills and a large number of wetlands. The nominated property includes a mix of forest (limited in extent), grasslands, wetlands, reed beds, marshes, numerous mostly salt/soda lakes (50 including the largest ones, the Huh-Nuur and Torey Lakes), halyphilic meadows and floodplains. Three major rivers, the Uldza, Imalka and Borzya Rivers, flow in the area, and it exhibits complex surface and sub-surface hydrology. The nomination dossier notes that "the lakes are characterized by a fluctuating hydrological regime; the fluctuation period being mostly determined by the climate: over the past 200-220 years the lakes have repeatedly dried (four times in the 20th century) and been filled again within a period of 25-40 years."

While the nominated property is said to represent the "steppe compartment" of the Daurian ecoregion, the nomination states that the outstanding attribute of the Daurian ecoregion is that it is the only region in the world where the transition from circumboreal taiga forest biome to temperate continental grassland biome remains under completely natural conditions. While grasslands and wetlands are well-represented in the nomination, the transition from forest to steppe, and the presence of Daurian "forest steppe" (particularly hills on which the northern side is forested and the southern side is just grassland) are very poorly represented within the nominated area. The evaluation mission observed only small relicts of forest steppe, but the trees had been burned from wildfire. The Tsasucheysky Bor Federal Reserve had previously been included in the nomination but following a large forest fire in 2012 this area was removed. While the vistas of vast grasslands within the property are very

impressive, evidence of the suite of transitional features which makes the Daurian ecoregion unique is lacking.

For biodiversity values, the nomination stresses the annual migration of the Mongolian Gazelle (dzeren), which is noted incorrectly as globally threatened in the nomination, and is classified as Least Concern under the IUCN Red List due to its still very large population. The nomination notes "two relatively large local groups of Mongolian Gazelle formed after 2001 in the Torey Lake area with total numbers reaching 5-6,000 in 2012". The nomination dossier goes on to note that "from 30-50,000 to 120,000 dzerens (3-8% of world population) form a large migrating winter population within the nominated property every year" and that the nominated area provides the "last free passage for cross-border migrations of dzeren between Mongolia and Russian Federation." With estimates ranging from 400,000 to 2,700,000 and a current estimate of about a million animals living in 275,000 km^2 of steppe (90% of which lies within the Daurian ecoregion), it is difficult to identify the most significant area for the Mongolian Gazelle, especially as movements of these animals do not appear to follow a specific pattern and do not show fidelity to any given range. The Daursky SNBR and the Valley of Dzeren, located at the edge of this species' range, is reported as the only place where this species breeds in the Russian Federation. The species also breeds in China but has been much reduced in numbers, and migration has been blocked by the border and the fenced Ulaanbaatar-Beijing railway line. The main breeding grounds for the gazelle are now in Mongolia.

The nominated property is important for the conservation of many other species, some of which are globally threatened. Its wetlands are of key importance for a number of breeding and migratory species, providing essential stopovers for more than 3 million migrating birds in spring and 6 million in autumn along the East Asian-Australian flyway. The climate of the region is regarded as cyclical, which means that the area goes from being wetter to very dry over a period of decades, and currently is at the end of a dry cycle. Biodiversity is much higher during wet periods when larger water bodies are available to wildlife and islands form in lakes.

The nomination notes that during wet periods, the Torey Lakes and the adjacent regions are the nesting habitats for approximately 100,000 waterfowl and semi-aquatic bird species, as well as having international significance for a number of globally threatened species: in particular Swan Goose (VU), White-naped Crane (VU), Hooded Crane (VU), Relict Gull (VU), Great Bustard (VU) and Saker Falcon (EN). The property at times has hosted a few immature summering or migrating Siberian Crane (CR). Although the Red-crowned Crane (EN) is listed as a breeding species in the property (there was one exceptional breeding pair in 2010), it is rarely observed in the property. It is therefore possible to observe six species of crane in the property (including large numbers of breeding and migratory Demoiselle Crane and Common Crane, both not globally threatened), which is exceptional. The Torey Lakes are one of very few known nesting sites for the Relict Gull. In addition to the eight globally threatened bird species, the nomination lists eight other threatened bird species which can occur in the property, either breeding or on passage. However, in conservation terms the property is not as significant for these as for the aforementioned species. The property also provides sanctuary to the Tarbagan or Mongolian Marmot (EN) as well as to the near-threatened Pallas' Cat.

The nominated property is very sparsely inhabited by people, with some small farms inside the property undertaking low-intensity agriculture including grazing (cows, sheep, goats, horses and camels), hay cutting and fishing during wet cycles. The Mongolian components are used by nomadic herders although an increasing number now live in permanent farms; the small settlements of Solovyevsk, Ereentsav and Chuluunkhoroot have been excluded from the nominated area. The Choibalsan-Solovyevsk railway cuts across the Mongolian part of the property.

The nominated property is also home to the Buryat people who inhabit the Daurian steppes, and who continue to follow traditional customs and many objects of worship are found within the nominated property.

3. COMPARISONS WITH OTHER AREAS

The nomination dossier included a comparative analysis following a reasonably sound methodology based on other World Heritage properties. The analysis compares the Landscapes of Dauria on the basis of other steppe regions in the world; other wetlands of international importance (focused on the Torey Lakes); avifauna; and globally rare and endemic species. Specifically the analysis focuses on World Heritage sites within temperate grassland biomes, noting the relatively poor levels of conservation of this biome worldwide. This analysis is progressively narrowed based on the distinctive characteristics of the Daurian region over other sites and ultimately compares the nominated property with what are considered the two other closest comparators, Danube Delta in Romania and the Saryarka – Steppe and Lakes of Northern Kazakhstan located in Kazakhstan. The analysis claims the Landscapes of Dauria compares favourably based on the fact that Dauria coincides with the WWF Dauria/Mongolian Global 200 ecoregion - the largest ecoregion without a World Heritage site; the different steppe types present in Dauria over other sites; and the comparable species' compositions.

The comparative arguments centre upon the significance of the Daurian ecoregion being the only region in the world demonstrating the transition from the boreal taiga forest biome (the world's largest forest ecosystem) to the temperate continental grassland biome under natural conditions. Furthermore it emphasises the nominated property's extraordinary diversity of different ecosystems and species, which are adapted to extreme cyclic changes of life

conditions. The nominated property with the large steppe lakes is the key resting place for more than 3 million migrating birds within the East Asian-Australian flyway of waterfowl, one of the most important and longest flyways all over the world. A total of 16 globally endangered bird species inscribed in the IUCN Red List have been observed in this territory. The territory is of key importance for conservation of natural massive transboundary migration routes of dzeren, which is the last phenomenon of this type in Central Asia.

Whilst the broader comparative analysis methodology is sound, the comparison with other properties in the same biogeographic region is relatively limited. Comparisons with properties such as Tian Shan Zhongbu Gongnaisi Grassland Nature Reserve and Xilinguole Grassland Nature Reserve (both in China); Eastern Mongolian Steppe and Nomrog Strict Protected Area (both in Mongolia) have not been made. Comparison with protected areas in the same ecoregion also excluded key sites such as Onon-Balj National Park, Ugtam Nature Reserve and Toson Khulstai Nature Reserve in Mongolia, and the Sokhondinsky Nature Reserve and Biosphere Reserve in the Russian Federation. A comparison with Lake Dalainor in China was made, but a review of important areas for cranes and Swan Goose in the ecoregion is omitted. As comparison with similar areas in the same biogeographic region was not made, it is therefore difficult to conclude from the nomination whether the area contains the most outstanding elements representing the Landscape of Dauria, or whether there are additional protected areas (principally in Mongolia) that might have equivalent or even greater importance, or provide greater support for the values for which the property has been nominated. Integrity, protection and management considerations would also need to be assessed in such a comparative analysis.

IUCN has conducted additional comparative analysis which confirms that the nominated area coincides with larger ecosystems which are not yet represented on the World Heritage List (i.e. the Mongolian-Manchurian steppe biogeographical province, Daurian forest steppe and Mongolian-Manchurian grassland ecoregion, and Daurian steppe priority ecoregion). However the nominated property does not appear to constitute the only or best preserved example of an intact steppe ecosystem. The analysis also confirms that the Landscapes of Dauria are one of the last remaining areas in the Palaearctic that supports stable herds of large vertebrates, including the Mongolian Gazelle. The property has a diverse flora, made of different chorological types and a particularly rich avifauna, which is of international importance. It also hosts a number of endemic and globally threatened species, including crane and other bird species. The nominated property does not overlap with any protected area with a high irreplaceability score.

In summary the various analyses make a strong case of the potential for a property in the Daurian ecoregion overall to meet World Heritage criteria. However, the justification of the relative importance of the biodiversity values of the nominated property in comparison with other protected areas in the Daurian ecoregion is not clear. The nomination does state that "there are no other regions of pristine steppes in the entire eastern part of Central Asia (at least, within the Russian part), which would be larger and characterized by higher integrity level" which casts further doubt on the selection of the property. There appear to be regions in the Mongolian part of the Daurian regional that might be equally or more important and the nomination notes the "possibility of…future expansion…[which] can be fulfilled by adding of one or several clusters which include the most preserved forest-steppe areas of the northern part of the Daurian steppe ecoregion". This acknowledges that forest steppe, an important attribute of the property's argued Outstanding Universal Value is currently lacking.

IUCN therefore considers that whilst there is evidence for potential for the Daurian region to justify World Heritage criteria, the present nomination does not make a convincing case to meet those criteria.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

Daursky SNBR, Valley of Dzeren FNR and Mongol Daguur SPA have legal protection under a range of state legislation, decrees, resolutions and executive orders which is outlined in the nomination and is considered adequate. However, much of the nominated World Heritage property comprises the designated buffer zones of these protected areas, and is subject to a weaker legal and management framework. There is also variability in the protection regime across the mosaic of lands that make up the Landscapes of Dauria. As shown in Table 2, different protected areas are categorised as different IUCN management categories and the buffer zones are uncategorised, in fact they would not comply with the IUCN definition of a protected area.

Table 2. IUCN protected area management categories "Landscapes of Dauria"

Protected area / buffer zone	IUCN PA management category
Russian Federation	
Daursky SNBR	Ia
Daursky SNBR buffer zone	Not considered to comply with IUCN definition of a PA
Valley of Dzeren FNR	IV
Mongolia	
Mongol Daguur "A"	Ia or Ib*
Mongol Daguur "B"	Ia or Ib*
Mongol Daguur SPA buffer zone	Not considered to comply with IUCN definition of a PA

(*Listed as Ia in the nomination, Ib in www.protectedplanet.net)

Land tenure is also variable. In the Russian Federation, Daursky SNBR including its buffer zone is the property of the Federal Government. The ownership of Valley of Dzeren FNR is not yet finalised, although most of the area belongs to the government (Federal, Zabaikalsky krai and Municipal). The nomination notes that some plots of land are privately owned. In Mongolia the Mongol Daguur SPA is owned by the *soums* of Chuluunkhoroot, Gurvanzagal and Dashbalbar on behalf of the government.

The buffer zone in the Russian Federation is managed by Daursky SNBR. Hunting is not allowed in the buffer zone, and while grazing and hay cutting is allowed, the park sets limits on these activities in consultation with local communities. In the Russian Federation there is less livestock pressure than in Mongolia, however, the field evaluation witnessed quite high levels of hay cutting.

In Mongolia, the Mongol Daguur SPA only regulates hunting in the buffer zone, with other activities subject to traditional management. Whilst the human population is low and a "Buffer Zone Management Plan" exists, it is not clear how customary management of the buffer zone, which is included in the nominated area, might cope with future rapid economic changes, including the introduction of economic incentives for larger herds. Mining is also legally permitted within the buffer zones of Mongolian SPAs, however, there are reported provisions in the law which ban mining in watersheds and forests. Mining within the nominated area would not be acceptable and is a further reason for revision of the nomination.

The field mission noted that the Russian Federal Act provides support for the planned extension of the Daursky SNBR and there are plans to extend the reserve in the next few years. Such an extension could significantly enhance the integrity, protection and management of the property.

A significant percentage of the nominated property comprises the designated buffer zones of protected areas and these areas are subject to relatively weak levels of legal protection. IUCN considers the protection status does not meet the requirements of the Operational Guidelines.

4.2 Boundaries

The nomination argues that the following characteristics of the Landscapes of Dauria contribute to its Outstanding Universal Value:

- Transition of the ecosystem complex from the circumboreal taiga forest biome to the temperate continental grassland biome;
- Cyclic changing gradient of climate conditions from cold humid taiga forest climate to strong continental semiarid steppe climate;
- Different ecosystems and species adapted to the extreme cyclic changes of life conditions (wet and dry periods);
- On-going biological and ecological process of global importance;
- Small and large lakes and wetlands;
- Key resting place for more than 3 million migrating birds within the East Asia-Australian flyway of waterfowl, and 16 globally endangered bird species observed in the property;
- Transboundary migration routes of Mongolian Gazelle and demonstration of major migration phenomenon in Central Asia.

In relation to the transition of the ecosystems complexes, IUCN has not noted major forest areas (or forest steppe areas), although the property includes vast continental grasslands. One of the areas near the nominated property in the Russian Federation, Tsasucheysky Bor Federal Nature Sanctuary, includes representative examples of forest biome. However, more than 70% of the sanctuary was burnt in a recent fire, and thus it was not included in the nominated property. The evaluation mission was informed that in the Mongolian Dauria region there are forest steppes in several relatively nearby protected areas including Ugtam Nature Reserve and Onon-Balj National Park (the latter one forms a Transboundary Conservation Area with the Russian Sokhondinsky Nature Reserve and Biosphere Reserve). These, or parts of these areas, could potentially be integrated into the nominated property, along with other areas demonstrating a diversity of forest steppe types and floral composition, in order to much better justify the transition of ecosystems (forest-grasslands) as stated above. This point is also reinforced by some reviewers.

With respect to the property's values for transboundary migration of Mongolian Gazelle it is clear that the main migratory route coincides with the nominated property and that transboundary cooperation between the Russian Federation and Mongolia has facilitated undisturbed migration. That said, the nominated property would not meet integrity requirements for this phenomenon, as it covers only a small part of the gazelle migration route. Some of the most important habitats for that species are located further south of the site in Toson Khulstai Nature Reserve, Mongolia and in other areas across the border with China. A review of these other areas could add the necessary attributes to justify this value argument, but would entail a differently configured and conceived nomination. None of these suggested additional areas were assessed during the field evaluation, and so additional field mission(s) would be needed to evaluate any such additions.

Whilst the other attributes referred to in the nomination appear to be represented within the boundaries defined for the site, nearly 70% of the nominated area is within the buffer zones of the protected areas with weaker levels of protection. In summary IUCN notes concerns relating to the configuration of the site's boundaries, in terms of both the exclusion of key attributes that would be needed to justify Outstanding Universal Value (forest steppe and migration) and the inadequate levels of protection afforded to the property as nominated.

IUCN considers that the boundaries of the nominated property do not meet the requirements of the Operational Guidelines.

4.3 Management

Both the Russian Federation and Mongolia have established management plans for their respective protected areas. In the Russian Federation a 2012-2017 mid-term plan has clear objectives, activities, indicators and monitoring provisions and is considered to be an effectively conceived plan. In Mongolia a 2010-2015 mid-term plan is considered adequate, however, could be improved as it has several inaccuracies and would benefit from clearer objectives, activities and monitoring. There is no overall management plan yet in place across the transboundary system, although opportunities exist within the broader trilateral transnational cooperative agreements which are in place (see below). Governance arrangements are satisfactory in the Russian Federation part (through the Zapovednik system), but are more challenging in the Mongolian part, where the Park Director is responsible for 5 protected areas, including the nominated site.

Capacity for management on the Russian side of the property appears higher than that in Mongolia. Very good cooperation between the two State Parties is apparent and has helped improve capacity on the Mongolia side. Nevertheless, the Mongolian parts of the property remain under-resourced and overly reliant on limited customary protection of more than 80% of the property.

Funding for the Russian and Mongolian parts of the nominated property mainly comes from their respective governments with some funding from international organisations and aid agencies. Current levels of funding appear to be stable, as most comes from government sources. The nomination provided sources and levels of finance for the Russian part of the property in 2011 which indicated a total budget in 2011 of 805,800 USD comprising 80% from the Federal budget; less than 1.5% from the Regional budget; 17% from donor funding such as UNDP/GEF and WWF; and a small percentage from site-level revenue raising. The funding is increasing as the mission was informed that the 2013 budget totalled about 1.3 million USD. Plans within Daursky SNBR include the development of income from ecotourism and environmental education. By contrast the Mongolian part of the nominated property reported a budget of about 149,000 USD in 2012, sourced almost entirely from the State with only a small percentage from other sources. This budget is insufficient to meet basic management needs such as transport, fuel, research and monitoring and other activities.

A transboundary approach for the property is justified as the two countries share the same ecosystems and a coordinated management approach adds to its conservation status. Generally, transboundary cooperation has a long history and is well developed. Areas of cooperation include monitoring of species and habitats, scientific research, environmental education, and international cooperation. Transboundary monitoring systems (with more than 200 monitoring stations) have been established to study among other things habitat dynamics related to climate change; water outflow of the Uldz River and changes in water levels of the lakes; and steppe dynamics. Additional inventories of flora and fauna, as well as long-term studies on population dynamics of cranes, great bustard, raptors, waterfowl, passerines, and the northern populations of Mongolian Gazelle are being undertaken.

Daursky SNBR and Mongol Daguur SPA, together with the Dalai Lake State Nature Reserve in China, form part of the China-Mongolia-Russia Dauria International Protected Area (CMR DIPA). The agreement with which a joint trilateral reserve was established was signed in 1994 in Ulaanbaatar. The Chinese part of DIPA was not included in the nominated property, the reasons for which have not been fully clarified. However, DIPA ensures an additional guarantee for transboundary protection and management. Management of DIPA is organised through the Joint Commission, a high-level forum that meets occasionally, and Working Groups comprised of staff of protected areas that meet once or twice every year. The Joint Commission helps out with international projects, approves Working Groups' plans and supports their work financially. Greater attention is required to address transboundary threats and overcome capacity imbalances including in the areas of fire management; buffer zone planning and management; and control of hunting and poaching, particularly in Mongolia.

Whilst noting the differences in management capacity between the Russian Federation and Mongolia, on balance IUCN considers the management of the nominated property meets the requirements of the Operational Guidelines.

4.4 Community

In the Russian Federation, Daursky SNBR cooperates very well with local communities in both Ononsky and Borzynsky Districts. Communities of Ononsky District are informed about actions in Daursky SNBR, mainly via regularly published local newspapers. At the time of the IUCN evaluation mission, surveys of local people to assess public opinion and support for the SNBR reported that more than 80% of locals supported the management of the reserve, 60% support ecotourism development and 20% are ready to participate in the future activities. However, some representatives of local communities have expressed hesitance about enlargement of the protected area boundary as they thought development was more important than conservation.

The protected areas are active in educating children about environment and conservation, and organise regular events and summer camps. In the Russian Federation, despite the positive engagement measures outlined above, there is room to improve cooperation with local communities and to ensure

better information about changes that might result from World Heritage status.

Traditional uses in the Russian Federation have historically centred on hunting and fishing, however, a proportion of the lands within the nominated property were subject to past agricultural use. The nomination notes some 20% were ploughed, but now no more than 2% of the arable land is used, including for grazing and haying. During the wet period, the local population continues to fish in the lakes and wetlands. Population pressures in the Mongolia part have historically been relatively low with limited agricultural use, however, the nomination notes negative impacts on natural values due to human activities and natural disasters such as fire.

In Mongolia there are several Buryat shrines (called 'obo') in the whole property and these seem to be respected by the SPA authorities. In certain periods of the year, these sacred places are visited by Buddhists and these cultural rights are welcomed by the SPAs.

4.5 Threats

Threats to the nominated property include issues related to a legacy of landuse impacts, many of which are in the process of lengthy recovery. Past landuse coupled with current and potential threats combine to undermine the integrity of the site as it is designed and many areas included within the nominated area do not meet the requirements of the Operational Guidelines in terms of integrity. This is especially so given that nearly 70% of the nominated property is within the buffer zones of the formal protected areas. In summary these issues relate to previously ploughed lands, many now recovering as fallow lands; areas of cropping; weed infestations; grazing impacts (which still occurs over 50% of the property in the Russian Federation); road construction, including some reported problems with uncontrolled creation of new roads; soil erosion; and a military presence.

One of the main threats to the property is fire. While fires used to occur once every few years, nowadays they occur once, twice or even more times in one year, and they are mainly caused by human activity, e.g. careless spring agricultural burning and inappropriate handling of fire (experts estimate about 40% of steppe in the property burn every year). Loss of vegetation cover causes soil erosion and reduction of habitats, burnt areas are not suitable for nesting of cranes, bustard, geese, and other birds, and many bird eggs and nests are destroyed. Due to strong winds, firefighting efforts are very difficult or sometimes impossible. There is a need to put more efforts in educating local communities about preventing fires. As fire often spreads across international boundaries, there is a need to redress capacity issues in Mongolia and to coordinate firefighting activities.

Poaching is another issue that threatens species such as Mongolian Gazelle, Swan Goose and Grey Wolf. While poaching is a major threat in the Russian Federation, in recent years it has expanded to Mongolia as well. In the Russian Federation, spring hunting of waterbirds is currently banned in the whole region of Zabaikalsky krai in order to prevent fires. Measures to combat poaching since the mid-90s have delivered good results, however, the very low budgets and staffing for the Mongolian protected areas need to be addressed to improve the control of poaching.

Overgrazing is a further problem, especially as the traditional nomadic lifestyle of the local people, which sustained natural steppe restoration processes, is being replaced by sedentary living. The property is not densely populated but the nomination reports over 750,000 head of livestock on the Mongolian part (with much less in the Russian part). In Daursky SNBR there is no permanent human population, and about 500 people live in its buffer zone. In one part of the SNBR, border guards have a small post, and there are two ranger stations (Telli and Utochi). The buffer zone of Mongol Daguur SPA is inhabited by residents of Dashbalbar and Ereentsav soums as well as army personnel of three battalions and one guard post of a frontier military unit.

As the whole region is undergoing rapid economic growth, mining and urbanization are both accelerating. In recent years, mining operations have intensified in the areas of the buffer zone *soums* of Gurvanzagal and Dashbalbar in Mongolia. According to the law in Russian Federation, mining is not allowed in SPA buffer zones, while in Mongolia, it is allowed with approval of the Ministry of Environment. However, the 2012 law prohibits mining in watersheds and forests, and the mission was informed that no mining would be allowed in the World Heritage property.

The Choibalsan-Solovyevsk railway with a very infrequent train cuts across the Mongolian part of the property and while fenced to exclude livestock, the mission was told that this does not pose a problem for gazelle migration.

Currently, there are almost no tourism pressures in the property and tourist infrastructure is practically non-existent. There is potential for tourism to improve the local economy and ecotourism has been identified in the nomination as an income opportunity to be developed. Careful planning for sustainable tourism needs to be undertaken with the involvement of local people.

One threat in the Russian Federation is unprotected electrical lines, both inside and outside the protected area, which electrocute large numbers of birds, in particular raptors including the Saker Falcon. Daursky SNBR has established cooperation with the electricity company which is gradually modifying its lines to protect birds.

IUCN considers that the configuration of the nominated property, and the range of threats and limited protection status all require considerable revision of the nomination. In conclusion IUCN considers the integrity, protection and management of the nominated property do not meet the requirements of the Operational Guidelines.

5. ADDITIONAL COMMENTS

None.

6. APPLICATION OF CRITERIA

Landscapes of Dauria has been nominated under natural criteria (ix) and (x).

Criterion (ix): Ecosystems/communities and ecological/biological processes
The Landscapes of Dauria contains substantial areas of grassland steppe and lakes with largely undisturbed associated biological and ecological processes. The periodic cyclical changes in climatic and hydrological regimes are of global significance and are responsible for the wide range of biodiversity in the property. The wetlands are also key stopover points for migratory birds along the East Asian-Australian flyway as well as important breeding sites for many species. With over 600,000 ha of Central Asian grassland steppe in good condition and numerous wetlands, the property offers outstanding examples of on-going ecological processes in the evolution of its ecosystems over time. However, the configuration of the property does not include adequate areas of forest steppe to demonstrate the transition from the boreal taiga forest biome to the temperate continental grassland biome which is also deemed as a central aspect of its Outstanding Universal Value. In addition the way in which the boundaries are configured does not provide adequate and consistent levels of protection. A revision of boundaries and the inclusion of additional protected areas would be required to justify criterion (ix), and the necessary protection and management would need to be established.

IUCN concludes that whilst a significantly revised nomination in the Dauria region has potential to meet this criterion, the nominated property does not meet this criterion.

Criterion (x): Biodiversity and threatened species
As for criterion (ix), justification for criterion (x) again refers to forest steppe which is hardly represented in the nomination. Botanically there are areas of grassland with a different species composition which might be termed forest steppe, although forest steppe should include trees, particularly the phenomenon where trees grow on the northern sides of hills and grassland on the southern slopes. In this sense, forest steppe does not appear to be present in the nominated property. In addition, the justification refers to Mongolian Gazelle as a “globally rare endemic species listed in the International Red Data Book” however their Red List conservation status is Least Concern. While Mongolian Gazelle are certainly a flagship species for the property (particularly the Russian part) the migratory range of this species covers a much wider area of Mongolia, the Russian Federation and China. The property’s boundaries are not configured to include the summer territories and only very little of the autumn migration routes of the dzeren. The nominated property does provide extremely important habitats of international importance for at least four globally threatened bird species (White-naped Crane, Hooded Crane, Swan Goose, and Relict Gull) and is of importance for Great Bustard and Saker Falcon. It also provides essential breeding and resting habitat for birds along the East Asian-Australian Flyway, with up to 3 million birds in spring and 6 million in autumn using the area during migration.

IUCN considers that the global biodiversity significance of the Daurian region should be framed around its importance for conserving an excellent example of Daurian steppe and its characteristic wildlife including a number of globally threatened bird species as well as the endangered Tarbagan Marmot. While the nominated property clearly has some values to support justification of criterion (x), a number of the key values are largely absent from the property and a reconfigured nomination would be needed to justify this criterion. In addition the protection and management requirements are not met in relation to this criterion.

IUCN concludes that whilst a significantly revised nomination in the Dauria region has potential to meet this criterion, the nominated property does not meet this criterion.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopt the following draft decision:

The World Heritage Committee,

1. Having examined Documents WHC-15/39.COM/8B and WHC-15/39.COM/INF.8B2;

2. Defers the nomination of **Landscapes of Dauria (Mongolia / Russian Federation)**, noting the potential for a nomination in the wider Daurian Steppes Ecoregion to meet natural criteria (ix) and (x), in order to allow the States Parties to prepare a significantly revised nomination taking into account the need to:

a) Review, with the support of IUCN, the boundaries of the nominated area and buffer zones to include areas important for the protection of forest steppe ecosystems which are an essential component to demonstrate Outstanding Universal Value, and are currently poorly represented within the nominated property and to ensure the property is designed with boundaries that better support the critical habitat of migratory birds and habitat associated with the migration of Mongolian Gazelle.

b) Prepare a joint management plan for the property to ensure a strengthened approach to sustainable regional development, tourism planning, threatened species conservation actions, research, monitoring and environmental education. This plan should be developed consistent with the transboundary framework provided by the Joint Commission between the States Parties of the Russian Federation,

c) Mongolia and China supporting the Dauria International Protected Area (DIPA) initiative.

3. Requests the States Parties to strengthen transnational collaboration to mitigate threats and ensure consistent capacity and effectiveness in both the Russian Federation and Mongolian components of the property, and specifically to:

a) Develop strengthened, better coordinated policies, practices and action plans to combat the threat of fire.

b) Develop strengthened, better coordinated management of buffer zones including with regard to grazing and cutting, in order to prevent overexploitation.

c) Establish enhanced legal and other measures to reduce hunting and poaching pressures on the property.

d) Provide the necessary long term resourcing and capacity to address imbalances and ensure effective management across the transnational property as whole.

4. Requests the State Party of Mongolia, in line with the position of the World Heritage Committee on the incompatibility of mining with World Heritage site status, to confirm unequivocally that mining exploration and exploitation activities will not be permitted within the nominated property.

5. Commends the State Parties of the Russian Federation and Mongolia for their commitment to the protection of important Central Asian steppe ecosystems which remain poorly represented on the World Heritage List.

6. Requests IUCN in consultation with the relevant States Parties, to update the 2005 Central Asia Regional Thematic Study on natural World Heritage to identify at a regional scale the most outstanding steppe areas with potential for future nomination to the World Heritage List.

Map 1: Nominated property location

Map 2: Nominated property and buffer zone

ASIA / PACIFIC

KAENG KRACHAN FOREST COMPLEX

THAILAND

View of elephants and gaur in the nominated property- © IUCN Bruce Jefferies

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

KAENG KRACHAN FOREST COMPLEX (THAILAND) – ID No. 1461

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To refer the nomination.

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property has potential to meet World Heritage criteria.
Paragraph 78: Nominated property does not meet integrity or protection and management requirements.

1. DOCUMENTATION

a) Date nomination received by IUCN: 18 March 2014

b) Additional information officially requested from and provided by the State Party: Following the IUCN World Heritage Panel a letter was sent to the State Party in December 2014. Further information was sought on a range of matters including the rights of indigenous peoples within and related to the nominated property (including a letter from the UN Office of the High Commissioner on Human Rights Office (UNOHCHR) for South East Asia dated 26 November 2014, which was also raised via a letter dated 3 December 2014 from the World Heritage Centre to the State Party); updated information on the status of the populations of key species within the nominated property; further analysis to clarify the distinctive values of the nominated property over other comparable properties in the region; the status of transboundary cooperation with Myanmar in relation to possible future transboundary World Heritage nomination/extension; clarification on the status of biodiversity corridor initiatives with potential to affect the nominated property; updated figures on staffing, budgeting and revenue; and additional information on the regulatory, incentive and awareness programmes operating within buffer zone. The State Party responded to this request on 24 February 2015.

c) Additional literature consulted: Various sources, including Kanwatanakid-Savini, C., et al. (2012) **A Survey to Determine the Conservation Status of Siamese Crocodiles in Kaeng Krachan National Park, Thailand.** Herpetological Conservation and Biology 7(2): 157-168. Ironwood Foundation (2014) **Conservation status of Critically Endangered and Endangered species, including the Siamese Crocodile.** http://www.rea.co.uk/rea/en/sustainability/conservation/supportus. International Tropical Timber Organization (ITTO) **Project Brief: Capacity building for strengthening transboundary biodiversity conservation of the Taninthayi range in Myanmar** www.itto.int/direct/topics/topics_pdf.../topics_id=3712. Wildlife Conservation Society (WCS), Thailand. **Human and Elephants Conflict Mitigation.** http://www.wcsthailand.org/english/hec. WCS **Kaeng Krachan Forest Complex** http://www.wcsthailand.org/english/landscape-kkfc-main. Lekagul, B. & Mc Neely, J. A. (1977) **Mammals of Thailand.** Assoc. Conservation Wildlife, Bangkok, Thailand. 758pp (reprinted in 1988). BirdLife International and IUCN-WCPA South-East Asia (2007) **Gap analysis of protected areas coverage in the ASEAN countries.** Cambridge, UK: BirdLife International. Conservation International (2014) **Hotspots: Indo-Burma.** Downloaded from http://www.conservation.org/how/pages/hotspots.aspx. Accessed in October 2014. Kanwatanakid-Savini C.,at al. (2012) **A survey to determine the conservation status of Siamese Crocodiles in Kaeng Krachan National Park, Thailand.** Herpetological Conservation and Biology 7(2): 157-168. Smith, J. L. D., Tunikhorn S., Tanhan S., Simcharoen S., and Kanchanasaka B. (1999) **Mapping the metapopulation structure of Thailand's tigers. In Riding the Tiger: Tiger conservation in human dominated landscapes.** J. Seidensticker, S. Christie and P. Jackson. Cambridge University Press. UK. Lynam A.J. (2001) **Status, ecology and conservation of tigers in their critical habitats in Thailand.** WCS (Thailand) Final Report. Lynam A.J. (2010) **Securing a future for wild Indochinese tigers: Transforming tiger vacuums into tiger source sites.** Integrative Zoology 5: 324-334. WWF (2006). **WildFinder: Online database of species distributions: Tenasserim-South Thailand Semi-Evergreen Rainforests.** Downloaded from www.worldwildlife.org/WildFinder, ver. Jan-06. Accessed in October 2014. Birdlife International (2001) **'Threatened Birds of Asia: The Birdlife International Red Data Book.'** Cambridge, UK: Birdlife International. Borrini-Feyerabend, G., M. Pimbert, M. T. Farvar, A. Kothari and Y. Renard. (2004) **Sharing Power. Learning by doing in co-management of natural resources throughout the world.** IIED and IUCN/ CEESP/ CMWG, Cenesta, Tehran, 2004. ISBN 1 84369 444 1

d) Consultations: 13 desk reviews received. The mission met with senior and site-level representatives from Thailand's Ministry of Natural Resources and Environment (MONRE); Department of National Parks, Wildlife and Plant Conservation (abbreviated to DNP); Office of Natural Resources and Environmental Policy and Planning (ONEP); Department of International Organization, Ministry of Foreign Affairs (MFA); Royal Forest Department; Royal Thai Military; Elephant Conservation Information Center (ECIC) and various Park Advisory Committee members. The mission also consulted with research institutes and universities including the National Park and Protected Area Innovation Institute within DNP; Kasetsart University

and Mahidol University. Consultations were also held with international NGOs working in the area including WWF and WCS Thailand, with local NGOs, media and local businesses.

e) Field Visit: Bruce Jefferies, 01-09 September 2014

f) Date of IUCN approval of this report: April 2015

2. SUMMARY OF NATURAL VALUES

The Kaeng Krachan Forest Complex (KKFC) is a significant part of the Indo-Malayan eco-region. The complex is located along an approximately 250 km section of the 1,700 km Tenasserim Range, which also delineates the international border between the Kingdom of Thailand (hereinafter referred to as Thailand) and the Republic of the Union of Myanmar (hereinafter referred to as Myanmar). The Tenasserim Mountains are part of an extensive north-south granite and limestone mountain ridge running down the Malay Peninsula and with an elevation range from 100m to 1,500m asl.

The KKFC comprises four contiguous legally gazetted protected areas: three National Parks (NP) and one Wildlife Sanctuary (WS): Kaeng Krachan NP; Kui Buri NP; Chaloem Phrakiat Thai Prachan NP and Mae Nam Phachi WS. The total area of the complex nominated is 482,225 ha. A relatively uniform 3 km wide buffer zone totalling 242,778 ha runs down the eastern boundary and is not included in the nominated area. It is relevant to note that the field mission was advised that Kui Buri Forest Reserve and Army Reserve Zone, within the nominated property, which are included in the nomination dossier as corridor areas, have recently been added to Kui Buri NP. This corridor was previously managed under provisions in the Forest Reserve Act (1964) and the Military Reserve Zone Act (1935). It is an important addition as these areas provide significant conservation connectivity and create a contiguous, more consistently managed system.

Table 1. Protected areas comprising the nominated property KKFC

Protected area	Nominated area (ha)	Buffer Zone (ha)
Kaeng Krachan National Park *	291,470	242,778
Kui Buri National Park *	96,900	
Kui Buri Forest Reserve and Army Reserve Zone (Corridor area now included within Kui Buri NP)	12,000	
Chaloem Phrakiat Thai Prachan National Park *	32,924	
Mae Nam Phachi Wildlife Sanctuary **	48,931	
Total	**482,225**	**242,778**

* protected under the National Park Act, 1961
** protected under the Wildlife Protection and Preservation Act, 1992

The area's topography is rugged with high mountains which form the western boundary between Thailand and Myanmar with more generally rolling hills to the east. The climate is influenced by the north-eastern and south-western monsoon winds. The rainy season generally starts in mid-May and runs through into mid-October, and the cool season is mid-October to mid-February with the dry season from mid-February to mid-May.

The site encompasses 3 Thai provinces: Ratchaburi, Phetchaburi, and Prachuab Kirikhan, and incorporates the catchments of several important river systems, the Phetchaburi, Kui Buri, Pranburi, and Phachi. The nominated property therefore provides essential watershed protection essential to downstream water users. The property has also been declared an Association of Southeast Asian Nations (ASEAN) Heritage Park in 2003 in recognition of its regional significance across the ten ASEAN countries of South-east Asia.

The nomination dossier notes that KKFC lies at the meeting place of four different zoogeographical realms and four floristic provinces. This seems open to some interpretation, with several reviewers suggesting it lies at the junction between two not four zoogeographical sub-regions (Indochinese and Sundaic). The nominated property lies within one Udvardy biogeographical province (Indochinese Rainforest), however its biogeographic location corresponds to a faunal and floral 'cross-roads' which results in rich biodiversity.

According to the nomination six forest types cover more than 95% of the nominated area. The site is dominated by semi-evergreen/dry evergreen and moist evergreen forest. These cover respectively 59% and 28% of the total area while mixed deciduous forest, montane forest, and deciduous dipterocarp forest make-up the balance.

Over 720 animal species have been recorded, as well as the presence of endemic plant species and globally endangered species. The nominated property is reported to contain 91 mammal species, 461 bird species, 120 species of amphibians and reptiles and 48 fish species. The KKFC overlaps with two Important Bird Areas (IBAs) and is noted for its rich diversity of birdlife including some 8 species of globally threatened species which have been inventoried.

Comprehensive plant species data for the whole site was not provided within the nomination dossier, however the Kaeng Krachan NP, Thailand's largest national park, is reported to contain some 1,199 plant species with two site specific endemics *Magnolia mediocris* and *M. gustavii.* 6 plant species overall are noted as endemic to the nominated property. 10 species of rare and threatened plants are noted, however, a number of these are not to be considered globally threatened. IUCN notes that whilst information on forest communities is available, data on individual plant species is limited due to the inaccessible terrain

and limited surveys undertaken. The State Party in its supplementary information notes that new plant species continue to be discovered, with for example three new species recorded in 2014.

Notably, the nominated property is home to the critically endangered Siamese Crocodile (*Crocodylus siamensis)*, one of only a few locations in three countries where this species is found in the wild. Other globally endangered species recorded from the KKFC include Asiatic Wild Dog (*Cuon alpinus*) EN, Banteng (*Bos javanicus*) EN, Asian Elephant (*Elephas maximus*) EN, Yellow/Elongated Tortoise (*Indotestudo elongata*) EN and Asian Giant Tortoise (*Manouria emys*) EN as well as several other vulnerable species of birds and mammals. The nomination notes a remarkable eight species of cat have been reported from the forest complex – Tiger (*Panthera tigris*) EN, Leopard (*Panthera pardus*) NT, Clouded Leopard (*Neofelis nebulosi*) VU, Marbled Cat (*Pardofelis marmorata*) VU, Fishing Cat (*Prionailurus viverrinus*) EN, Asian Golden Cat (*Catopuma temminckii*) NT, Jungle Cat (*Felis chaus*) LC and Leopard Cat (*Prionailurus bengalensis*) LC. The property has been previously identified by IUCN as a critical tiger reserve.

3. COMPARISONS WITH OTHER AREAS

The nomination dossier provides a comparative analysis which focuses in depth on KKFC's relative values against two other World Heritage properties in Thailand: Thungyai - Huai Kha Khaeng Wildlife Sanctuary (THKK) and Dong Phayayen - Khao Yai Forest Complex (DPKY). Both these properties lie within the same Udvardy biogeographical province (Indochinese Rainforest) as KKFC, and several other World Heritage inscribed and tentative listed properties also lie within the same province including Phong Nha-Ke Bang National Park and Trang An Landscape Complex (Viet Nam) World Heritage sites and Cat Tien National Park (Viet Nam), Huong Son Complex of Natural Beauty and Historical Monuments (Viet Nam), Myeik Archipelago (Myanmar) and Taninthayi Forest Corridor (Myanmar) – all on current tentative lists.

The nominated property when compared with THKK and DPKY in Thailand exhibits complementary yet distinctive values. KKFC protects dry evergreen forest whereas THKK and DPKY represent mixed deciduous forest and moist evergreen forests respectively. KKFC has more Sundaic and Indo-Burmese elements than the two mentioned Thai World Heritage sites and the highly variable topography is likely to lead to considerably more species being discovered in the nominated property. Supplementary information received by the State Party compared KKFC to a wider range of properties within the same biogeographic province. This has confirmed the view that KKFC possesses complementary yet distinctive values. For example, in comparison with the THKK World Heritage site 220km to the north, KKFC has 141 distinctive species (17 mammal, 95 bird, 20 reptile, 9 amphibian). Similarly there are 159 distinctive species within KKFC that do not occur within DPKY in Thailand. Specific species that are contained in the current nomination but not present in DPKY include lesser Giant Flying Squirrel (*Petaurista elegans*), Dusky Langur (*Semnopithecus obscurus*), Phayre's Langur (*Semnopithecus phayrei*), Fea's Muntjac (*Muntiacus feae*), and Asian Tapir (*Tapirus indicus*). The nomination also reports a study showing the KKFC was found to have the second highest index for large mammal diversity (15 out of 16 species) of six different complexes in Thailand with also the lowest number of domesticated animals.

The analysis in the nomination makes more superficial comparisons with several other sites however it is not evident on what basis these sites were chosen. KKFC is compared to several sites on the basis of relative size. More significantly the site is noted as important habitat for 461 species of bird: higher than THKK and DPKY in Thailand, Kinabalu National Park in Malaysia, the Sundarbans in Bangladesh and Three Parallel Rivers of Yunnan Protected Areas in China. As a regionally important area for Tigers, KKFC is an important habitat of eight species of wild cats which is equal to DPKY in Thailand. The reported number of cat species found in the area is higher than many other World Heritage properties in the region such as Manas Wildlife Sanctuary and Kaziranga National Park in India, Tropical Rainforest Heritage of Sumatra in Indonesia, Three Parallel Rivers of Yunnan Protected Areas in China as well as Atlantic Forest South-East Reserves in Brazil.

Additional comparative analysis by IUCN indicates that the nominated property is part of biogeographical regions (ecoregion, priority ecoregion, and Centre of Plant Diversity) which are not yet well represented on the World Heritage list. Its ecosystems are considered good examples of the Indo-Burma hotspot, to which it belongs, however this is a hotspot already very well represented on the World Heritage list. KKFC has not been identified as a gap in representation of World Heritage sites; however it overlaps with a protected area which is ranked amongst the world's top 500 most irreplaceable protected areas.

Concerns were raised during the field mission and by several reviewers regarding inflated and out of date biodiversity data and the viability of remaining populations within KKFC. However, a review by UNEP-WCMC did not consider the species data is inflated noting their overlay analysis of protected area and Red List databases indicates the potential for more species within the property than actually reported. Similarly the current status of Siamese Crocodile numbers within KKFC is difficult to assess with certainty. A 2011 study by the Wildlife Conservation Society (WCS) notes that sporadic sightings of the Critically Endangered Siamese Crocodile (*C. siamensis*) have occurred for the past two decades in Kaeng Krachan NP, however, it was only in the year 2000 that the occurrence of this critically endangered species was verified after a single photo-record of a crocodile was obtained from a camera trap. The study considered that a small population of the species (perhaps only 10 animals) continues to survive in the national park but these are of both national and global conservation significance;

not only is this population the only extant wild population known in Thailand, it is also one of just a handful of such populations remaining within their historic range.

Obtaining accurate and up to date data in largely inaccessible terrain is a challenge. The State Party has advised it is updating data on key species' populations and awaiting input from several responsible agencies. This information was unfortunately not available for submission in the supplementary information provided.

In conclusion the nominated property is located at the overlap of a diverse range of zoogeographic and floral regions and so exhibits a particularly diverse biota. KKFC potentially retains the full range of mammals, birds and reptiles found in the region, including, most impressively, all eight species of cats (including Tiger). It has a relatively rich fauna especially for birds and is home to relatively high levels of endemism and a high number of globally threatened species (15 mammals, 8 birds, 7 reptiles recorded). The site is of particular importance because it is of sufficient size to have the potential for maintenance of populations of all the larger mammal species, in particular the Asian Elephant and Tiger. It is also important habitat for the critically endangered Siamese Crocodile.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

All protected areas within the nominated area are the legal property of the Government of Thailand, with the three national parks declared under the National Parks Act of 1961 and the Mae Nam Phachi Wildlife Sanctuary declared under the Wildlife Protection and Preservation Act of 1992. Management of the KKFC falls to the Department of National Parks, Wildlife and Plant Conservation (DNP). As noted above, the areas formerly noted as corridors within the nominated property have recently been added to Kui Buri NP. This area was previously protected via forestry and defence legislation, and the changed status will increase the consistency of legal protection across the contiguous property.

Although the DNP administers national parks and wildlife sanctuaries, and both national park and wildlife laws provide sufficient legal protection, each has distinct management objectives or primary emphases that have required operational clarification by the managing agencies. The National Parks Act states that a national park is established to *"preserve its natural state for the benefit of public education and enjoyment*", placing a strong emphasis on human use rather than conservation. Guiding principles have been established for national parks that refer to preserving and maintaining "ecosystem integrity, biodiversity and scenic beauty". Wildlife sanctuaries areas are the responsibility of the DNP Office of Wildlife Conservation (OWC) and are dedicated to the conservation of wildlife and have no mandate for the promotion of visitation. However, the OWC has developed objectives that refer to providing *"opportunities for the public to learn and enjoy the areas"* which provides a commonality with national parks. Thailand has four types of protected area including national parks, forest parks, wildlife sanctuaries and non-hunting areas. Thailand's two existing natural World Heritage sites comprise both national parks and wildlife sanctuaries which are considered to provide an adequate level of legal protection to meet the requirements of the Operational Guidelines.

The fundamental differences in the objectives of the supporting legislation, as well as the division of administrative responsibilities between two agencies within the DNP emphasise the importance of collaborative management approaches and harmonised objectives. The KKFC management plan (see also below) outlines property-wide governance proposals which would ensure greater coordination across the different protected area designations.

Whilst noting the need for coordinated approaches across the various protected areas that comprise the forest complex, IUCN considers that the legal protection status of the nominated property meets the requirements of the Operational Guidelines.

4.2 Boundaries

The boundaries of the nominated property follow contour lines and were originally drawn around remaining areas of forest and natural habitat, in common with many of the world's protected areas. This has resulted in complex boundary arrangements especially on the eastern side of the complex. The western boundary forms the international border between Myanmar and Thailand and this boundary is relatively easy to define geographically. The eastern boundary of the nominated property is convoluted and includes several enclaves, which provide challenging issues in terms of encroachment, access for illegal harvesting, and wildlife exploitation. As is known from other protected areas in Thailand, unclear boundary definition on the ground can be one factor in rights and tenure disputes with local people.

KKFC is a large and contiguous forest area of nearly half a million hectares and is of sufficient size to support ecological function. The biological elements which contribute to this are all within the boundaries, however, up to date data on the numbers of key wildlife species is lacking. The corridor of army managed lands previously protected under the Military Reserve Zone Act 1935 has recently been added to Kui Buri NP and strengthens integrity. A relatively uniform 3km wide buffer zone has been designated along the property's eastern boundary. The uniformity of this buffer suggests it is not particularly tailored to the reality of landuse, developments and threats on the ground. It would be prudent to progressively refine over time the buffer zone boundary to account for these aspects in a way that regulates development; promotes sympathetic landuse and incentivizes local people with benefits from the KKFC.

IUCN considers that boundaries of the nominated property meet the requirements of the Operational Guidelines.

4.3 Management

Management of the KKFC falls within the jurisdiction of the DNP under the Ministry of Natural Resources and Environment (MONRE). Whilst DNP is responsible for both national parks and wildlife sanctuaries they are managed by different units within the agency. So while the KKFC is a geographically contiguous area it is administratively separated and each protected area has its own superintendent. There is a need to consider the establishment of a Park director or chief superintendent with an appropriate level of seniority and professional expertise who would be responsible for the entire property thus ensuring overall management coordination and budget allocation.

Thailand has a history of pioneering landscape scale connectivity approaches in Southeast Asia through its creation of forest complexes which cluster different types of protected areas into conservation mosaics. However, there is a need to upscale professional protected area management capacity for connectivity building on 'whole-of-complex' initiatives such as the Joint Management of Protected Areas Project – Western Forest Complex (JoMPA - WEFCOM). This is particularly the case in relation to the idea of an international transboundary protected area with Myanmar.

Each of the protected areas within the KKFC has its own management plan consistent with the Thai system of national parks and wildlife sanctuaries. In addition a property-wide management plan 2008-2017 covers the KKFC and was submitted at the time of the nomination. The plan specifies a six-level zoning system for the property; recommends coordinated governance arrangements; and prescribes area-based objectives, actions, indicators and budgets. The mission raised concerns that the property-wide management plan was prepared in isolation from local park and sanctuary managers thereby limiting local buy-in. There was further concern regarding the level of influence the plan has on individual protected areas given their independent planning and management. The plan also lacks provision for active monitoring to assess threats and management response. A further limitation is the plan's superficial and ineffective relationship to areas outside the KKFC, including its capacity to address threats emanating from the buffer zone. Nevertheless, the mission noted improvements to the governance arrangements for the property and the management plan outlines well-developed governance structures for the KKFC including multi-agency Ecological Forest Complex Committees at national and local levels plus an Ecological Forest Complex Administrative Office to coordinate across all four protected areas.

DNP has placed significant emphasis on patrolling and enforcement to combat the flourishing and illegal wildlife trade. There are 39 ranger stations located in and on the periphery of the complex.

Co-management with local stakeholders is a topic that is being given serious consideration. The negotiation and implementation of co-management strategies is, however, a long-term and complex undertaking. An often overlooked component of co-management is the serious demand on limited resources which is required to work with and across, in many cases hundreds of communities, in an effective and coordinated manner.

All the protected areas making up the KKFC have full-time resident staff, including superintendents, and the mission observed high levels of commitment and professionalism within the senior management group. By international standards, management capacity at non-professional levels is considered as adequate and by regional levels as good. Thailand has undertaken management effectiveness evaluation for some of its protected areas and is familiar with the methodology. The level of professional staffing (tertiary trained) needs strengthening in all of the protected areas in the complex particularly if a transboundary protected area is established and consequent cross-border issues need to be addressed.

The State Party has provided updated figures on budgeting and staffing in its supplementary information. This confirms staffing numbers of 594 across the four protected areas with the largest numbers assigned to Kaeng Krachan NP as the largest in the forest complex. IUCN notes that staff numbers have risen from a reported 535 at time of field evaluation.

The budget reported for 2014-15 is approximately 40m THB (1.3m USD), an unexplained drop of 25% since 2013-14. Information on funding levels made available to the mission was several years out of date (2003-2007). This showed annual budgets and revenue averaging 30-40mTHB. It appears that funding fluctuates but has remained reasonably stable over the past 10 years or so.

IUCN considers the management capacity and conservation effectiveness of the nominated property meets the requirements of the Operational Guidelines, however management issues need to be considered regarding the relationship of the nomination with communities, as discussed below.

4.4 Community

The nomination dossier notes that KKFC has a long history of human settlement. Artefacts from the pre-historical period, i.e. stone axes, were excavated from the Wiman Cave in the village of Pala-u Noi, in Prajaub Kirikhan Province and the property has historical links with generations of the Thai Royal Family.

Karen and Karang people have long been living in the forest complex, and communities still live in the villages of Pong Luek and Bang Kloy inside Kaeng Krachan NP. Currently, there are a total 12 human settlement areas within the boundary of the KKFC with a total population estimated at 3,236. 108 villages are reported within the buffer zone. A study on socio-economic conditions of communities in and around

KKFC surveyed 1,416 households to assess livelihoods and levels of exploitation within the complex. 64.6% of respondents were from local communities and 46.6% practiced agricultural activities. About 35.7% of the respondents had exploited areas in KKFC, usually with neighbours or family members and access was limited. Among this, 7.2% of the households used encroached land for agricultural purposes, 7.8% for cattle or poultry feeding, 23.2% looking for non-timber forest products (mushrooms, bamboo shoots, honey, bamboo stick, charcoal plants, wild orchids, fishing, hunting and gathering fruits, etc.). This collection was for both subsistence consumption and in some cases for commercial purposes.

DNP established the concept of Protected Area Committees (PACs) in 2006 to represent the interests of stakeholders. PACs within the nominated property provide a vehicle for community input to management, however, these are considered to fall short in facilitating meaningful empowerment of local people in co-management.

IUCN received a letter from the Karen Network for Culture and Environment (KNCE) Forest Peoples Programme in September 2014 alleging serious abuses of human rights regarding Karen communities living within the Kaeng Krachan NP. The letter alleges violent forced evictions, harassment of ethnic minorities and weak consultation on the World Heritage nomination. Specific recommendations were made to resolve all conflicts re Karen people and Kaeng Krachan NP prior to inscription; undertake workshops to explain the process and hold a public hearing; ensure that inscription does not infringe on rights and livelihoods; and commit to resolve land tenure to provide community titles.

IUCN was also sent a letter and briefing in November 2014 by the United Nations Office of the High Commissioner on Human Rights (UNOHCHR) Regional Office for Southeast Asia, which was also sent to the World Heritage Centre. In this letter the OHCHR recommends IUCN and the UNESCO World Heritage Committee to urge the Thai Government:

- To resolve the disputes between the communities in KKFC and national park officials before registering the area as a World Heritage Site. The Thai Government, including national park officials, should respect the rights of the Karen community to remain in KKFC and refrain from evicting them from their land.

- To hold comprehensive consultation with the communities affected by the registration, including providing complete information on positive and negative effects of KKFC being listed as a UNESCO World Heritage site. Public hearings for those affected should be held.

- To ensure that the affected communities will be able to participate in the management of the natural resources and environment of KKFC after its designation as the UNESCO World Heritage Site.

- To establish a clear guideline on the use of land and natural resources by the affected communities with the participation of all sectors, including the communities themselves.

- To establish a mechanism to solve disputes in KKFC in an impartial manner and that is accessible by the affected communities.

- To implement the recommendations made by the National Human Rights Commission of Thailand to the Thai authorities concerning the Kaeng Krachan National Park.

The request from the communities that they be allowed to continue living within and outside the KKFC is based on traditional occupation from before the establishment of the conservation area and, as described by the National Human Rights Commission of Thailand (NHRC) and the UNOHCHR Regional Office for Southeast Asia, complies with Thai regulations, in particular Cabinet resolution of June 30, 1998 on Resolving land problems in forest areas, and Cabinet resolution of August 3, 2010 on Policy to restore the Karen way of life. These Resolutions not only provide key policy prescriptions on this matter, but offer also procedural guidance that could be followed.

The statements received do not convey objections in principle, and express support for the appropriate establishment of a World Heritage site in the KKFC of Thailand, subject to addressing the concerns outlined. This creates favourable conditions for finding constructive agreements between the respective government agencies and the communities, including for the long-term involvement of the communities in the management of the property.

IUCN notes provisions within the KKFC Management Plan 2008-2017 which draw attention to the challenges of past efforts to relocate communities out of the forest complex. Relocation was based on concerns about encroachment, impacts, increasing population and the illegality of occupation. The plan concedes that the removal is “not practically doable” noting that communities are “more or less allowed to stay” under special permit (Cabinet Resolution of 1998). The plan recommends introducing “a set of prudent mechanism(s) and suitable measures to promote an effective natural resource management plan with active public participatory in (participation by) such communities”.

IUCN has also noted the supplementary information provided by the State Party on 24 February 2015 which provides further insights into the legal and practical complexities of rights issues, and notes recent efforts to engage with the Karen communities and rectify previously poor relations between parks’ staff and Karen people. This includes information on the response to the recommendations of the UNOHCHR, but which IUCN considers may indicate that further time would be needed to address all of

those points. The World Heritage Centre has also communicated the reply of the State Party to UNOHCHR, and IUCN notes that at the time of finalising the evaluation report a reply from UNOHCHR to the World Heritage Centre on their view regarding the response is awaited, and should be reported to the World Heritage Committee. Further discussion is also required directly with the concerned communities.

In summary IUCN recognizes that this is a complex issue in the wider context of ethnic groups in Thailand. Having reviewed the issues described above, IUCN is of the opinion that the claims from the Karen communities of the KKFC should be addressed in a timely and consequent manner, and that each of the six recommendations that are made by UNOHCHR should be taken into account as they appear to be appropriate, applicable, and constructive in view of the objective of ensuring collaborative and sustainable management of the area.

Given the serious nature of the complaints received by IUCN and the World Heritage Centre, and the importance of a response that leads to their satisfactory resolution, IUCN considers that any recommendation for inscription would be premature for this property, and that the referral mechanism would enable the additional time necessary for the State Party to seek resolution of issues that have been raised by communities and the UNOHCHR, and for the Committee to be able to verify if these issues have been addressed.

4.5 Threats

The nominated property includes over 482,000 ha of rugged and largely inaccessible terrain. It is bordered to the west by the Tenasserim Range which is contiguous with large forested areas in Myanmar. This configuration provides a degree of buffering from threats, most of which emanate from outside the protected areas and especially within the occupied buffer zone along the convoluted eastern boundary. As a result most development has taken place along this eastern boundary of the KKFC. The development of reservoirs for irrigation around Kaeng Krachan NP headquarters is an obvious intrusion. Other small dam areas along the eastern boundary have also been constructed.

Human activities, such as farming, settlement, forest-product collection, wildlife hunting, and domestic animal raising, can be typically found in the KKFC. Conversion, encroachment and expansion for agriculture is a particularly relevant threat to the KKFC and anecdotal evidence, supported by local knowledge, suggests that this threat is widespread and persistent. This is particularly the case within eastern boundary buffer zones and interior villages. Human-wildlife conflict is also an issue both within the boundaries of the protected area and on the periphery with its agricultural land and significant resident populations.

Wildlife poaching and illegal trade remains a threat as it is in all protected areas in the region including Thailand's other natural World Heritage sites. As a result of increased patrolling activities, reports suggest a drop in illegal hunting and poaching activities. As well as wildlife poaching, high-value wood species used to produce incense, and rosewood for furniture manufacturing, are also known to be taken illegally from various sites within the complex. It is reported that small-scale loggers are known to occasionally cross into Kaeng Krachan NP from Myanmar to take timber. Resources have been progressively increased to deal with these threats and more recently helicopter surveillance has been used for both monitoring and, on occasions, placement of SMART (Spatial Monitoring and Reporting Tool) patrolling teams. Additional resources are, however, required to ensure that staff can adequately deal with these threats, including extra staff trained in community participatory management processes.

Of the four protected areas that make up the complex, Kaeng Krachan NP, as the largest land unit, receives most tourism/visitor use. Apart from a few peak times, the carrying capacity of the park is exceeded on only a few days of each year. It seems that well-controlled access points play an important role in controlling visitation and only occasionally is there undue pressure on management and facilities evident.

No roads currently provide east to west access across the complex. There has, however, been a progressive increase in roads and tracks over the last few years. Satellite imagery shows an increase in roading over the period 2000 to 2014, however, this is mostly within the eastern peripheral buffer zone.

Fire is a significant conservation issue and there is considerable variation on the impact and influence fire has on native species, habitats and landscapes. The KKFC contains fire-dependent ecosystems but conversely there are other areas where fire will probably cause the destruction or loss of native species and habitats. Park management is increasingly focusing on better understanding the fire ecology of the forest complex.

Little or no evidence of mining and quarrying was evident during the evaluation mission. Whilst significant areas of grazing were observed during the mission, these appear to be restricted to the buffer zone.

As noted above there appear to be successful efforts targeting key threats to the property. A well informed reviewer notes *"(The) Thai government together with NGOs have done an excellent job in many respects regarding management of the area (with the notable exception of major human rights violations towards the Karen recently in Kaeng Krachan NP) and should be commended. The list of credits is long: patrol systems, community engagement in Kui Buri, dealing with human-elephant conflict, ecological research and monitoring, etc".*

In conclusion IUCN considers that the integrity, protection and management of the property have the potential to meet the requirements of the Operational Guidelines but that the satisfactory resolution of rights issues with Karen people living inside the property and the provision of updated information on the conservation status of key populations of threatened species is required.

5. ADDITIONAL COMMENTS

5.1 Transboundary cooperation and connectivity

The nominated property adjoins the Taninthaya Forest Complex in neighboring Myanmar. This area was added to Myanmar's World Heritage Tentative List in 2014 under criteria (ix) and (x). Taninthaya and Lenya National Parks (TNP, LNP) were proposed in 2002, followed by LNP Extension in 2004, but none have been gazetted. Between TNP and the LNP Extension there is a 65-km gap, which is partially covered by the Thagyet Reserved Forest, and covers 290,100 hectares. If this and the other proposed national parks were gazetted, they would form a contiguous 1 million-hectare corridor stretching from TNP in the north to LNP in the south, a distance of 280 km. The Myanmar Tentative List promotes the idea of a 6 million ha transnational complex of protected areas including the 482,000 ha World Heritage nomination of KKFC. The State Party of Thailand has indicated its openness to pursuing transboundary opportunities with Myanmar and reports on recent cooperation between the two countries on transboundary conservation including joint conferences and reciprocal study tours. Thailand has advised that "both countries agree to cooperate in the field of plants and wildlife preservation and are interested to develop cooperation to Memorandum of Understanding in future."

The State Party has also provided additional information regarding biodiversity corridor initiatives which could potentially connect KKFC and the Thungyai Huai Kha Khaeng World Heritage Site to the north. The Tenasserim Biodiversity Corridor was part of an initiative funded through the Asian Development Bank's Biodiversity Corridors initiative in the Greater Mekong Sub-Region.

6. APPLICATION OF CRITERIA

Kaeng Krachan Forest Complex has been nominated under natural criterion (x).

Criterion (x): Biodiversity and threatened species
The KKFC property is reported as having a rich fauna; its bird diversity is particularly high compared to other World Heritage sites in the same biome, however, its floral richness appears to be lower. Endemic and threatened species are not found in particularly high numbers compared to other sites, but they include some compelling species, such as the critically endangered Siamese crocodile, and the endangered Tiger and Asian elephant. KKFC has values which are distinct but complementary to sites within the same biogeographic region. The nominated property also coincides with the overlap of a diverse range of zoogeographic and floral regions and so exhibits a particularly diverse biota. KKFC potentially retains the full range of mammals, birds and reptiles found in the region, including, most impressively, eight species of wild cats including Tiger, Leopard, Clouded Leopard, Marbled Cat, Fishing Cat, Asian Golden Cat, Jungle Cat and Leopard Cat. It is reported to be home to high levels of faunal endemism and a high number of globally threatened wildlife species 15 mammal, 8 bird, and 7 reptile species recorded.

IUCN concludes that the nominated property has the strong potential to meet this criterion, although the State Party has not yet provided all necessary and up to date information regarding the relevant nature conservation attributes.

IUCN notes, in addition, that the values of the KKFC and the global comparative analysis suggest the potential for the property to also meet criterion (ix). As pointed out KKFC is part of several biogeographical regional classifications (ecoregion, priority ecoregion, and Centre of Plant Diversity) which are not yet well represented on the World Heritage list. The property is of a size and intactness to support naturally functioning biological and ecological processes which together with transboundary and corridor opportunities suggest potential to satisfy criterion (ix).

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopt the following draft decision:

The World Heritage Committee,

1. Having examined Documents WHC-15/39.COM/8B and WHC-15/39.COM/INF.8B2;

2. Refers the nomination of **the Kaeng Krachan Forest Complex (Thailand)**, in relation to natural criteria, taking note of the strong potential for this property to meet criterion (x), in order to allow the State Party to:

a) Address in full the concerns that have been raised by the Office of the United Nations High Commissioner for Human Rights concerning Karen communities within the Kaeng Krachan National Park including the implementation of a participatory process to resolve rights and livelihoods concerns and to achieve a consensus of support for the nomination that is fully consistent with the principle of free, prior and informed consent.

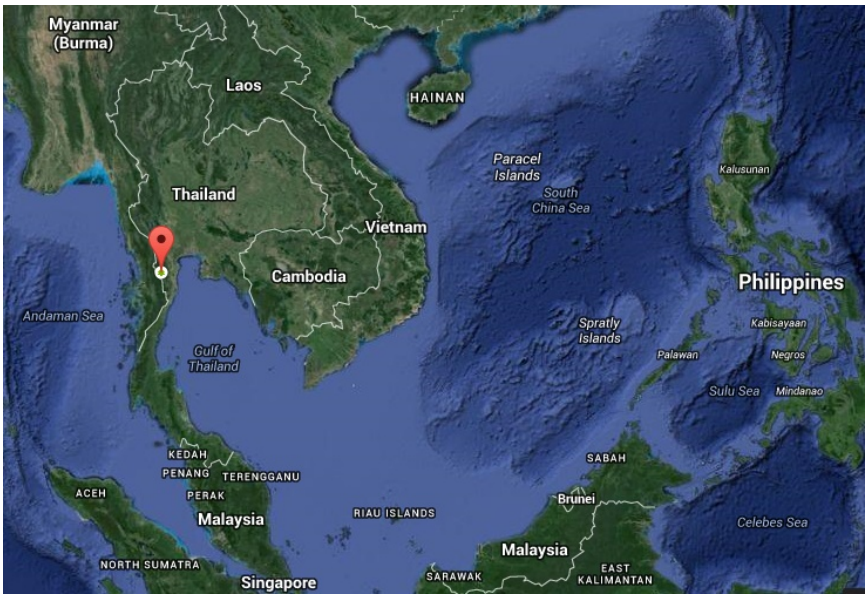
b) Provide updated data on the conservation status of key populations of threatened species, based on the most recent information available, to confirm their viability and contribution to the distinctive global values of the nominated property.

3. Encourages the State Party to consider nominating the property also under criterion (ix).

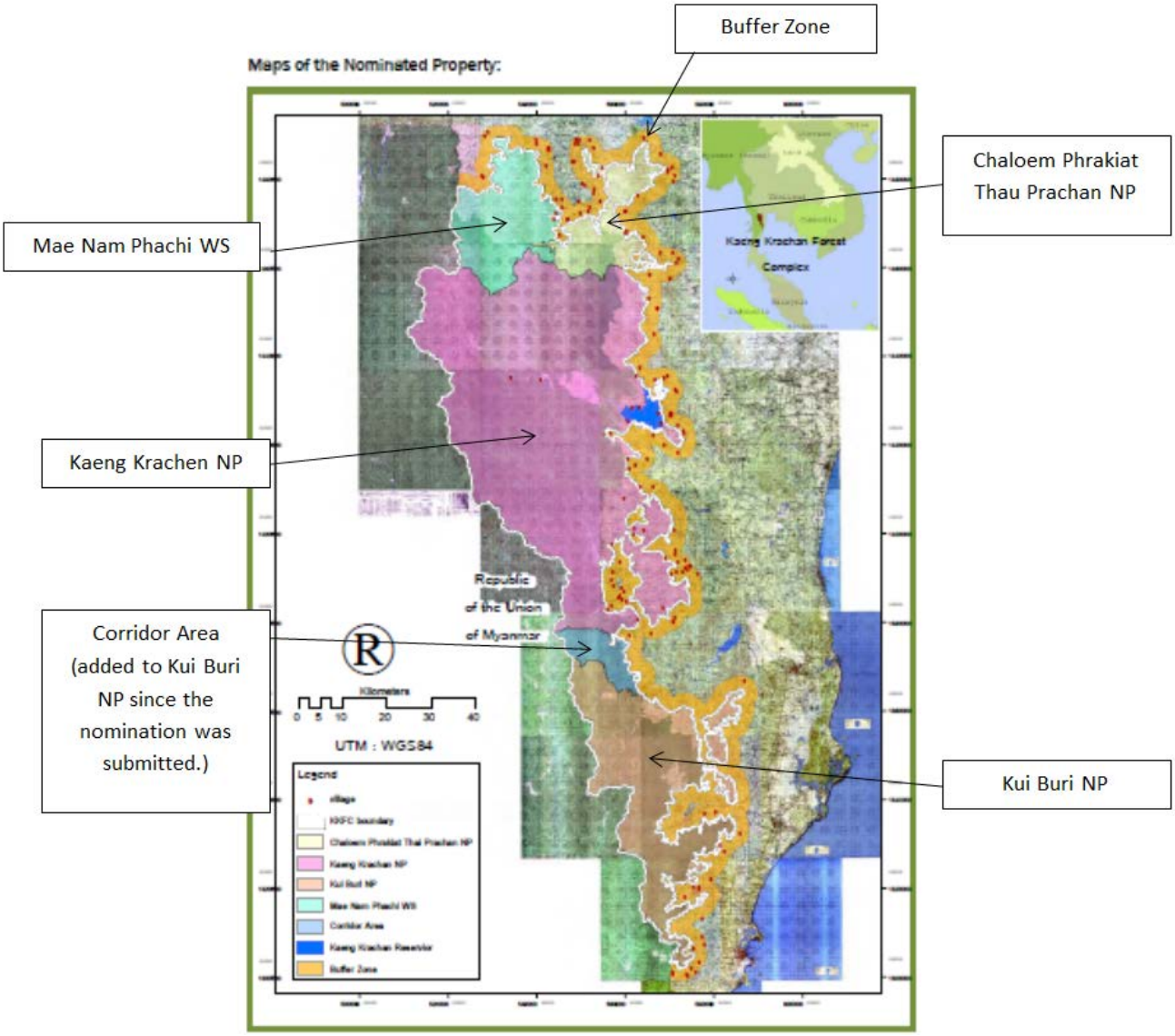
4. Further encourages the State Party to continue the commendable initiatives on future biological connectivity opportunities including those between the nominated property and Thungyai - Huai Kha Khaeng Wildlife Sanctuaries in Thailand and, working in partnership with the State Party of Myanmar, between the nominated property and neighbouring transnational protected areas within the Taninthaya Forest Corridor in Myanmar.

5. Commends the State Party and partner NGOs for their efforts to address improved conservation management within the property including improved anti-poaching patrol systems, community engagement in Kui Buri National Park dealing with human-elephant conflict, and enhanced ecological research and monitoring, and encourages the State Party to continue with these efforts.

Map 1: Nominated property location



Map 2: Nominated property, its protected areas and buffer zone



ASIA / PACIFIC

PHONG NHA – KE BANG NATIONAL PARK
(Renomination and extension of “Phong Nha-Ke Bang National Park”)

VIET NAM

View from paradise cave path - © IUCN Josephine Langley

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

PHONG NHA-KE BANG NATIONAL PARK (VIET NAM) – ID No. 951 Rev

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To approve the extension under natural criteria.

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property meets World Heritage criteria.
Paragraph 78: Nominated property meets integrity and protection and management requirements.

Background note: The existing property Phong Nha-Ke Bang National Park (PNKB NP) was inscribed on the World Heritage List under criteria (viii) in 2003. At that time the Committee encouraged the State Party to review the boundaries and engage in dialogue with the People's Republic of Lao (Lao PDR) regarding transboundary opportunities with respect to neighbouring Hin Namno National Conservation Area (Decision 27 COM 8C.8). A review of the State of Conservation was carried out in 2004 and 2005, and highlighted the need for Environmental Impact Assessments being conducted prior to the implementation of development activities. The property was renominated under criteria (viii) and (x) in 2010 and the renomination was referred by the Committee in 2011. The referral was made because the nomination did not meet conditions of integrity, protection and management, with specific concerns related to poor law enforcement and illegal harvest of timber and non-timber forest products (NTFP) including endangered wildlife and also that the proposed extension of the property had not yet happened (Decision 35COM 8B.12). The Committee's attention is drawn to the earlier 2011 IUCN evaluation of PNKB NP (WHC11-35COM-INF.8B2). In July 2013, the national park was expanded to 126,236 ha, and this renomination is for an enlarged nominated area under additional biodiversity criteria (ix) and (x) and an extended buffer zone.

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1. DOCUMENTATION

a) Date nomination received by IUCN: 18 March 2014

b) Additional information officially requested from and provided by the State Party: In September 2014 following the evaluation mission, IUCN wrote to the State Party seeking its response on measures to stop poaching and to provide advice on the status and potential impact of a proposed cable car within the property. The State Party responded in December 2014.

Following the IUCN World Heritage Panel a further letter was sent to the State Party seeking an update on the cable car proposal and requesting documentary evidence of the Environmental Impact Assessment for the development proposal as well as a map showing the route. The State Party provided further responses on 29 January 2015.

c) Additional literature consulted: Various sources, including references accessed at the time of the 2011 evaluation of PNKB. Other references including Moulds, T.A., Pham, D.S., Mouritz, R. (2010) **Preliminary Survey of Cave Fauna in the Phong Nha-Ke Bang World Heritage Site, Viet Nam.** Unpublished report to GTZ, May 2010, pp 34 Golovatch S, Geoffroy JJ & Vandenspiegel D. (2013) **On several new species of the millipede family Glomeridae from Viet Nam (Diplopoda : Glomerida).** Arthropoda Selecta, 22(3): 201-206. Clark, B. (2013) **IUCN Conservation Outlook Assessment, Phong Nha-Ke Bang National Park** http://www.worldheritageoutlook.iucn.org. Accessed March 2015. Worboys, G. (2012) **Phong Nha-Ke Bang National Park, World Heritage Management Planning Requirements Mission Report.** IUCN, Gland. Le Trong D., Do Tuoc, Dinh Huy Tri, Le Thuc Dinh and Dang Ngoc Kien (2009) **Census of Southern white-cheeked crested gibbons in U Bo and adjacent buffer zone forests, Phong Nha-Ke Bang National Park, Bo Trach District, Quang Binh Province, Viet Nam.** Fauna and Flora International (FFI) – Viet Nam Primate Programme. Haus T., Vogt M., Forster B., Thanh Vu N., and Ziegler T. (2009) **Distribution and Population Densities of Diurnal Primates in the Karst Forests of Phong Nha-Ke Bang National Park, Quang Binh Province, Central Viet Nam**. International Journal of Primatology 30:301–312. Vu Dinh Thong et al. (2012) **Biodiversity survey of bats in and around the Phong Nha-Ke Bang National Park, Quang Binh, Viet Nam.** Gebert, R (ed). (2012) **Gender-Poverty-Ethnicity: the challenge of social inclusion conservation planning for the PNKB.** Hubner, A and Truong Si Hong Chau (editors). (2013) **Sustainable Tourism.** Johnson, I, and Nguyen Thi Ngoc Anh (eds). (2012) **Green VDP: Participatory and conservation-oriented village development planning process. Practical experience, challenges and lessons learnt.** Nguyen Thi Ngoc Anh (ed). (2013) **Livelihoods.** Viet Nature (2013) **Action plan for strengthening forest law enforcement and wildlife management in Phong Nha-Ke Bang National Park Region and Quang Binh Province.** Wildlife Conservation Society (2013) **Forest Law Enforcement and Wildlife management status survey in PNKB Region and Quang Binh Province.** Korte, A at al. (2011) **Buffer Zone Development Plan 2011-2020, visioning 2030.** Hubner, A., Phong, L. T.,

Chau, T. S. H. (2014) **Good governance and tourism development in protected areas: The case of Phong Nha-Ke Bang National Park, central Viet Nam.** Koedoe, 56(2).

d) Consultations: 19 desk reviews received. The mission also met with representatives from the PNKB NP Management Board (Directors and senior staff); Quang Binh Peoples' Committee; Vietnamese Border Army; British Cave Explorer Association; German KfW Development Bank; Forest Inventory and Planning Institute of Viet Nam; IUCN Viet Nam; TRAFFIC; and the UNESCO National Committee Viet Nam. The mission met with key staff from the property including ranger staff and staff from the Paradise Cave. Meetings were also held with private sector interests: Oaxalis Company and Sun Spa Resort and with local community representatives.

e) Field Visit: Josephine Langley and Hag Young Heo, 11 to 18 August 2014

f) Date of IUCN approval of this report: April 2015

2. SUMMARY OF NATURAL VALUES

Phong Nha-Ke Bang National Park (PNKB NP) in northern Central Viet Nam lies in the Quang Binh Province and borders Lao PDR in a roughly north-south axis. The renomination, if approved, would extend the property from 85,754 ha to 123,326 ha and would become contiguous on the western boundary with the Hin Namno Conservation Area in neighbouring Lao PDR. The legal recognition of the extension of the national park and its buffer zone arises from a Prime Ministerial Decision of July 2013.

The renomination also proposes an expansion of the buffer zone from 203,245 ha to 220,055 ha, which is outside the nominated property. The buffer zone consists of 13 communes that share their land boundaries with the existing and extension area. According to the nomination the objectives and functions of the buffer zone are identified in the 2002 Investment Plan for PNKB NP and focus on reducing human impacts on the national park.

The property was inscribed in 2003 for geological values which recognise the limestone karst and associated cave systems and features. Since inscription, additional caves have been surveyed and studied. For example, Son Doong cave discovered in 2009 is reported to contain the world's largest cave passage in terms of diameter and continuity, larger than Mulu Caves World Heritage Site in Malaysia. In addition, some of the new caves which have been discovered and explored are in the extension area.

This renomination and extension expands the criteria to include biodiversity criteria (ix) and (x). As the IUCN evaluation of 2011 pointed out, PNKB NP belongs to Udvardy's Indochinese Rainforest province in the Tropical Humid Forests biome. The park has largely undisturbed evergreen primary forest, both karst and non-karst, with rich biodiversity. Almost 94% of the park is forested and 84% of this is primary forest. PNKB NP's forest ecosystems, both karst and non-karst, support a high diversity of plants and animals including many karst specialist species, many endemic species, and a number of species that are globally threatened.

The key features and attributes supporting criteria (ix) include the complex of submontane evergreen forest and tropical moist evergreen forest above 700m and tropical rainforest associated with both limestone and soil mountains. Perennial and ephemeral streams and a complex subsurface riverine system links surface to underground ecosystems for dependant freshwater, bird, bat, invertebrate and fungi species. Cave dwelling habitats have yet to be fully identified and researched though several species new to science have been documented. The hydrological features, the soil habits and elevation provide a complex patchwork of riverine, limestone forest and soil forest habitats and interactions. It is thought that there is a 30% overlap in species between the soil mountain habitats and limestone forests.

Under criteria (x) the values proposed encompass endemism, globally threatened species and high levels of species richness for various taxonomic groups: vascular plants, mammals (primates, bats, small carnivores, rodents and fossil species), fish, birds, reptiles, and amphibians. A variety of arthropods have been observed but not fully inventoried such as butterflies (20% of Viet Nam's 270 species), dragonflies and spiders. New species of cave-dependent species continue to be discovered during scientific studies.

As noted in IUCN's 2011 evaluation, PNKB NP is of particular importance for the conservation of primate species: of the 9 primate species that occur in the park (i.e. 43% of Viet Nam's 21 primate species), 7 are globally threatened, and PNKB NP possibly has the largest protected viable populations of 3 of them (Hatinh Langur (EN), Red-shanked Douc Langur (EN) and Southern White-cheeked Gibbon (EN)). The other primate species are: Bengal Slow Loris (VU), Pygmy Slow Loris (VU), Stump-tailed Macaque (VU), Northern Pig-tail Macaque (VU), Eastern Assamese Macaque and Rhesus Macaque. Other globally threatened mammal species in PNKB NP include Owston's Civet (VU) and the property is home to 46 bat species (43% of Viet Nam's 107 bat species).

Several larger carnivores and other large mammals historically found in the property have had no confirmed observations or documentation of presence for many years (or decades in some cases); this includes tigers, leopards, elephants and bears.

The property belongs to the Northern Annamites Rain Forests ecoregion, as well as two freshwater ecoregions (Northern Annam and Southern Annam). The Annamite ecoregion hotspot is currently a gap on the World Heritage List. This renomination corresponds to the Annamese Lowlands Endemic Bird Area and four Key Biodiversity Areas, three of which are Important Bird Areas.

Table 1 (adapted from the nomination dossier). Number of species by taxon identified in PNKB NP

Taxa	Species in PNKB NP	Threatened species in PNKB NP	Endemic to Annamite Range	Endemic species to PNKB NP
Vascular plants	2651/2,774	116/133	(427 Endemic to Viet Nam)	
Mammal	154	48	9	3
Bird	314	19	4	3
Reptile	117	26	6	5
Amphibian	58	7	2	-
Fish	170	4	17	16/13
Total	**813**	**104**	**38**	**24**

Despite recent and ongoing discoveries of new species it is worth re-emphasizing that knowledge of the PNKB NP remains remarkably limited. Systematic biodiversity assessment began less than ten years ago and many more species are likely to be discovered and recorded in PNKB NP. Indeed, a great number of plant and animal species, including dozens previously unknown, have been recorded in the property over the past 15 years: the number of recorded amphibian and reptile species for example increased from 96 in 2000 to 137 in 2006 and spatial analysis suggested that significantly more bird species could be found within the property than currently identified. Conversely little is known of the current population status of some key large mammals. Little is also known of the biodiversity values of the property's buffer zone and the contiguous Hin Namno National Biodiversity Conservation Area in neighbouring Lao PDR.

Few people live within the nominated area, whilst the surrounding buffer zone has a population estimated at 54,000. Several minority ethnic groups are present in the region and two Arem villages are within the boundaries of the existing property. The total population is estimated to be 401 individuals in 72 households. There are no villages in the extension area. A small area within the property is designated for the two villages, each with specific areas allocated under contract for agricultural use and use of NTFP (medicinal plants, honey and firewood).

3. COMPARISONS WITH OTHER AREAS

The nomination dossier included a global comparative analysis that focuses upon the biodiversity values of the nominated extension, presumably on the basis that the existing property has already demonstrated Outstanding Universal Value under criteria (viii). That said, the nomination points out that the karst landscape system, within which the enlarged property sits, extends into Lao PDR and covers a much larger area of some 920,000 ha. As noted above since the inscription of PNKB NP in 2003 additional caves and karst features continue to be discovered and explored within this remote area. The best publicised of these has been the Son Doong cave discovered in 2009, and other caves which have been discovered and explored within the extension area. The values for criteria (viii) are better documented than previously and the extension of the property has added attributes in support of criteria (viii) and thus strengthened the Outstanding Universal Value of the property.

With respect to biodiversity values the dossier's comparative analysis compares a logical group of properties, and whilst it lacks some detail, most of the information on species richness and endemism is considered reasonably accurate. Furthermore the mission found that most of the reported species are found within the property though some of these are extremely rare or sightings have not been documented for around 20 years (e.g. tigers) and others require confirmation as data is from more than 5 years ago during which time on-going poaching may have resulted in localised extinctions. The analysis does not include information from non-World Heritage sites and protected areas with cave-dependent and limestone-dependent species. However, the comparative analysis is still considered adequate to justify global biological importance.

IUCN recalls that the 2011 evaluation of a then smaller nominated property concluded positively on its biodiversity values based on global comparative analysis. This evaluation concluded that *"at 85,754 ha, which is planned to be extended to 125,000 ha in the near future, PNKB NP is already over 15 times as large as Puerto-Princesa and almost twice as large as Gunung Mulu and South China Karst. PNKB NP, with the neighbouring Him Namno Biodiversity Conservation Area in Lao PDR, is one of the largest areas of intact forest habitat on limestone karst still found in Indo-China. 94% of PNKB NP is covered by forests, 84% of which is primary forest, the highest percentage of primary forest remaining in any Vietnamese protected area.*

In summary, recent research suggests that PNKB NP itself is a regionally and globally significant area for the conservation of biodiversity, including three globally threatened primate species. PNKB NP lies within a very important biodiversity hotspot and is part of an Endemic Bird Area that is not yet represented on the World Heritage List. PNKB NP also captures a considerable part of the biodiversity values of a Global 200 ecoregion and, in terms of both plant and animal species richness and endemism, equals or exceeds a number of other Asian karst properties inscribed on the World Heritage List under biodiversity criteria."

Additional comparative analysis conducted by UNEP-WCMC reinforces the above conclusions that the characteristic biodiversity of the nominated property appears to be of global significance. PNKB NP represents ecosystems which are not yet found on the World Heritage List: the Northern Annamites rainforests ecoregion and the Annamite Range Moist Forests priority ecoregion. It also constitutes one of the last remaining moist forests in Indochina which are in relatively intact condition, although it is under threat from human activities. The nominated property has high levels of biodiversity, similar to the species diversity found in existing World Heritage sites in the same biome. Table 2 below has been updated to focus on comparable karst World Heritage sites with biodiversity values. The property could also host more bird species than currently reported and a number of species new to science (including fish, amphibians and reptiles) have recently been discovered. The nominated property is home to four threatened Primates endemic to the Annamites (the Hatinh Langur and its black form, Red-shanked Douc Langur and White-cheeked Gibbon) and other endangered animal species, including the Large-antlered Muntjac, Clouded Leopard, and the critically endangered Saola.

Finally, PNKB NP has been identified as a gap in representation of World Heritage sites including in a 2013 study as one of the most irreplaceable natural and mixed World Heritage sites not yet recognized under biodiversity criteria.

Table 2. Comparison of PNKB with karst World Heritage properties in the region and Vietnamese protected areas

Property, State Party	**Total area (ha)**	**Natural WH criteria**	**Mammal species**	**Bird species**	**Reptile species**	**Amphibian species**	**Freshwater fish species**	**Vascular plant species**
PNKB NP, Viet Nam	**123,326**	**viii, ix, x**	**154**	**314**	**117**	**58**	**170**	**2,744**
Ba Be, Viet Nam	*23,340*	*Tent. List: viii, ix*	*81*	*234*	*48*		*107*	*1,268*
Cat Tien, Viet Nam (no karst)	*71,935*	*Tent. List: vii, ix, x*	*113*	*348*	*89*	*45*	*168*	*1,610*
Cuc Phuong, Viet Nam	*25,000*	*-*	*97*	*300*	*36*	*17*	*11*	*2,000*
Three Parallel Rivers of Yunnan, China	939,441	vii, viii, ix, x	173	417	59	36	76	6,000+
Lorentz, Indonesia	2,505,600	viii, ix, x	123	411	324	90	100+	?
Gunung Mulu, Malaysia	52,864	vii, viii, ix, x	81	270	55	76	48	3,500
Puerto-Princesa, Philippines	5,753	vii, x	30	91	18	10	?	800
Dong Phayayen – Khao Yai, Thailand	615,500	x	112	392	200+		?	2,500
Thungyai – Huai Kha Khaeng, Thailand	577,464	vii, ix, x	120	400	96	43	113	?
Kaeng Krachan Forest Complex, Thailand (nominated in 2014/15)	*482,225*	*x*	*91*	*461*	*61*	*43*	*48*	*1,199*

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

PNKB NP was established as a national park in 2000 and all of the nominated extended property is state owned land. The property is legally established through a series of government decisions which provide an adequate legal framework. The property is under the control of a Management Board which answers to the Quang Binh People's Provincial Committee (PPC). The PPC coordinates input from a range of national and provincial government Ministries. Provincial and local district authorities manage the property's buffer zone.

IUCN in its 2011 evaluation of the existing PNKB NP raised concerns regarding the effectiveness of law enforcement in combating wildlife poaching and illegal harvest of forest products and this was reinforced in Committee Decision 35COM 8B.12. A Law Enforcement Plan is in place as are inter-agency cooperative arrangements. Several categories of park rangers are involved in enforcement and border patrol police also accompany rangers on joint patrols in border areas between Viet Nam and Lao PDR. The State Party advised in December 2014 of various increased initiatives to enhance protection of the property from poaching and illegal harvest of forest products including a series of legal Directives, improved planning, communication strategies and interagency collaboration. Nevertheless this issue remains a serious concern for the property. Recent reports confirm illegal logging of high commercial value rare forest timber species such as Sua Wood (*Dalbergia cochinchinensis*) and Iron Wood (*Nephelium chryseum*). There are few successful prosecutions with fines being very low compared to the value of the illegally harvested wildlife or timber.

IUCN considers that the legal protection status of the extended property as nominated does, however, meet the requirements of the Operational Guidelines. IUCN notes concern relating to the control of poaching and illegal harvest of forest products, and reiterates that effective control measures are essential in order to protect the biodiversity values of the nominated property.

4.2 Boundaries

The extension to the inscribed property responds to past calls from IUCN and the Committee. It provides a larger more intact ecosystem that offers additional protection to the water catchments which are so critical to the integrity of karst landscapes. The extension increases the size of the existing site by some 46% and is part of the same karst plateau, covering largely undisturbed forest. This adds significantly to the natural values of the site and provides for a much more robust property. The boundaries have been extended northwards to meet the northern boundary of the neighbouring protected area in Lao PDR. PNKB NP has a management zoning system comprising strictly protected, ecological restoration and administrative/service zones. The buffer zone encircles the entire extended property to the north, east and south to further strengthen integrity. The land immediately adjacent to the property is either designated as forest protection area or watershed protection zone. These two land management designations restrict development activities and offer additional buffering from landuse change.

In summary the property represents one of the largest protected karst landscapes in South East Asia. Its boundaries appear to be adequate from an ecological perspective, although the field evaluation concluded that boundaries were difficult to identify on the ground. Furthermore the extension of the property improves connectivity with the karst landscape in Lao PDR.

IUCN considers that the boundaries of the extended property meet the requirements of the Operational Guidelines.

4.3 Management

As noted above the property is managed through the PKNP NP Management Board with a governance system that seeks to coordinate input from various Ministries and levels of Government. The field mission found there is limited stakeholder engagement in decision-making. All the members of the Management Board are government representatives and there is no official advisory body which includes representatives of various stakeholders such as NGOs and the tour operators. The property could improve compliance with regulations if it had greater engagement with local communities and stakeholders, and if benefits were more explicitly directed to local people.

While this site is not a transboundary site, encouraging efforts are underway to increase collaboration with Lao PDR. Currently there are several memoranda of understanding and other agreements between the two countries. There are annual or biannual meetings, and a Transboundary Biodiversity Protection Plan and a 2005-2015 Hunting & Wildlife Trade Control Action Plan are in place.

Concerns were raised by IUCN in 2011 regarding the lack of an up to date management plan for the site. There is now a Strategic Management Plan 2013-2025 which was prepared in 2012 based on existing plans, including the Sustainable Tourism Development Plan, the National Park Operation Management Plan and the Buffer Zone Development Plan. IUCN highlights the importance of revising the Sustainable Tourism Development Plan to include the extension area.

A weakness in management is the absence of systems and a comprehensive approach for data management, research, monitoring and scientific collaboration. A research strategy should be established to address this weakness. There is also a lack of monitoring and assessment to understand the effectiveness of management despite the property receiving technical support on management effectiveness evaluation systems and tools.

For the period 2007-2015 the government allocated about 200,000 USD annually to support payment of salaries, office operations and construction and activities of the Management Board. Given that there are about 202 full-time permanent staff and 266 contract staff, this allocation would appear to be inadequate. Ticket sales and tourism activities generate about 1 million USD per year. In addition, NGOs and international donors have invested considerable funds in several long term projects, most notable the KfW and GIZ project (16 million USD); however, this funding ends in 2016 with no guarantees of further investment.

The State Party advised in December 2014 of a series of measures to combat poaching and illegal activity within the property, however concerns remain regarding a lack of funding, staffing and capacity. There is also a need for building capacity on the management of biodiversity and ecosystems (including in relation to tourism, monitoring and information management). The property has had a history of developments without adequate impact assessment which signals an urgent need to enhance capacity in understanding and conducting Heritage and Environmental Impact Assessments.

Despite the concerns above, the park Management Board has responded to most of the previous decisions of the World Heritage Committee and many of the recommendations from IUCN and previous missions. While the site needs to improve its management effectiveness there has been significant progress since 2011 evidenced by the increased capacity and additional plans and strategies that have been developed and are being implemented. These indicate a commitment to implement previous recommendations.

IUCN considers that the management of the property meets the requirements of the Operational Guidelines.

4.4 Community

There is a small population of around 400 Arem people living in two villages within the property, who rely on agriculture and traditional harvesting. Local communities take part in meetings with rangers and the park Management Board. The evaluation mission concluded that it is mainly the elders of the communities who wish to remain living in the property; the younger generation seeks access to salaried jobs, and modern infrastructure. Unless better opportunities are developed it is likely that the minority communities will leave the property and cease traditional activities. There is the potential to increase minority community involvement in the growing tourism industry by building on experiences in other World Heritage sites on eco-tourism, homestays, community science, or by employing (more) young people as tour guides or rangers.

Whilst there are consultation processes, there appears to be little evidence of real collaborative management of the park or joint decision making. Similarly there is little evidence of benefits from the park finding their way to local communities.

4.5 Threats

IUCN's 2011 evaluation pointed to a number of threats and some of these persist. The property has suffered from past developments and its integrity could be threatened by further uncontrolled tourism developments, notably the development of increased cave access with artificial lighting systems; access roads and trails; and a proposed new cable car. A significant threat emanates from the development of tourism infrastructure, either proposed or implemented without proper environmental impact assessment.

A tourism strategy has been developed for the property and Quang Binh Province has prioritised tourism as a key driver of provincial development. The State Party in supplementary information has advised that the Son Doong Cave cable car development project has been conceptually accepted and that further studies and analyses are continuing, however an EIA has not yet been completed as the project is still in a planning and assessment phase. IUCN has therefore not had an opportunity to review the findings of an EIA. Should the cable car development proceed, it would constitute a significant development being some 10.6 kms in length with 30 towers and accessing the Son Doong Cave within the strict protection zone of the nominated property. IUCN reiterates the point made in its 2011 evaluation that *"mandatory environmental impact assessment must be strictly enforced for all investors and national agencies with either development interests in PNKB NP or mandates to develop infrastructure that may impact on the park's natural values."*

Furthermore, although forest cover is still very high, there are ongoing threats from illegal logging and poaching of wildlife (with a decline in sightings of a number of large mammal species) and there is a need for more systematic monitoring of enforcement activities. A number of commercially valuable hardwood timber species are being logged including Sua Wood (*Dalbergia cochinchinensis*) and Iron Wood (*Nephelium chryseum*). This has been the cause of conflicts between rangers and loggers. Historically there have been very high levels of poaching and this continues although efforts to halt this are increasing.

A further threat includes hydrocarbon pollution of cave streams and sedimentation with some of the caves having also suffered from high visitation, which could lead to the extinction of cave-dependent species.

The State Party has made significant efforts to address the above threats and integrity of the nominated property remains intact. The property includes the necessary elements including an intact watershed and vegetation cover, and habitats for species of conservation importance, including endemic, cave-dependent and threatened species.

In conclusion, for the reasons outlined above, IUCN considers that the integrity, protection and management of the extended property meet the requirements of the Operational Guidelines, but that a range of concerns remain regarding future threats, notably from poaching and the potential for increased tourism and related development to adversely impact on the property's values. Increased attention coupled with strong protection and management measures will be needed to ensure the future integrity of the property.

5. ADDITIONAL COMMENTS

None.

6. APPLICATION OF CRITERIA

Phong Nha-Ke Bang National Park has been nominated as an extension of the existing property inscribed under (viii) to also include natural criteria (ix) and (x).

Criterion (viii): Earth's history and geological features
Since the inscription of PNKB NP onto the World Heritage List in 2003, knowledge of the property's extensive cave systems has continued to increase. This increased knowledge and research includes additional caves found and mapped in the extension area. The values for criteria (viii) are better documented than previously and the extension strengthens the Outstanding Universal Value under criteria (viii).

PNKB NP is part of a larger dissected plateau, which encompasses the Phong Nha, Ke Bang and Hin Namno karsts. The limestone is not continuous and demonstrates complex interbedding with shales and sandstones. This has led to a particularly distinctive topography. The caves demonstrate a discrete sequence of events, leaving behind different levels of ancient abandoned passages; evidence of major changes in the routes of underground rivers; changes in the solutional regime; deposition and later re-solution of giant speleothems and unusual features such as sub-aerial stromatolites. On the surface, there is a striking series of natural landscapes, ranging from deeply dissected ranges and plateaux to an immense polje. There is evidence of at least one period of hydrothermal activity in the evolution of this ancient mature karst system. The Son Doong Cave, first explored in 2009, could contain the world's largest cave passage in terms of diameter and continuity. The plateau is one of the finest and most distinctive examples of a complex karst landform in Southeast Asia and the property is of great importance for enhancing our understanding of the geologic, geomorphic and geo-chronological history of the region.

IUCN considers that the extended property as nominated meets this criterion.

Criterion (ix): Ecosystems/communities and ecological/biological processes
According to the 2001 classification of terrestrial ecoregions, PNKB NP belongs to the Northern Annamites Rainforests ecoregion, which is not yet present in a biodiversity World Heritage site. Similarly, none of the two freshwater ecoregions (Northern Annam and Southern Annam) to which PNKB NP belongs is yet present in a biodiversity World Heritage site. PNKB NP is also part of the Global 200 terrestrial priority ecoregion Annamite Range Moist Forests. There is no existing natural World Heritage site in this Global 200 ecoregion. The extended area provides for a larger, more ecologically intact forest system.

PNKB NP consists of a complex limestone landscape, which includes very large caves and underground rivers. The property includes karst formations which are some of the oldest and largest in Asia, and it has geological, climatic, hydrographic and ecological conditions which are distinct from other limestone karst landscapes. Its cave ecosystems and habitats are unique with high levels of endemism and adaptations displayed by cave-dependent species. The property constitutes one of the largest remaining areas of relatively intact moist forest on karst in Indochina, with a forest cover estimated to reach 94%, of which 84% is thought to be primary forest. Furthermore, the property protects globally significant ecosystems within the Northern Annamites Rainforests and Annamite Range Moist Forests priority ecoregions.

IUCN considers that the extended property as nominated meets this criterion.

Criterion (x): Biodiversity and threatened species
PNKB NP is of global significance for the conservation of biodiversity as its forest ecosystems, both karst and non-karst, support a high diversity of plants and animals including a number of karst specialist species, many endemic species, and a number of species that are globally threatened. The extension represents an increase of almost 46% in the property's area which significantly enhances its value for biodiversity and globally threatened species. Future research is likely to further underline the property's outstanding biodiversity values.

A high level of biodiversity is found within the property, with over 2,700 species of vascular plants and over 800 vertebrate species. Several globally threatened species are also present: 133 plant species and 104 vertebrate species have been reported, including several large mammals such as the endangered Large-antlered Muntjac, Clouded Leopard, and the Critically Endangered Saola. The level of endemism is high, especially in the cave systems. Furthermore, it is estimated that over 400 plant species endemic to Viet Nam are found within the property, as well as 38 animal species endemic to the Annamite range. Several new species to science have recently been found, including cave scorpions, fish, lizards, snakes and turtles, and more species are likely to be discovered. Importantly, 4 threatened primate taxa endemic to the Annamites are found within the property: the Hatinh Langur (specialised in karst forest

and endemic to Viet Nam and the People's Democratic Republic of Lao), the black form of the Hatinh Langur, sometimes considered as a separate species, the Red-shanked Douc Langur, and the White-cheeked Gibbon (with the largest remaining population).

IUCN considers that the extended property as nominated meets this criterion.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopt the following draft decision:

The World Heritage Committee,

1. Having examined Documents WHC-15/39.COM/8B and WHC-15/39.COM/INF.8B2;

2. Approves the extension of **Phong Nha-Ke Bang National Park (Viet Nam)** on the World Heritage List under natural criteria (viii), (ix) and (x);

3. Adopts the following Statement of Outstanding Universal Value for the extended Phong Nha-Ke Bang National Park property, replacing the Statement of Outstanding Universal Value approved by Decision 36COM 8E:

Brief synthesis

Phong Nha-Ke Bang National Park is located in the middle of the Annamite Mountain Range in Quang Binh province, Viet Nam, and shares its boundary with the Hin Namno Nature Reserve in the Lao PDR to the west. The property comprises an area of 123,326 ha and contains terrestrial and aquatic habitats, primary and secondary forest, sites of natural regeneration, tropical dense forests and savanna and is rich in large, often spectacular and scientifically significant caves.

The property contains and protects over 104 km of caves and underground rivers making it one of the most outstanding limestone karst ecosystems in the world. The karst formation has evolved since the Palaeozoic period (some 400 million years ago) and as such is the oldest major karst area in Asia. Subject to massive tectonic changes, the karst landscape is extremely complex, comprising a series of rock types that are interbedded in complex ways and with many geomorphic features. The karst landscape is not only complex but also ancient, with high geodiversity and geomorphic features of considerable significance.

The karst formation process has led to the creation of not only underground rivers but also a variety of cave types including: dry caves, terraced caves, suspended caves, dendritic caves and intersecting caves. With a length of over 44.5 km the Phong Nha cave is the most famous of the system with tour boats able to penetrate inside to a distance of 1,500 m. The Son Doong Cave, first explored in 2009, is believed to contain the world's largest cave passage in terms of diameter and continuity.

A large number of faunal and floral species occur within the property with over 800 vertebrate species recorded comprising 154 mammals, 117 reptiles, 58 amphibians, 314 birds and 170 fish. The property clearly has impressive levels of biodiversity within its intact forest cover, however, up-to-date data on large mammal species is needed to confirm the population status of reported large mammals including tiger, Asiatic black bear, Asian elephant, giant muntjac, Asian wild dog, gaus and the recently discovered Saola.

Criteria

Criterion (viii)

Phong Nha-Ke Bang National Park is part of a larger dissected plateau, which encompasses the Phong Na, Ke Bang and Hin Namno karsts. The limestone is not continuous and demonstrates complex interbedding with shales and sandstones. This has led to a particularly distinctive topography. The caves demonstrate a discrete sequence of events, leaving behind different levels of ancient abandoned passages; evidence of major changes in the routes of underground rivers; changes in the solutional regime; deposition and later resolution of giant speleothems and unusual features such as sub-aerial stromatolites. On the surface, there is a striking series of natural landscapes, ranging from deeply dissected ranges and plateaux to an immense polje. There is evidence of at least one period of hydrothermal activity in the evolution of this ancient mature karst system. The Son Doong Cave, first explored in 2009, could contain the world's largest cave passage in terms of diameter and continuity. The plateau is one of the finest and most distinctive examples of a complex karst landform in Southeast Asia and the property is of great importance for enhancing our understanding of the geologic, geomorphic and geo-chronological history of the region.

Criterion (ix)

Phong Nha Ke Bang National Park consists of a complex limestone landscape, which includes very large caves and underground rivers. The property includes karst formations which are some of the oldest and largest in Asia, and it has geological, climatic, hydrographic and ecological conditions which are distinct from other limestone karst landscapes. Its cave ecosystems and habitats are unique with high levels of endemism and adaptations displayed by cave-dependent species. The property constitutes one of the largest remaining areas of relatively intact moist forest on karst in Indochina, with a forest cover estimated to reach 94%, of which 84% is thought to be primary forest. Furthermore, the property protects globally significant ecosystems within the Northern Annamites Rainforests and Annamite Range Moist Forests priority ecoregions.

Criterion (x)

A high level of biodiversity is found within the property, with over 2,700 species of vascular plants and over 800 vertebrate species. Several globally threatened species are also present: 133 plant species and 104 vertebrate species have been reported, including several large mammals such as the endangered

Large-antlered Muntjac, Clouded Leopard, and the critically endangered Saola. The level of endemism is high, especially in the cave systems. Furthermore, it is estimated that over 400 plant species endemic to Viet Nam are found within the property, as well as 38 animal species endemic to the Annamite range. Several new species to science have recently been found, including cave scorpions, fish, lizards, snakes and turtles, and more species are likely to be discovered. Importantly, four threatened primate taxa endemic to the Annamites are found within the property: the Hatinh Langur (specialised in karst forest and endemic to Viet Nam and the People's Democratic Republic of Lao), the black form of the Hatinh Langur, sometimes considered as a separate species, the Red-shanked Douc Langur, and the largest remaining population of White-cheeked Gibbon.

Integrity

The property constitutes one of the largest protected karst landscapes in South East Asia. Covering an area of 123,326 ha and bounded to the west by the Lao People's Democratic Republic, all elements necessary to manifest the outstanding geological values of the property of Phong Nha-Ke Bang National Park are contained within the boundaries of the property. The inscribed property is completely surrounded and protected by a buffer zone of 220,055 ha and is designated into three management zones: a strictly protected, an ecological restoration and an administrative/service zone. The watershed protection forests in the buffer zone also protect the integrity of the property. Furthermore, the extension of the property enhances its integrity and connectivity with the karst landscape in Lao PDR.

There are, however, a number of issues that affect the integrity of the property. Wildlife poaching and illegal harvesting of forest products is a direct threat to biodiversity values. The property has also suffered from past developments and its integrity could be threatened by further uncontrolled tourism developments, notably by the proposed construction of a cable car and access roads. There is a need for the implementation of Environmental Impact Assessments for any projects which could negatively affect the site. This would ensure that the natural landscape, geologic and geomorphic values, and key features such as primitive forest, caves, rivers and streams within the inscribed area remain intact. The property is situated within an area of high population density and as such a number of activities, such as cultivation, tourism, transport and freshwater fisheries could also impact on its integrity.

Protection and Management Requirements

Originally designated as a Nature Reserve in 1986, Phong Nha-Ke Bang National Park was established in 2001 under the Decision 189/QD-TTg by the Prime Minister and is managed by a Management Board. The Management Board is responsible for protection of forest resources and biodiversity and was established in 1994. Cave conservation and the provision of a tourism service are the responsibility of the Cultural and Ecological Tourist Centre under the Management Board. The property is also included in the Special National Heritage List (2009), and the Special Use Forest system (1999). The National Park is effectively protected by a number of national laws and government decisions, which prohibit any action inside or outside the boundaries of the National Park or a World Heritage property that may have a significant impact on the heritage values.

A Strategic Management Plan has been in place since 2012 and is based on existing plans, including the Sustainable Tourism Development Plan, the National Park Operation Management Plan and the Buffer Zone Development Plan. The Management Board oversees law enforcement programmes including ranger patrols and joint law enforcement operations on the border with Lao PDR. Nevertheless, the rugged nature of the country and community dependence on natural resources coupled with relatively limited resources for enforcement means that wildlife poaching and illegal timber gathering are difficult to eradicate and remain a challenging issue.

The Ho Chi Minh highway, constructed outside and to the north of the property is appropriately located and provides important and valuable benefit to the National Park in terms of opening up views of and access to the Ke Bang forest area. However, other road construction and tourism development will require rigorous and comprehensive assessment of environmental impact before decisions are made on whether they should be permitted or not. It is paramount that such developments do not impact on the karst and biological values for which the property has been inscribed. Impacts of increased development pressure and tourism numbers will also require continual consideration, planning and management to ensure that these pressures do not damage the Outstanding Universal Value of the property.

4. Commends the efforts made by the State Party to address the recommendations of the World Heritage Committee regarding the integrity, protection and management of the property.

5. Notes with concern proposals to construct a cable car to provide access to the Son Doong cave within the strictly protected zone of the property and the potential impacts this may have on the property's Outstanding Universal Value and urges the State Party to complete Environmental Impact Assessments, in line with IUCN's Advice Note on Environmental Assessment, prior to a decision on the implementation of any tourism development projects and to ensure that development proposals are not permitted if they would negatively impact the Outstanding Universal Value of the property.

6. Requests the State Party to revise the property's Sustainable Tourism Development Plan to include the property extension and ensure an integrated and environmentally sensitive approach to tourism that ensures visitor use remains compatible with the Outstanding Universal Value of the property.

7. Further requests the State Party to submit to the World Heritage Centre, by **1 February 2016**, a report on the state of conservation of the property, including updated data on the population status of key large mammal species; advice on the status of proposals to construct a cable car to access Son Doong Cave; and advice on sustainable financing for the extended property, for examination by the World Heritage Committee at its 40th session in 2016.

Map 1: Currently inscribed World Heritage property and proposed extension

B. MIXED PROPERTIES

B1. NEW NOMINATIONS OF MIXED PROPERTIES

LATIN AMERICA / CARIBBEAN

BLUE AND JOHN CROW MOUNTAINS

JAMAICA

Blue Mountain National Park - © IUCN Tilman Jaeger

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

BLUE AND JOHN CROW MOUNTAINS (JAMAICA) – ID No. 1356 Rev

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To inscribe the property under natural criterion (x).

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property meets World Heritage criterion (x).
Paragraph 78: Nominated property meets integrity and protection and management requirements.

Background note: A larger property, Blue and John Crow Mountains National Park (BJCMNP), was nominated in 2010 and evaluated in 2011 as a mixed property according to criteria (iii), (vi), (ix) and (x). Whilst noting the high potential of Jamaica to demonstrate globally significant biodiversity, the IUCN recommendation at that time was to not inscribe the nominated property. Concerns were raised regarding lack of adequate comparison with the Cockpit Country Forest Reserve and on integrity issues, particularly in the disturbed lower elevations of the national park. In 2011 the Committee decided to defer the nomination under both natural and cultural criteria to allow the State Party to address major integrity concerns, undertake a fuller assessment of the potential of the Cockpit Country Forest Reserve and bring back a new nomination with the strongest potential for inscription onto the World Heritage List (Decision 35COM 8B.16).

The Committee's attention is drawn to IUCN's 2011 evaluation of the larger BJCMNP (Decision WHC 11-35com-inf.8B2). References to this earlier nomination and evaluation are dated 2011 for simplicity.

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1. DOCUMENTATION

a) Date nomination received by IUCN: 18 March 2014

b) Additional information officially requested from and provided by the State Party: IUCN wrote to the State Party on 22 December, 2014 following the World Heritage Panel. The letter requested an update of data on key species to clarify the viability of populations remaining within the nominated property; clarifications on zoning; clarification on measures to address threats from buffer zone uses; and commitments to sustainable financing of the nominated property. In cooperation with ICOMOS, IUCN has maintained an ongoing dialogue with the State Party. A written response was received on 26 February 2015 to the issues raised.

c) Additional literature consulted: Various sources, including Bubb, P., May, I., Miles, L., Sayer, J. (2004) **Cloud Forest Agenda.** UNEP-WCMC, Cambridge, UK. Grubb, P.J. and Tanner, E.V.J. (1976). **The Montane Forests and Soils of Jamaica: A Reassessment.** Muchoney, D.M., Iremonger, S., Wright, R. (1994). **A Rapid Ecological Assessment of the Blue and John Crow Mountains National Park, Jamaica.** The Nature Conservancy/JCDT. BirdLife International (2014). **Important Bird Area Factsheet: Blue Mountains and John Crow Mountains** and **Endemic Bird Area Factsheet: Jamaica.** Downloaded from http://www.birdlife.org. Accessed October 2014. Scott Dunkley C. and Barrett S. (2001) **Case Study of the Blue and John Crow Mountains National Park, Jamaica. Caribbean Natural Resources Institute.** CANARI Technical Report Nº 282. WWF (2006). **WildFinder: Online database of species distributions: Jamaican moist forests.** Downloaded from www.worldwildlife.org/WildFinder, ver. Jan-06. Accessed October 2014. WWF (2014) **List of ecoregions: Greater Antillean Moist Forests.** Downloaded from http://wwf.panda.org/about_our_earth/ecoregions/ecoregion_list/. Accessed October 2014. Synge, H. (1991). **Which Oceanic Islands merit World Heritage status? A short feasibility study for IUCN.** IUCN, Gland Switzerland. Anadón-Irizarry V., et al. (2012). **Sites for priority biodiversity conservation in the Caribbean Islands Biodiversity Hotspot. Key Biodiversity Area Special Series.** Journal of Threatened Taxa: 4(8): 2806–2844. www.threatenedtaxa.org. Bertzky B et al. (2013). **Terrestrial Biodiversity and the World Heritage List: Identifying broad gaps and potential candidate sites for inclusion in the natural World Heritage network.** IUCN, Gland, Switzerland and UNEP-WCMC, Cambridge, UK. BirdLife (2009) **Jamaica Country Profile** in Devenish C, Díaz Fernández DF, Clay RP, Davidson I, Yépez Zabala I (Eds). Important Bird Areas Americas - Priority sites for biodiversity conservation. Quito, Ecuador: BirdLife International (BirdLife Conservation Series No. 16). Chai SL, Tanner E (2010) **Are We Losing the Best Parts of Our Protected Areas in Tropical Mountains?** Biotropica. Chai SL, Tanner E, McLaren K (2009) **High rates of forest clearance and fragmentation pre- and post-National Park establishment: The case of a Jamaican montane rainforest.** Biological Conservation 142: 2484–2492. Davis, S.D., Heywood, V.H., Herrera-MacBryde, O., Villa-Lobos, J., Hamilton, A. (eds.). (1997) **Centres of Plant Diversity: A Guide and Strategy for Their Conservation. Volume 3: The Americas.** IUCN,

Cambridge, U.K. Evelyn O.B., Camirand, R. (2003**) Forest cover and deforestation in Jamaica: an analysis of forest cover estimates over time.** International Forestry Review 5(4): 354-363. Protected Areas Committee (2009) **Jamaica's National Ecological Gap Assessment Report.** A component of the Protected Areas System Master Plan of Jamaica. Sutton A, Dorfman D (2007) **Jamaica - A Terrestrial Ecoregional Assessment. First Draft.** The Nature Conservancy.

d) Consultations: 6 desk reviews received including reviews received at the time of the 2011 evaluation. The mission also met with the Minister of Youth and Culture, representatives of Ministries of Tourism and Entertainment, Water, Land, Environment and Climate Change, National Environment and Planning Agency (NEPA), Institute of Jamaica (IOJ), Jamaica Conservation and Development Trust (JCDT), Jamaica National Heritage Trust (JNHT), Tourism Enhancement Fund (TEF), Jamaica National Commission for UNESCO (JNC-UNESCO), Forestry Department of Jamaica, The African Caribbean Institute of Jamaica/Jamaica Memory Bank, The Nature Conservancy, Jamaica Intellectual Property Office, Ministry of Foreign Affairs and Foreign Trade (MFAFT), Natural Resources Conservation Authority (NRCA). The mission also met with Maroon Colonels and various community representatives. In addition the mission consulted with the University of the West Indies (UWI), University of Technology and the Old Tavern Coffee Estate. Additional consultations took place with Professor Ed Tanner (University of Cambridge) prior to the mission.

e) Field Visit: Tilman Jaeger and Melissa Marin (IUCN) and Liana Muller (ICOMOS), 27 October to 02 November 2014

f) Date of IUCN approval of this report: April 2015

2. SUMMARY OF NATURAL VALUES

The Blue and John Crow Mountains, located in the eastern part of Jamaica within the Caribbean, cover approximately 20% of the island's total landmass. The property, Blue and John Crow Mountains (BJCM), is a subset of the larger mountain system and has been nominated under cultural and natural criteria. IUCN's evaluation focuses on the natural values, whilst evaluation in relation to cultural World Heritage criteria is being carried out by ICOMOS.

Jamaica is the third largest island in the Greater Antilles in the Western Caribbean and is known for a particularly high degree of endemism in terrestrial and freshwater ecosystems. For example, there are 27 endemic reptile species and 20 endemic amphibian species along with more than 500 land snail species. Jamaica is among the world's islands with the highest percentage of endemic plant species. The remnants of moist forests of the Greater Antilles are known for their distinctive flora and fauna, with numerous unique families, genera and species. As a function of the rugged terrain, the nominated area is among the last remaining areas of contiguous natural forest in Jamaica and the Caribbean.

Two major mountainous units dominate the interior of the island, the Main Block and the Eastern Mountain Mass. The nominated area is located in the latter, just north of the capital Kingston in the county of Surrey. The Eastern Mountain Mass comprises three distinct mountain ranges and the higher elevations of the Blue Mountains and John Crow Mountains constitute the revised nominated area. Overall, the size and design of both the nominated area and the buffer zone have been changed significantly compared to the 2011 nomination. The revised nominated area can be described as the core of the BJCM National Park and covers approximately 26,251 ha (versus some 48,650 ha in 2011) with a buffer zone of now 28,494 ha. The nominated property is restricted to higher elevations (850 - 2,256m asl) and the reduction from the previous nomination is, in essence, a focus on the more intact forest areas which are largely correlated with altitude and ruggedness of terrain. The outer boundary of the proposed World Heritage buffer zone coincides with the boundaries of the national park and in addition includes a large part of the upper and middle Rio Grande Valley.

The two ranges jointly comprising the nominated area are distinct in many ways. The Blue Mountains are Jamaica's highest range, peaking at around 2,250 m., with several other peaks above or close to 2,000 m. Rapid uplift has resulted in exceptionally rugged terrain with steep slopes and major altitudinal gradients. The John Crow Mountain system, in contrast, is a limestone plateau peaking at 1,140 m.

The geological history of both mountain ranges and the wide range of conditions (altitude, exposition, rock chemistry, micro-climate, human use, etc.) are considered to have resulted in the greatest diversity of ecosystems and habitats found in Jamaica.

Most of the nominated property is covered in closed forests of various types. In contrast, large areas of the buffer zone have been deforested and are today a mosaic of subsistence and commercial agriculture, the latter often in monoculture, and fallow areas often covered by invasive species and ineffectively managed pine plantations with patches of natural regeneration of both native and non-native species.

The nominated property and the section of its buffer zone located within the National Park and Forest Reserve are tropical, montane rainforest much of which is cloud forest between the elevation levels within the property. The high elevation, rugged landscape and the north and south-facing slopes of the mountains have resulted in a wide variety of habitat types with 9 natural communities within the upper montane forest of the Blue Mountains (over 1,000m) and John Crow Mountains (over 600m). These include a unique Mor Ridge Forest characterised by a deep layer (50 cm) of acidic humus with bromeliads on the ground and endangered tree species. Above 1,800m, the vegetation of the Blue Mountains is more stunted with some species such as *Eugenia alpina* and *Clethra*

alexandra restricted to these altitudes. Above 2,000m the forest is known as Elfin Forest due to the stunted and gnarled appearance of the trees which are heavily coated with epiphytes including hanging mosses, ferns and tiny orchids.

The nomination dossier highlights the exceptional floral and faunal diversity and high degree of endemism within the higher elevation ecosystems. The flora of BJCM has not been fully surveyed, but according to the nomination file, over 600 species of flowering plants were recorded in 1993. Supplementary information received from the State Party significantly increased this figure to an estimated 1,357 flowering plants. The nominated property includes dense forest coverage with two main forest types represented: montane forest over shale in the Blue Mountain and wet limestone forest in John Crow Mountains. It also contains half of Jamaica's 530 fern species.

Despite the widely acknowledged natural values, limited taxonomic research has been conducted in the nominated area resulting in data deficiencies and a high likelihood of future discoveries, certainly as regards the invertebrate fauna and perhaps even a small number of vertebrate species (reptiles and/or amphibians) in seldom visited areas which are difficult to access. Native mammals are poorly represented in Jamaica with only one non-flying native species (a rodent known as Coney or Hutia) and a few bat species. Jamaica has, however, a noteworthy number of endemic bird, reptile and amphibian species. The State Party in its February 2015 supplementary information provided updated data on species numbers including rates of endemism. The information verifies that these species are known to exist within the upper elevations of BJCM, however, some of the deficiencies in the data noted above are also acknowledged. The nominated property is reported to contain 13 species of mammals; 101 birds (32 endemics); 13 amphibians (12 of which are endemic); 20 reptiles (18 endemics) and 8 species of fish. The property includes a significant number of Jamaica's endemic frog species, 12 have been recorded, many of them endemic and/or threatened. Several reptile species (1 turtle, up to 7 snakes and 16 lizards, according to the supplementary information) and 9 species of bat are also found. Importantly, BJCM provides a permanent or winter home to an estimated 220 resident and migrant bird species. It also provides habitats for many invertebrate species, including a high diversity of snails, velvet worms and aquatic invertebrates. The BJCM contains two of Jamaica's five Alliance for Zero Extinction sites, hosting a significant number of globally endangered species. The nominated property hosts a high number of globally threatened plant species included a reported 106 tree species. Threatened plant species include *Podocarpus urbanii* (CR), *Eugenia kellyana* (CR), *Psychotria danceri* (CR), *Schefflera stearnii* (EN), *Miconia pseudorigida* (EN), *Ardisia brittonii* (EN), *Carica jamaicensis* (VU), *Cinnamodendron crticosum* (VU), *Dendropanax blakeanus* (VU), *Hernandia catalpifolia* (VU), *Ilex puberula Proctor* (VU), *Ilex vaccinoides Loes* (VU), *Lunania polydactyla* (VU), *Rondeletra elegans* (VU), *Wallenia fawcettii* (VU), *Samyda glabrata* (VU), and *Ternstroemia Howardiana* (VU). BJCM is also home to a very high number of threatened animal species including several frog and bird species. The Jamaican Rumpspot Frog, *Eleutherodactylus andrewsi* (EN), Arntully Robber Frog, *E. orcutti* (CR), and *E. nubicola* (EN) are exclusively found in BJCM. Regarding threatened avifauna, the Bicknell's Thrush, *Catharus bicknelli* (VU) and Jamaican Blackbird, *Nesopsar nigerrimus* (EN) are found, as well as the Yellow-billed Parrot, *Amazona collaria* (VU) and Black-billed Parrot, *Amazona agilis* (VU) in John Crow Mountains.

The previous IUCN evaluation concluded that BJCMNP had the "highest number of endemic land bird species among sites in the oceanic islands of the world" while also stressing its importance in migratory bird species both from the Northern and Southern Hemispheres.

3. COMPARISONS WITH OTHER AREAS

The natural values of the property are nominated in relation to criteria (ix) and (x). The nomination dossier provided a rather brief comparative analysis comparing BJCM with several similar World Heritage properties drawing conclusions, partly on its relative importance in terms of high levels of endemism, particularly among birds, reptiles, amphibians and invertebrates. The analysis compares BJCM favourably on the basis of its wide range of habitats supporting relatively high levels of species richness. The nominated property is an important centre for plant endemism in the Caribbean displaying 50% endemicity in the flowering plants at elevations above 900-1000m with between 30-40% of these species being site specific. Much emphasis is placed on the nominated property featuring within an IUCN 2013 study showing its overlap with one of the world's 78 most irreplaceable protected areas, based on amphibian, bird and mammal species. It should be noted that the area referred to in this study was much larger than the nominated property. Supplementary information provided by the State Party notes that the nominated property consists of tropical, montane rainforest, much of which is cloud forest between 850m and 2,256m. Cloud forest has been described as "a rare habitat of tropical mountains" which "make up no more than 2.5% of the world's tropical forests" but harbouring "a disproportionately large number of the world's species" and being "even rarer in the America's forming 1.2% of the tropical forests".

Additional comparative analysis was provided by the State Party in the supplementary information of February 2015. This strengthens the original analysis providing tabular comparison with 4 other forested World Heritage properties, namely Morne Trois Pitons, Dominica; The Pitons, St Lucia; Alejandro de Humboldt, Cuba and Garjonay National Park in the Canary Islands, Spain. In addition comparison is made with the Cockpit Country in Jamaica. This provides a more convincing case for BJCM on relative species richness and endemicity. The nomination did not assess the nearby Cockpit Country, however this

supplementary information confirms that the area is of comparable importance, but geologically and ecologically very distinct from BJCM, a view also supported by the field mission. Furthermore there are integrity and protection concerns related to the Cockpit Country. The area is subject to threats from plans to mine limestone, gypsum and bauxite and the status of Forest Reserve is considered a weaker protective designation.

IUCN's additional comparative analysis notes that the terrestrial biodiversity importance of the Caribbean is routinely based on the region's high degree of endemism. For example, almost three quarters of the roughly 11,000 plants and all 189 recorded native amphibians in the Caribbean are endemic and in terms of endemism at the genus level, it ranks third among the world's 35 Biodiversity Hotspots. Jamaica also featured prominently within a 1991 IUCN study on oceanic island systems worthy of World Heritage status, particularly based on levels of endemism (ranking 4th in terms of endemic plants behind New Caledonia, Hispaniola and Hawaii), and BJCM is a highly significant representation of Jamaica's biodiversity.

The additional IUCN analysis notes that the BJCM coincides with a bio-geographical province (Greater Antillean) and terrestrial eco-region (Jamaican Moist Forests), as well as an Endemic Bird Area and Centre for Plant Diversity, which are not yet represented on the World Heritage List. The site also exhibits an exceptionally high proportion of endemic plant and animal species as well as a number of globally endangered species, including several frog and bird species, and several species are believed to still be undergoing speciation. The BJCM has also been identified as a gap in representation of World Heritage sites: it belongs to a Centre of Plant Diversity and an Udvardy biogeographic province not yet represented on the List and as noted above it overlaps with one of 78 most irreplaceable protected areas in the world.

The Critical Ecosystem Partnership Fund in 2010 listed both the Blue Mountains and the John Crow Mountains (separately) as key biodiversity areas to be considered "wholly irreplaceable sites in the Caribbean Islands Hotspot". Jamaica has a noteworthy avifauna with some 300 recorded bird species, including 36 restricted-range endemics. The country's 15 Important Bird Areas (IBAs) cover some 21% of Jamaica's terrestrial territory and include both the Blue Mountains (23 out of 28 birds endemic to Jamaica) and the John Crown Mountains (27 out of 28 birds endemic to Jamaica).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

Formal conservation of the nominated property goes back to at least the late 19th Century when the then colonial government recognized the importance of the various watersheds in Jamaica's mountain ranges. As noted in IUCN's 2011 evaluation the site was legally protected as a Forest Reserve in 1939, declared under the Forest Act of 1937. Established in 1993, BJCMNP is Jamaica's first and only national park. Key pieces of legislation applicable today include the Natural Resources (National Park) Act (1993) and its regulations; the Forestry Act (1996); the Natural Resources Conservation Authority Act (1991) and the Protected National Heritage under Jamaica National Heritage Trust Act (1985). Further legislation pertains to wildlife, endangered species, fire management, pollution and water resource management.

The nominated property is state-owned and sits within the boundaries of the national park thus enjoying a high standard of legal protection. The State Party has clarified that the area nominated aligns with the park's Preservation Zone, the highest protection level of the three zones in operation in the park and surrounding buffer zone (Preservation Zone, Recovery Zone and Community Buffer Zone).

The proposed buffer zone is also for the most part bounded by the national park with an additional Community Buffer Zone mentioned above providing a further surrounding layer. While the nominated property is compatible with IUCN Protected Area category II, most of the buffer zone clearly is not despite its formal National Park status. In addition, the nominated property lies within a forest reserve and is an area of "Protected National Heritage". Most of the buffer zone is stated to be publicly owned. The Rio Grande Valley, part of the buffer zone, but mostly outside of BJCMNP, is an exception as most of the land here is privately owned, including by members of the local Maroon community.

IUCN considers that the protection status of the nominated property meets the requirements of the Operational Guidelines.

4.2 Boundaries

The boundaries of the area nominated in 2011 have been reviewed to reduce the area by some 46%. This has resulted in a property with a more intact forest cover as lower elevation sections of the BJCMNP which have suffered significant degradation are now excluded. Despite the considerable reduction in size, many of the extraordinary values (species) are spatially restricted and well-covered in the nominated area. The IUCN Panel considered that whilst the integrity of upper elevation habitats and their species assemblages has been improved, the reduced size of the property and its restricted altitudinal ecological gradients impedes to some extent the ecological and biological processes.

The planning, regulation, land use and management of the lower elevation buffer zone are considered critical to ensure the intactness of systems within the vulnerable upper elevations of the nominated property. The history of land use disturbance was noted in the 2011 IUCN evaluation which stated "Deforestation and forest degradation are well-documented both longstanding and acute threats. The issues overlap with agricultural encroachment and invasive alien

species but also hunting and uncontrolled collection of forest products." Small scale shifting cultivation and large scale cultivation of coffee and other crops are now problems of the buffer zone however the interface with the nominated area remains of concern. The State Party has advised that most of the threats noted above are occurring within the community buffer zone which is a further zone outside of the World Heritage buffer zone. Various programmes and initiatives are underway to combat threats in this zone. Nonetheless the future of the montane forests is closely linked to the management of the lower elevations and edge effects increase the vulnerability to fire, invasive alien species, encroachment and other threats. IUCN notes that the revision of the property boundaries resolves most of the immediate integrity issues raised in 2011 although the reduced area compromises the natural function of ecological gradients as the property is restricted to upper elevations (above 850 m asl).

IUCN considers that the boundaries of the nominated property meet the requirements of the Operational Guidelines in relation to the application of criterion (x), but do not fulfill requirements for criterion (ix).

4.3 Management

The Natural Resources Conservation Authority (NRCA) through the National Environment and Planning Agency (NEPA) delegates the management of the nominated property to a national NGO, the Jamaica Conservation and Development Trust (JCDT). Since the area is also a Forest Reserve, Jamaica's Forestry Department (FD) is involved through a co-management agreement with NRCA and JCDT signed in 2000 and the Jamaica National Heritage Trust (JNHT) has recently joined this agreement. Part of the governance and management is guided by 3 committees (advisory, co-management and Maroon).

The BJCMNP has a well-structured 5-year management plan covering the period from 2011 to 2016 building upon a continuous series of plans since 1993 when the national park was established. The management plan does not refer specifically to but includes the nominated area. In line with the mixed nomination approach the current management plan establishes the conservation of both cultural and natural heritage as the overarching goal and articulates a mission statement calling for a "balance between biodiversity conservation and socio-economic development". The management plan stresses the challenges facing the property and its buffer zone, noting concerns including "insufficient environmental education" and acknowledges "insufficient enforcement", "unclear boundaries", "insufficient conservation on the ground", "inadequate resources and management", as well as "conflicting policies between government agencies and insufficient support of conservation initiatives".

Staffing includes an Acting Park Manager (who simultaneously serves as Executive Director of JCDT), seven professional park rangers, and a number of "programme managers". The park rangers are led by a Chief of Corps and implement a number of management activities structured thematically as programmes (natural heritage conservation; cultural heritage preservation; education and public involvement; recreation and tourism; monitoring and evaluation; enforcement and compliance). IUCN considers that management capacity is limited and this raises concerns regarding the capacity to address issues within the property, and, more so, to address the demanding task of improving land and resource use in the buffer zone. The governmental core budget provided through NEPA constitutes an estimated 30% of the annual budget required for park operations. Additional sources are revenues from recreational areas (some 10%) and a similar amount from the Jamaica National Parks Trust Fund (JNPTF). In other words, roughly half of the budget is based on relatively secure sources, whereas the remainder has to be constantly raised by the managing JCDT. This is supported by supplementary advice from the State Party which reports that government sources account for about 40% of recurrent, operational expenditure and the remaining recurrent expenditure is sourced from the JNPTF, Forest Conservation Fund, fundraising by the JCDT and revenue from the National Park's Recreational Areas. A 3-year budget has also been prepared for improved financial resource allocation in support of the work of the JCDT in relation to the future management.

IUCN, whilst noting the concerns regarding the adequacy of staff and financial resources for the long-term conservation of the property, considers that the management of the nominated property meets the minimum requirements of the Operational Guidelines.

4.4 Community

As BJCM is proposed as a mixed site, the integration of cultural heritage is central to the nomination and indeed to the management approach for the property. The Maroon local communities share a strong and longstanding identity with the natural values of the site and appear to strongly support the World Heritage nomination. Relationships appear positive with the national park and the JCDT. These matters will also be considered by ICOMOS.

The nominated property barely includes any human inhabitants; however, the buffer zone and its periphery host a significant number of communities. JCDT has a full understanding of the need and credible willingness to work with the residents of the buffer zone but conservation interventions appear modest due to resource constraints. Whilst the NGO led management system provides a strong foundation for participative planning and management, community-based groups or local cooperatives in support of environmental management and sustainable agricultural practices are absent or appear to have a low degree of formal organization. The management and decision-making referring to the (uninhabited) nominated area does not recognizably involve local residents with the exception of the Maroon.

4.5 Threats

Many of the threats identified in 2011 now relate to areas within the buffer zone however, they still require active intervention. Whilst the threat of deforestation has not disappeared, it seems limited within the nominated area due to the combination of natural and formal protection, limited timber value and limited potential for agricultural use. There appears to be some small-scale agriculture extending into some of the nominated area.

There are some reports of illegal logging and illegal collection of orchids and possibly some other species but this is most likely restricted to more accessible areas. While no data was made available, there is no reason to assume that local residents in the buffer zone and surrounding villages do not use the natural resources of the national park for construction, charcoal, firewood, food and medicine. However, the number of people entering the interior of the rugged mountains is likely to be very small.

As is common in island settings, Invasive Alien Species (IAS) constitute a major threat. Introduced mammals include rats and mongoose. Mongoose were purposefully introduced in a failed biological control attempt to control rats. Feral pigs are described to be common and are highly valued by local hunters. White-tailed deer are said to have escaped an enclosure during a hurricane, but the State Party reports these are restricted to lowland areas. It is believed that high hunting pressure keeps populations in check. A large number of invasive plants, including several tree species are visible in most of the visited areas and at times densely cover substantial areas of the buffer zone. Examples include *Pittosporum undulatum*, a woody species of Australian origin, Bracken Fern and Wild Ginger. Introduced bamboo and grass species not only create the biodiversity impacts commonly associated with IAS but also help spread fires.

There is concern about climate change impacts and hurricanes are reported to have increased in frequency and intensity and could constitute a natural threat. Encouragingly, research conducted in the national park suggests a remarkable resilience of the native forests confirming the premise that maintaining forests is a good investment in resilience.

A limited number of domestic and foreign visitors selectively use the park. Most visitation is restricted to a well-managed recreation area (Hollywell) with a number of maintained trails open to the public. There is some threat of increased pressure to open new trails to currently inaccessible peaks and ridges.

The Management Plan mentions a potential risk of future mining supported to apparently ambiguous legislation and a suggestion that prospecting licenses may have been granted in what is today BJCMNP prior to protected area designation. Supplementary information received from the State Party provided clear assurances that strict controls exist related to prevention of mining, however, there remains a risk that mining could still be permitted subject to national priorities and high level approvals. This is concerning given the clear position that has been taken by IUCN and the Committee on the essential incompatibility between mining and World Heritage; it is therefore essential that the State Party commitments to not permit mining in the property be noted by the Committee, and that legislative approaches be strengthened to permanently remove this threat.

In conclusion, IUCN considers that the integrity, protection and management of the property meet the requirements of the Operational Guidelines.

5. ADDITIONAL COMMENTS

None.

6. APPLICATION OF CRITERIA

John and Blue Crow Mountains has been nominated under natural criteria (ix) and (x) as well as under cultural criteria which will be evaluated by ICOMOS.

Criterion (ix): Ecosystems/communities and ecological/biological processes
The nominated property lies within a bio-geographical province (Greater Antillean) and terrestrial eco-region (Jamaican Moist Forests), as well as an Endemic Bird Area and Centre for Plant Diversity, which are not yet represented on the World Heritage List. The BJCM has also been identified as a gap in representation of World Heritage sites: it belongs to a Centre of Plant Diversity and an Udvardy biogeographic province not yet represented on the List and it overlaps with one of 78 most irreplaceable protected areas in the world.

The 2011 evaluation of the larger BJCMNP concluded that it was of “national and regional importance for the conservation of Jamaica's highly endemic flora and fauna, in particular as regards the island's terrestrial and freshwater ecosystems.” The evaluation found however, that “the ongoing deforestation and degradation, especially of the vulnerable and particularly valuable forests in the lower altitudes, represent significant long term impacts on integrity in relation to this criterion.” Compared to the 2011 nomination, the nominated area is now restricted to the high elevations of two mountain ranges as opposed to a much larger area belonging to three mountain ranges. The area nominated in 2011 spanned an altitudinal range from 150 to 2,256m asl whereas the current nomination is restricted to elevations above 850m asl and the BJCM focuses on just one part of a single protected area representing only 11.5% of the larger Blue and John Crow Mountain system. Despite the clear global significance of Jamaica’s biodiversity, IUCN considers that the combination of the nominated property’s restricted altitudinal ecological gradients with the fact that areas in the buffer zone are heavily altered, impedes its ability to meet criterion (ix) with respect to the demonstration of unhampered ecological and biological processes.

IUCN concludes that the nominated property does not meet this criterion.

Criterion (x): Biodiversity and threatened species
The Blue and John Crow Mountains belongs to the Caribbean Islands biodiversity hotspot and is an important centre for plant endemism in the Caribbean displaying 50% endemicity in the flowering plants at elevations above 900-1000 m asl with between 30-40% of these species found only within the property's boundaries. One of two Centres of Plant Diversity in Jamaica, the property includes a reported 1,357 species of flowering plant of which approximately 294 are Jamaican endemics and 87 of these species are found only within the property. 61 species of liverwort and moss occur in the property as well as 11 species of lichen, all of which are endemic. Genera which are well represented in the endemic flora of the property include *Pilea* (12 spp); *Lepanthes* (12 spp); *Psychotria* (12 spp) and *Eugenia* (11 spp).

The Blue and John Crow Mountains overlaps with one of the world's most irreplaceable protected areas, based on its importance for amphibian, bird and mammal species. The property hosts globally significant populations of bird species and represents a key part of the Jamaican Endemic Bird Area. It is important for a number of restricted-range species as well as a large number of migratory birds such as the Petchary (*Tyrannus domenciensis*) Bicknell's Thrush (*Catharus bicknellii*) and Swainson's Warbler (*Limnothlypis swainsonii*). The property contains two of Jamaica's five Alliance for Zero Extinction sites, hosting a significant number of globally endangered species, including the critically endangered plant species *Podocarpus urbanii*, *Eugenia kellyana* and *Psychotria danceri*. The property is also home to several endangered frog and bird species including the critically endangered Arntully Robber Frog, *Eleutherodactylus orcutti* and the Jamaican Peak Frog, *E. alticola*. Threatened bird species include Bicknell's Thrush *C. bicknellii*, the Jamaican Blackbird, *Nesopsar nigerrimus*, as well as the Yellow-billed Parrot, *Amazona collaria* and Black-billed Parrot, *Amazona agilis*. The only terrestrial non-flying mammal species found in the nominated property is the threatened rodent Hutia, *Geocapromys brownii* with a population restricted to John Crow Mountains.

IUCN concludes that the nominated property meets this criterion.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopt the following draft decision:

The World Heritage Committee,

1. Having examined Documents WHC-15/39.COM/8B and WHC-15/39.COM/INF.8B2;

2. Inscribes the **Blue and John Crow Mountains (Jamaica)** on the World Heritage List under natural criterion (x);

3. Adopts the following Statement of Outstanding Universal Value in relation to natural criteria, which would be subject to amendment and harmonization with ICOMOS recommendations if the nominated property was also inscribed under cultural criteria:

Brief synthesis
The Blue and John Crow Mountains property comprises 26,252 ha of tropical, montane rainforest within the larger Blue Mountain and John Crow Mountain ranges, located in the eastern part of Jamaica in the Caribbean. These two ranges cover approximately 20% of the island's total landmass and are recognised for their biodiversity significance within the Caribbean Region. The property spans elevations from 850m to 2,256m asl and is surrounded by a buffer zone of some 28,494 ha. The high elevation, rugged landscape and the north and south-facing slopes of the mountains of the property have resulted in a wide variety of habitat types with nine ecological communities within the upper montane forest of the Blue Mountains (over 1,000m) and John Crow Mountains (over 600m). These include a unique Mor Ridge Forest characterised by a deep layer of acidic humus with bromeliads and endangered tree species. Above 1,800m, the vegetation of the Blue Mountains is more stunted with some species restricted to these altitudes. Above 2,000m the forest is known as Elfin Forest due to the stunted and gnarled appearance of the trees which are heavily coated with epiphytes including hanging mosses, ferns and tiny orchids.

The Blue and John Crow Mountains lies within the Jamaican Moist Forests Global 200 priority ecoregion, and part of one of the 78 most irreplaceable protected areas for the conservation of the world's amphibian, bird and mammal species. Furthermore it coincides with a Centre of Plant Diversity; an Endemic Bird Area and contains two of Jamaica's five Alliance for Zero Extinction sites. There is an exceptionally high proportion of endemic plant and animal species found in the property, Jamaica having evolved separately from other landmasses. In addition, the property hosts a number of globally endangered species, including several frog and bird species.

Criteria
Criterion (x)
The Blue and John Crow Mountains belongs to the Caribbean Islands biodiversity hotspot and is an important centre for plant endemism in the Caribbean displaying 50% endemicity in the flowering plants at elevations above 900-1000 m asl with between 30-40% of these species found only within the property's boundaries. One of two Centres of Plant Diversity in Jamaica, the property includes a reported 1,357 species of flowering plant of which approximately 294 are Jamaican endemics and 87 of these species are found only within the property. 61 species of liverwort and moss occur in the property as well as 11 species of lichen, all of which are endemic. Genera which are well represented in the endemic flora of the property include Pilea (12 spp); Lepanthes (12 spp); Psychotria (12 spp) and Eugenia (11 spp).

The Blue and John Crow Mountains overlaps with one of the world's most irreplaceable protected areas, based on its importance for amphibian, bird and mammal species. The property hosts globally significant populations of bird species and represents a key part of the Jamaican Endemic Bird Area. It is important for a number of restricted-range species as well as a large number of migratory birds such as the Petchary (Tyrannus domenciensis) Bicknell's Thrush (Catharus bicknellii) and Swainson's Warbler (Limnothlypis swainsonii). The property contains two of Jamaica's five Alliance for Zero Extinction sites, hosting a significant number of globally endangered species, including the critically endangered plant species Podocarpus urbanii, Eugenia kellyana and Psychotria danceri. The property is also home to several endangered frog and bird species including the critically endangered Arntully Robber Frog, Eleutherodactylus orcutti and the Jamaican Peak Frog, E. alticola. Threatened bird species include Bicknell's Thrush C. bicknellii, the Jamaican Blackbird, Nesopsar nigerrimus, as well as the Yellow-billed Parrot, Amazona collaria and Black-billed Parrot, Amazona agilis. The only terrestrial non-flying mammal species found in the nominated property is the threatened rodent Hutia, Geocapromys brownii with a population restricted to John Crow Mountains.

Integrity

The property protects the most intact forests within the upper elevations of the Blue and John Crow Mountains. The more disturbed lower elevation areas are contained within the surrounding buffer zone. The property is legally well protected as it falls within the boundaries of the larger Blue and John Crow Mountains National Park and is aligned with the park's Preservation Zone, providing the strictest levels of protection within the zoning system. The area is rugged, remote with limited access thereby providing additional security against some threats. The boundaries of the property are well designed to include the key attributes of its biodiversity values. Nevertheless there are a range of current and potential threats to the property, including from invasive alien species, encroachment, mining, fire and climate change. The majority of threats emanate from the interface between the higher elevation property and lowlands within the buffer zone.

Protection and Management requirements

The property enjoys good levels of legal protection as it lies within the Blue and John Crow Mountains National Park. As such it is protected by a suite of legislation including the Natural Resources (National Park) Act (1993) and its regulations; the Forestry Act (1996); the Natural Resources Conservation Authority Act (1991) and the Protected National Heritage under Jamaica National Heritage Trust Act (1985). The property is also covered by a well-structured 5 year management plan.

The Blue and John Crow Mountains is subject to a complex governance regime that ensures broader engagement but should strive for continually improved inter-organisational coordination and cooperation. The management of the property recognises the complex interplay between its natural and cultural values and the Maroon local communities are positively engaged with the site and its management. Protection of the natural values of the property is also dependent to large extent on the sympathetic management of the lower elevation buffer zone which has been subject to a history of deforestation, agricultural landuse and encroachment. Active and sustained management of the edge effects from surrounding lands will be critical to ensure issues such as buffer zone planning, development and land use do not impact on the property. It will be important to manage the potential impacts of invasive alien species, fire and encroachment from both small scale shifting agriculture and commercial coffee growing. Vigilance will be needed to ensure that mining exploration and/or operations are not permitted to overlap with the property, and legislation and policy should be tightened to protect the World Heritage site in perpetuity from mining, in line with the established position of the World Heritage Committee and leading industry bodies. Monitoring of climate change impact on the elevation sensitive ecology of the property will be important to ensure proactive planning and management of this threat.

Adequate and increased capacity of staff and funding necessary will be needed to manage the property in the face of the threats outlined above. Sustainable funding will be necessary in particular to strengthen management of the buffer zone and effectively address issues such as planning for sustainable development, support for livelihoods and enhanced community engagement.

4. Commends the efforts made by the State Party to reconfigure the nomination in response to the recommendations of the World Heritage Committee; to recognize the role of civil society and local communities in the management of the property and to address issues of protection and management of the property.

5. Notes with appreciation the assurances of the State Party that the property will be protected from mining, and requests the State Party, in line with the position of the World Heritage Committee on the incompatibility of mining with World Heritage site status, to strengthen legal protection of the property to ensure that no mining prospecting licenses and/or operations will be permitted within the nominated area, and that any mining activity in the buffer zone will be subject to rigorous Environmental Impact Assessment to ensure no adverse impacts on the Outstanding Universal Value of the property.

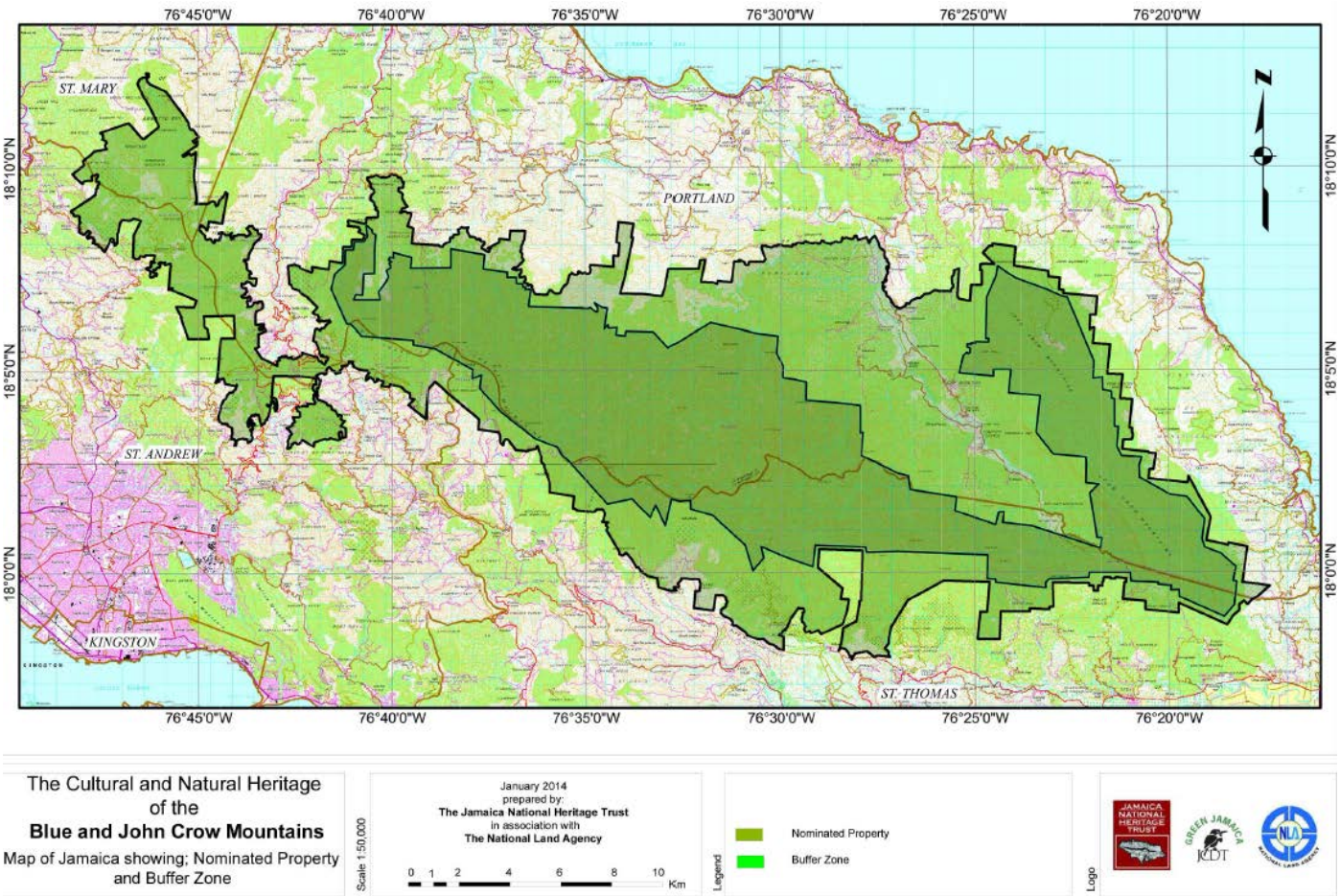
6. Takes note of the long history of the deforestation in the buffer zone of the property and requests the State Party to strengthen measures to combat the threat of small-scale and commercial agricultural encroachments impacting on the property by improving monitoring and public education, increasing technical capacity and engaging the support of relevant international institutions such as IUCN and FAO.

7. Encourages the State Party to allocate increased financial resources to ensure the effective long term management of the property, noting that current estimates suggest up to a doubling of the budget and resources for the protection of the property and buffer zone will be needed to ensure effective protection and management.

8. Further requests the State Party to submit to the World Heritage Centre, by **1 December 2017**, an updated report, including a 1-page executive summary, on the state of conservation of the property, including advice on actions to address fully the threats from mining and encroachment and updated data on the provision of adequate and sustainable financial resources to support the conservation of the property, for examination by the World Heritage Committee at its 42nd session in 2018.

Map 1: Nominated property location

Map 2: Nominated property and buffer zone



C. CULTURAL PROPERTIES

C1. NEW NOMINATIONS OF CULTURAL PROPERTIES

ASIA / PACIFIC

GREAT BURKHAN KHALDUN MOUNTAIN AND ITS SURROUNDING SACRED LANDSCAPE

MONGOLIA

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

GREAT BURKHAN KHALDUN MOUNTAIN AND ITS SURROUNDING SACRED LANDSCAPE (MONGOLIA)

IUCN considered this cultural landscape nomination based on 2 desk reviews, and also joined the ICOMOS field evaluation mission in view of the significance of the natural values noted in the nomination document.

The below comments are made on the original submitted nomination, and do not take into account any revisions that may be discussed between the State Party and ICOMOS, noting that in this case IUCN understands that there may be changes proposed to the boundaries of the property following the advice of ICOMOS.

The property is nominated under criteria (iii), (iv), (v) and (vi). IUCN notes that ICOMOS will assess the global significance of that interaction in relation to the cultural criteria under which the property is nominated.

The nomination (subject to any amendments that may be made after the ICOMOS First Panel Meeting) proposes a serial site of three components, each with a buffer zone. The total size of the nominated area is 504,833 ha and the buffer zones (which are all contiguous) total 450,384 ha.

The IUCN field evaluator confirms significant natural values are present in all three components, and that these are all related to cultural use. The extent and nature of those natural values is different in each component, but each component does contain notable natural values, which appear significant at national, and possibly regional, levels. The cultural use appears to be sustainable.

The IUCN field evaluator also indicates that there are evident sacred natural sites in all components that appear to be authentic. The mission expert did not note any significant community or rights concerns.

Concerns identified from IUCN's consideration of the nomination include potential risks from tourism (low intensity at the moment, so low risk if well managed), mining (which would be addressed only provided extant mining regulations are enacted), and the involvement and impacts of the nomination relative to local people and nomadic peoples, including the explicit need to define and monitor intended outcomes for local communities.

IUCN questions the suggested configuration in relation to the boundaries of Khan Kentee Strict Protected Area (KKSPA), and other protected areas. Based on an analysis of the dossier, IUCN notes that:

a) The largest component of the nominated property and its buffer zone are partly inside KKSPA, but partly only included in its buffer zone;

b) The Bereeven Monastery and its buffer zone appear to be inside only the buffer zone of KKSPA. Part of this component is covered by the Khangal Nuur category III Protected Area, according to the IUCN/UNEP-WCMC World Database on Protected Areas (WDPA), this protection is not mentioned in the nomination;

c) Sacred Binder Mountain is not protected according to the nomination (the nomination suggests it may in future be included in the buffer zone of KKSPA), though according to the WDPA it is partly covered by a category III Protected Area (Binderya Khan Mountain).

Thus the boundaries proposed appear to not be logically defined, adding complexity to management within the existing protected areas.

It is stated that there is additional protective legislation in addition to the SPA but the details are not provided in the dossier. Thus protection as set out in the nomination does not appear to be in place.

Management in areas outside of KKSPA is not documented for one component (Binder Mountain). In the parts of the site covered by the buffer zone of KKSPA the management plan extracts listed in Annex V of the nomination appear to be (a) very short and not specific, (b) not indicating significant protection and conservation measures and (c) encouraging of economic uses without any clear identification of limits to such activities. Management therefore also appears to be inadequate in most of the nominated area.

Recommendations to ICOMOS

IUCN recommends that ICOMOS consider the following issues with the State Party:

a) Boundaries: ICOMOS should request SP to ensure the adequate alignment of the application of the various legislative provisions on the property in its World Heritage context, to ensure that all areas that might be inscribed are adequately protected.

b) Management: There is a need to ensure that adequate management is present throughout all of the area of property that might be inscribed. Some areas at present do not appear to be within any effective management regime.

c) Mining: Potential threats from mining, which are not prevented in most of the property outside of the area in KKSPA. ICOMOS should confirm that no mining or extractive industry will be permitted within the nominated property.

d) Tourism: Potential threats from tourism, which is encouraged without indicated limits in much of the nominated areas, according to the management plan excerpts for the KKSPA buffer zone. ICOMOS should confirm that current and proposed tourism activities will not impact negatively on sacred sites, natural values or the livelihoods of local people and nomadic people. ICOMOS should be satisfied that planning and capacity is in place and will be sustained to develop tourism in a way that is appropriate to both the conservation of the property, and the impacts (positive and negative) on local people and nomadic people.

e) Definition of outcomes and monitoring of impact for local people and nomadic people: IUCN recommends that ICOMOS should seek information regarding the impacts of the nomination relative to local people and nomadic peoples, including the explicit need to define and monitor intended outcomes for local communities.

IUCN would be willing to participate with ICOMOS in further discussions with the State Party on the nomination.

ASIA / PACIFIC

SINGAPORE BOTANIC GARDENS

SINGAPORE

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

SINGAPORE BOTANICAL GARDEN (SINGAPORE)

The area of nominated property is 49ha, with a proposed buffer zone of 137ha.

IUCN has considered this cultural landscape nomination based on a desk review of the nomination and considered the comments of seven (7) external reviewers.

The property is nominated under criteria (ii) and (iv). IUCN notes that ICOMOS will evaluate the nomination in relation to the cultural criteria under which the property is nominated.

IUCN notes that the *ex-situ* conservation values of this property are important at an international level. IUCN reviews confirm that the site is recognised as amongst the most important botanic gardens, currently and historically, in the world. Its importance is based on its contribution to the knowledge of South-East Asia plant diversity, reference herbarium and ex-situ living plants collection. It has played an extremely important role in understanding the science (botany to mycology) of the flora of south-east Asia. Equally significant in a cultural / economic sense was its role in plant introduction of economic importance such as rubber, palm oil and continuing today with its globally significant work on the *Orchidaceae.*

The size and nature of the area proposed appears sufficient to represent the values for which the property is nominated and apart from some impact from city development outside the boundaries of the garden, it has not suffered from adverse development or serious neglect.

The collection of plants, including the relict small forest ecosystem is at the core of its significance. These plant collections, including herbaria (with over 8,000 type specimens) are considered definitive for the tropics.

The site is also, incidentally a refuge for a number of species of fauna, from insects to avian species, which are rare in South-East Asia.

The laws, regulations, institutions and community support for this site are a model for the protection and management of botanic gardens, and protected areas in urban settings.

While there will always be pressures from time to time to undertake actions that might impact this site the high level of community support demonstrated should provide one effective means to protect its values.

Recommendations to ICOMOS

IUCN recommends that ICOMOS consider carefully with the State Party if the boundaries adopted in the nomination are fully appropriate. For instance it could be discussed if it would be appropriate to include two area of the current buffer zones, the Bukit Timah and Tyersall Learning Forest Areas in the boundary of the property.

IUCN suggests that a short “Living Collection Conservation Policy” be established to complement the 10 Year Living Collection Management Plan, but setting the vision and long-term philosophy of the Botanical Garden Ex-Situ Plant Conservation.

IUCN also recommends that an effective management plan for the remnant primary forest within the boundaries of the nominated property be maintained and kept updated, as it is unlikely that this relatively small patch of forest will be sustained over time if left unmanaged, and that its character may adapt over time due to the process of management intervention required to sustain it.

EUROPE / NORTH AMERICA

LA RIOJA AND RIOJA ALAVESA WINE AND VINEYARD CULTURAL LANDSCAPE

SPAIN

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

LA RIOJA AND RIOJA ALAVESA WINE AND VINEYARD (SPAIN)

The area of nominated property is 58,927ha, with a proposed buffer zone of 124,374ha.

IUCN considered this cultural landscape nomination based on two desk reviews of the nomination.

The property is nominated under criteria (ii), (iii), (v) and (vi). IUCN notes that ICOMOS will assess the global significance of that interaction in relation to the cultural criteria under which the property is nominated.

The biodiversity present may be of national importance, but is not adequately described in the nomination, with only one short description of some of the threatened species found in the area.

The nominated property includes natural values in terms of vegetation, species and hydrology. In particular, the *ribajos*, which constitute the spaces along the boundaries of the cultivated lands, appear to be important for the conservation of fauna and flora (although would not meet natural World Heritage criteria).

Traditionally vines were planted in mixed plots, with the majority of plots being less than 1ha, however, it seems that plantations of more than 5ha have risen in recent years. It appears that the *ribajos* and the traditional plantation layout in small mixed plots could be threatened by this trend of increasing size of the cultivation plots, and increasing mechanisation, which could in turn impact the existing biodiversity values of the nominated property. There also appear, according to the nomination to be other threats to the landscape values of the property.

Recommendations to ICOMOS

IUCN therefore recommends that ICOMOS consider the following points in its evaluation:

- The need for a more comprehensive description of biodiversity, including endemic and threatened species, is provided.
- To consider how the State Party could provide reassurance that measures will be taken to ensure that the *ribajos* and their associated biodiversity are conserved.
- The need to ensure that the impact of possible developments (such as an electric power infrastructure and leisure facilities) on the natural landscape is fully assessed.
- The need for appropriate measures are taken to ensure that the landscape elements (including the small size of the plots) are protected.