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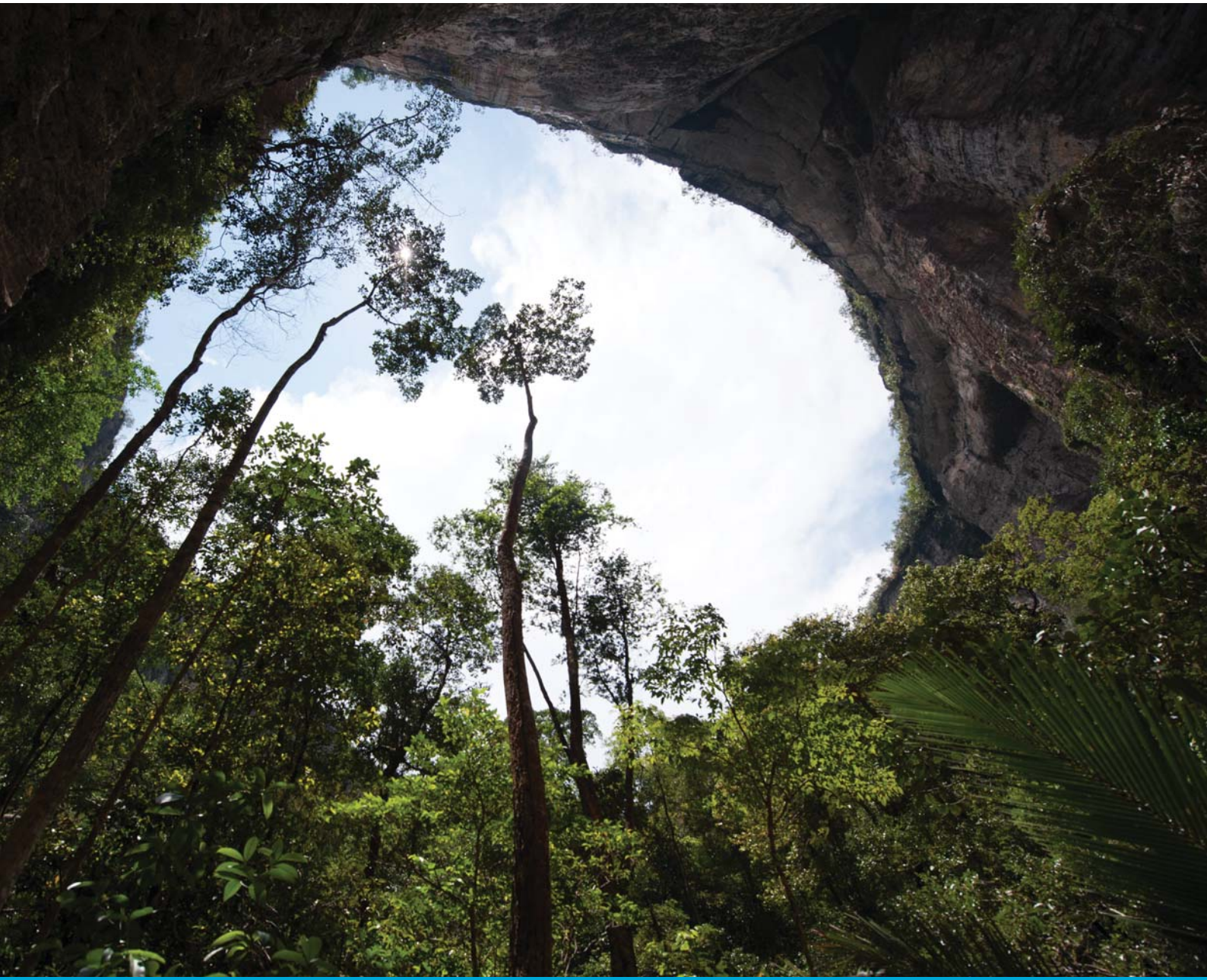
IUCN World Heritage Evaluations 2018

IUCN Evaluations of nominations of natural and mixed properties to the World Heritage List



IUCN REPORT FOR THE WORLD HERITAGE COMMITTEE, 42ND SESSION, MANAMA, BAHRAIN, 24 JUNE-4 JULY 2018

United Nations Educational, Scientific and Cultural Organization · World Heritage Convention

Cover photo: Chiribiquete National Park, 'The Maloca of the Jaguar', Colombia

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

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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	Barberton Makhonjwa Mountains (1575)		–	yes	–	–	yes	yes	yes	–	part	part	part	no	R
China	Fanjingshan (1559)		no	–	no	yes	yes	yes	part	–	yes	part	yes	no	R
Iran (Islamic Republic of)	Arasbaran Protected Area (1543)		–	–	no	no	no	no	no	–	no	no	no	no	N
Japan	Amami-Oshima Island, Tokunoshima Island, the northern part of Okinawa Island, and Iriomote Island (1574)		–	–	no	part	no	no	part	yes	yes	yes	no	yes	D
Russian Federation	Bikin River Valley (extension of Central Sikhote-Alin) (766 Bis)	Extension	–	–	–	yes	yes	part	part	yes	yes	no	no	no	R

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**			
Canada	Pimachiowin Aki (1415 Rev)	Mixed site	–	–	yes	–	yes	yes	yes	–	yes	yes	yes		no	I
Colombia	Chiribiquete National Park – "The Maloca of the Jaguar" (1174)	Mixed site	–	no	yes	yes	yes	yes	yes	–	yes	yes	yes		no	I

KEYS

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

ALPHABETICAL INDEX

IUCN FIELD EVALUATORS

Site	Name
Barberton Makhonjwa Mountains	Guy Narbonne
Fanjingshan	Remco van Merm & Cyril Grueter
Arasbaran Protected Area	Wendy Strahm & Faisal Abu-Izzeddin
Amami-Oshima Island, Tokunoshima Island, the northern part of Okinawa Island, and Iriomote Island	Bastian Bertzky
Bikin River Valley (extension of Central Sikhote-Alin)	Tilman Jaeger & Chimed-Ochir Bazarsad
Pimachiowin Aki	Brent A. Mitchell
Chiribiquete National Park – "The Maloca of the Jaguar"	Charles Besancon

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

THE IUCN RED LIST OF THREATENED SPECIES

Throughout the report we have indicated the conservation status of each species as recorded in the *IUCN Red List of Threatened Species* at the time of the evaluation; for more information please visit http://www.iucnredlist.org.

Keys to abbreviations:
CR: Critically Endangered
EN: Endangered
VU: Vulnerable
NT: Near threatened
LC: Least Concern
NE: Not Evaluated

THE WORLD HERITAGE CONVENTION
IUCN TECHNICAL EVALUATION REPORT OF WORLD HERITAGE NOMINATIONS
APRIL 2018

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 particularly closely with IUCN's World Commission on Protected Areas (WCPA), the world's leading expert network of protected area managers and specialists, with the IUCN Species Survival Commission (SSC) and other IUCN Commissions, as well as the many members and partners of IUCN.

IUCN's evaluations are conducted according to the *Operational Guidelines for the Implementation of the World Heritage Convention* that the World Heritage Committee has agreed, and which are the essential framework for the application of the evaluation process. This framework was updated and revised in 2015, and a revised process documented in Annex 6 of the *Operational Guidelines*, following discussion by the World Heritage Committee. 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 2000 members, protected area managers and specialists from over 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, non-governmental 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, as key inputs to each evaluation. The IUCN World Heritage Programme 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 continued to extend 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 was reported at the 40th Session of the World Heritage Committee, and will be discussed under Item 9B this year, where IUCN and ICOMOS exchanged and coordinated their advice to the Committee, as also noted in the relevant specific reports.

IUCN has endeavoured wherever possible to work in the spirit of 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*, specifically Annex 6 which spells out the evaluation process. 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 April / 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 over 80 external reviews in relation to the properties examined in 2017 / 2018.

2. **Field Mission.** Missions involving one, or wherever possible two or more IUCN 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 Arpil / May for distribution to the members of the World Heritage Committee.

4. **Comparative Analysis**. IUCN commissions UN Environment WCMC to carry out a global comparative analysis for all properties nominated under the biodiversity criteria (ix) and (x) to a standard and publicly available IUCN/WCMC methodology. 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 has increasingly sought, over many years, 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 formally 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).** IUCN continues its practice of ongoing communication with the nominating State Party/ies following its Panel meeting. In line with changes to Annex 6 of the *Operational Guidelines* this communication now comprises an interim report to the Parties on the status of the evaluation, sent by the end of January. If the Panel finds some questions are still unanswered or further issues need to be clarified, this letter may request supplementary information by a specific deadline. That deadline must be adhered to strictly in order to allow IUCN to complete its evaluation. In view of the importance of the requests for supplementary information, IUCN seeks to complete those at least one month before the requested deadline of 31st January, and in the present cycle all but one nominations where the IUCN Panel had questions, these were sent before the end of December 2017. It should be noted that in a number of cases the Panel may not have additional questions, but nevertheless dialogue is invited in all cases.

  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. This has involved face to face meetings in Paris, and in IUCN's offices in Switzerland, and conference calls via Skype or dial-in conferences.

In the technical evaluation of nominated properties, global biogeographic classification systems such as Udvardy's biogeographic provinces, and the Terrestrial Ecoregion of the World (similarly, freshwater and marine ecoregions of the world in respective environments) 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 and representation 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 Key Biodiversity Areas (http://www.keybiodiversityareas.org/home), including Important Bird Areas, Alliance for Zero Extinction sites, and systems such as WWF's Global 200 Priority Ecoregions, Conservation International's Biodiversity Hotspots and High Biodiversity Wilderness Areas, Birdlife International's Endemic Bird Areas, 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: https://www.iucn.org/theme/world-heritage/resources.

IUCN members adopted a specific resolution on these matters at the IUCN World Conservation Congress in 2012, which remains current, 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: https://portals.iucn.org/congress/assembly/motions.
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 2013, IUCN 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 available at the following web address: https://www.iucn.org/theme/world-heritage/our-work/advisor-world-heritage/nominations.

IUCN completed also in 2013 an evaluation of its World Heritage Programme, and a management response to its findings was agreed in 2014 and is being implemented. Following this, and consistent with discussions held at the World Heritage Committee, the implementation of revised working methods of the IUCN World Heritage Panel is being implemented in 2017. The evaluation and the management response are available online at the following address: https://www.iucn.org/monitoring-and-evaluation/monitoring-our-work/evaluations-database.

The implementation of reform on IUCN's work on World Heritage is also integrating agreed actions arising from the work of the Ad-hoc Working Group of States Parties, 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. 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 implementation of the upstream process needs to be a central priority, and additional reflection on options, and additional resources will be required to enable it to be effective, equitable to States Parties, and appropriate in supporting a balanced and representative World Heritage List.

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 UN Environment 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 independent, high quality scientific and technical advice to IUCN, which has the final responsibility for corporate recommendations made to the World Heritage Committee. Panel members agree to a code of conduct which ensures ethical behaviour and avoids any conflict of interest.

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
- One Senior Advisor 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
- A representative of the IUCN Species Survival Commission (SSC) appointed on recommendation of the Chair, SSC
- The Head of the UN Environment WCMC Protected Areas Programme (this position is an ex-officio advisor to the Panel, without a vote).
- Up to seven 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.
- As of 2017/18 one position for a specialist in geological heritage, appointed by IUCN following consultation with IUGS and the UNESCO Earth Sciences has been introduced.

In the course of 2016, and as previously agreed following the recommendation of the Committee's ad-hoc working group, IUCN introduced a fixed term for Panel members (four years renewable once) and an internal application process, open to IUCN Commission members and IUCN members, to fill vacancies for technical advisors when they arise. Two new appointments to the Panel following this process were made in the present nomination cycle.

The Panel's preparations and its meetings are facilitated through the work of the World Heritage Evaluations and Operations Officer. Information on the members of the IUCN World Heritage Panel, together with its Terms of Reference and the formats for IUCN documentation related to the evaluation process is posted online at the following link: https://www.iucn.org/theme/world-heritage/our-work/advisor-world-heritage/iucn-world-heritage-panel.

A senior manager in IUCN (currently the IUCN Global Director, Biodiversity Conservation) 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.

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 2017 / 2018

Nomination dossiers and minor boundary modifications examined by IUCN in the 2017 / 2018 cycle included:

- 5 natural property nominations (including 4 new nominations and 1 extension);
- 2 mixed property nomination, where a joint mission was undertaken with ICOMOS;
- 2 referred nominations;
- 4 cultural landscape nominations (all new nominations); all 4 were commented on by IUCN based on internal and external desktop reviews;
- 1 minor boundary modification.

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.

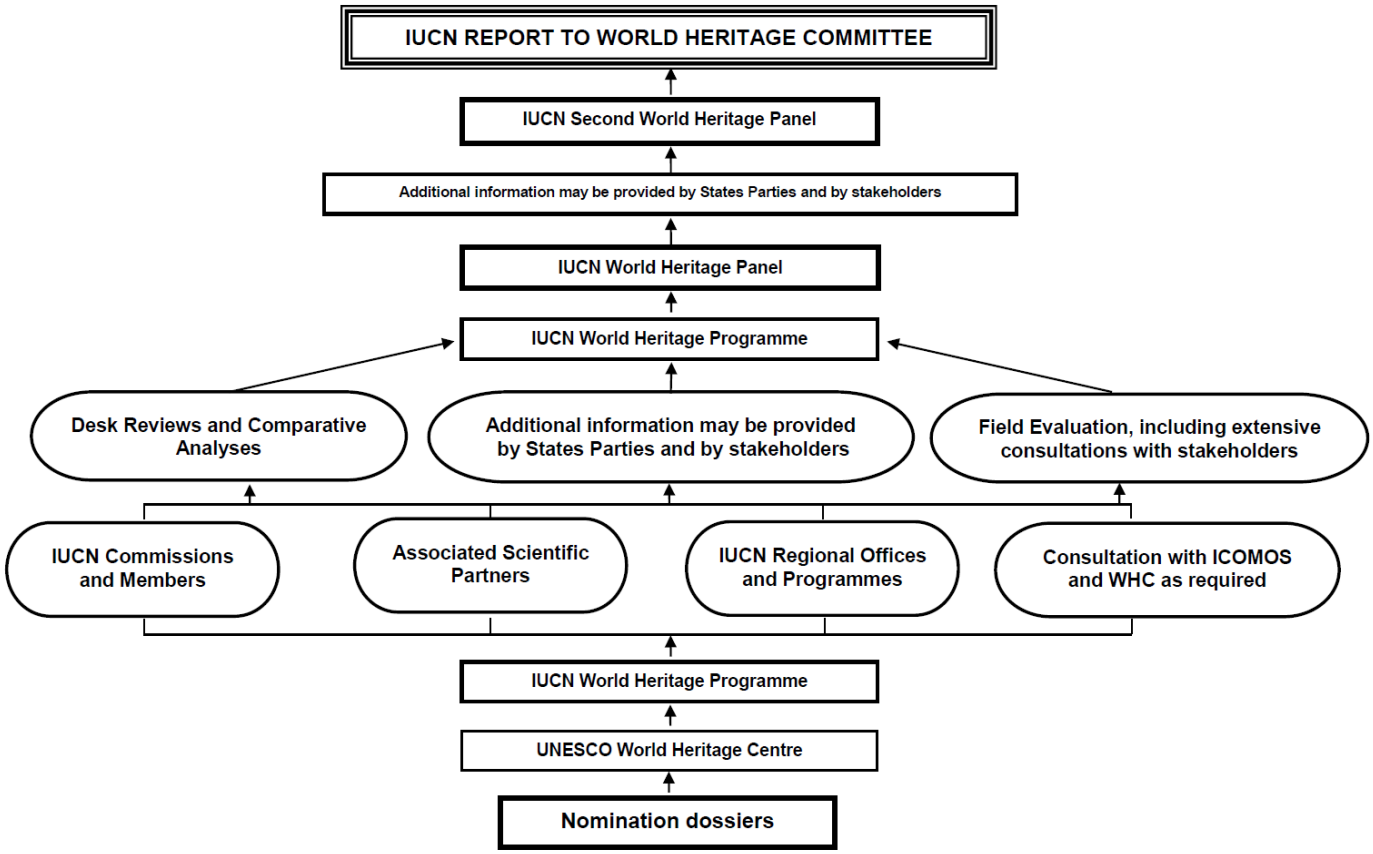
7. RECOMMENDATIONS TO THE WORLD HERITAGE COMMITTEE

In the 2017 / 2018 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 2018, 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 large 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

BARBERTON MAKHONJWA MOUNTAINS

SOUTH AFRICA

Overlook from the Barberton Makhonjwa Geotrail © IUCN / Guy Narbonne

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

BARBERTON MAKHONJWA MOUNTAINS (SOUTH AFRICA) – ID N° 1575

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To refer the nominated property back to the State Party under natural criteria.

Key paragraphs of Operational Guidelines:
Paragraph 77: nominated property meets World Heritage criteria.
Paragraph 78: nominated property meets integrity requirements, but does not fully meet protection and management requirements.

1. DOCUMENTATION

a) Date nomination received by IUCN: March 2017

b) Additional information officially requested from and provided by the State Party: Following the IUCN World Heritage Panel a progress report was sent to the State Party on 20 December 2017. This letter advised on the status of the evaluation process and sought responses/clarifications on a range of issues including the further Comparative Analysis the State party submitted on 10 October 2017; legal protection of geosites outside the nominated area; mining rights for area adjacent to the northern edge of the nominated property; buffer zones; relocation of local communities; threats and private landowners. A response was received on 21 February 2018.

c) Additional literature consulted: Various sources, including: Bontognali, T.R.R., Fischer, W.W., Follmi, K.B. (2013). *Siliciclastic associated banded iron formation from the 3.2 Ga Moodies Group, Barberton Greenstone Belt, South Africa*. Precambrian Research, 226, pp. 116-124. de Ronde, C.E.J. and de Wit, M.J. (1994). *Tectonic history of the Barberton greenstone belt, South Africa: 490 million years of Archean crustal evolution*. Tectonics, 13(4), pp. 983-1005. Eriksson, K.A. and Simpson, E.L. (2000). *Quantifying the oldest tidal record: the 3.2 Ga Moodies Group, Barberton greenstone Belt, South Africa*. Geology, 28(9), pp. 831-834. Heubeck, C., Blasing, S., Grund, M., Drabon, N., Homann, M., Nabhan, S. (2016). *Geological constraints on Archean (3.22 Ga) coastal -zone processes from the Dycedale Syncline, Barberton Greenstone Belt*. South African Journal of Geology, 119(3). 495-518. Homann, M., Heubeck, C., Bontognali, T.R.R., Bouvier, A-S, Baumgartner, L.P., and Airo, A. (2014). *Evidence for cavity-dwelling microbial life in 3.22 Ga tidal deposits.* Geology 44(1), pp. 51-54. Homann, M., Heubeck, C., Airo, A., and Tice, M.M. (2015). *Morphological adaptations of 3.22 Ga-old tufted microbial mats to Archean coastal habitats (Moodies Group, Barberton Greenstone Belt, South Africa*). Precambrian Research, 266, pp. 47-64. Lowe, D.R. (1999). *Shallow-water sedimentation of accretionary lapilli-bearing strata of the Msauli Chert: Evidence of explosive hydromagmatic komatiitic volcanism*. In: Lowe, D.R. and Byerly, G.R. (Eds.), Geologic Evolution of the Barberton Greenstone Belt, South Africa. Geological Society of America Special Paper, 329, pp. 213-232. Lowe, D.R., Byerly, G.R., Kyte, F., Shukolyukov, A., Asaro, F. and Krull, A. (2003). *Spherule beds 3.47-3.24 billion years old in the Barberton Greenstone Belt, South Africa: a record of large meteorite impacts and their influence on early crustal and biological evolution.* Astrobiology, 3(1), pp. 7-48. Lowe, D.R., Byerly, G.R. and Kyte, F.T. (2014). *Recently discovered 3.42–3.23 Ga impact layers, Barberton Belt, South Africa: 3.8 Ga detrital zircons, Archean impact history, and tectonic implications*. Geology, 42(9), pp. 747-750. Parman, S.W., Dann, J.C Grove, T.L., and de Wit, M.J. (1997). *Emplacement conditions of komatiite magmas from the 3.49 Ga Komati Formation, Barberton Greenstone Belt, South Africa.* Earth and Planetary Science Letters, 150(3-4), pp. 303-323. Robins, B., Sandsta, NR., Furnes, H.,and de Wit, M. (2010). *Flow banding in basaltic pillow lavas from the Early Archean Hooggenoeg Formation, Barberton Greenstone Belt, South Africa*. Bulletin of Volcanology, 72(5), pp. 579-592. Sagan, C. and Mullen, G. (1972). *Earth and Mars: Evolution of Atmospheres and Surface Temperatures*, Science, 177 (4043), pp. 52-56. Van Kranendonk, M.J. (2011). *Cool greenstone drips and the role of partial convective overturn in Barberton greenstone belt evolution*. Journal of African Earth Sciences, 60(5), pp. 346-352;

d) Consultations: 8 desk reviews received. The mission met with a wide range of stakeholders including representatives of local government, site managers, local community representatives and landowners.

e) Field Visit: Guy Narbonne, 1-7 September 2017

f) Date of IUCN approval of this report: April 2018

2. SUMMARY OF NATURAL VALUES

The nominated property, Barberton Makhonjwa Mountains (BMM), is a 113,137 ha (c.120 x 30 km) area of land located in north-eastern South Africa, and joining the Swaziland border on its eastern boundary. The nominated property comprises 40% of the Barberton Greenstone Belt, one of the oldest geological features on our planet. This ancient geology is core to the proposed Outstanding Universal Value (OUV) of this nominated property, and BMM

represents the best-preserved, thick and diverse succession of volcanic and sedimentary rocks dating back 3.6 to 3.25 billion years to the early part of the Archean Eon. After the planet first formed c.4.6 billion years ago, the early Archaean was the time when the first continents were starting to form on the primitive Earth. Features of the early Earth that are especially well-preserved in BMM include meteorite-impact fallback breccias dating to just after the end of The Great Bombardment (4.6 to 3.8 billion years ago) where massive meteorite impacts had repeatedly sterilized the surface of the new Earth, tidal bedding that formed when the newly formed Moon was less than half as far away from Earth as it is today, and komatiites that represent the hottest lavas to have ever flowed on Earth. This was the natural setting for the origin of the first reasonably confirmed evidence of cellular life forms. As in other greenstone belts worldwide, there is superb evidence at BMM of the distinctive early (vertical) tectonic processes that formed primitive crust before plate tectonics became the dominant surface process of Earth. BMM also shows the abundant evidence of liquid water on the Earth's surface, and distinctive banded iron formations attesting to the nearly completely anoxic oceans and atmosphere at that time.

Most early Archean sedimentary and volcanic rocks on Earth have eroded away over time, or have been extensively altered by structural deformation and metamorphism during later plate tectonic movement, but the rocks of BMM were protected from later deformation by plutons of granite beneath and from later erosion by a thick sequence of Proterozoic sedimentary and volcanic rocks. Metamorphic grades are very low (greenschist) and the rocks are not strongly deformed structurally, resulting in superb preservation of the original sedimentary and volcanic features. The area is rugged – this both provides excellent exposures of these strata and limits human impact through settlement or farming, thus maintaining the natural beauty and the exposure of the geological attributes of the nominated property.

Approximately 67% of the nominated property lies within protected nature reserves, hosting a range of wildlife that are considered typical for South Africa, with the remainder almost equally distributed between timber plantations (17%) and areas used for low-impact herding and subsistence farming. The unique geology of Barberton Greenstone Belt has also created distinctive soils that host a diversity of plant species. Endemic plant species include the Woolly Cycad (*Encephalartos heenanii*) which is listed as Critically Endangered on the IUCN Red List.

Fifty years of geological fieldwork in the Barberton Greenstone Belt have identified, described, and interpreted hundreds of geosites that collectively defined the following key features of the processes and products in the early stages in the development of supracrustal rocks on Earth. These are:

- Granite-greenstone belts that define the tectonic style of the early Earth that formed the planet's first supracrustal rocks;
- Spherule beds of molten rock droplets, generated by gigantic meteorite impacts on Earth dating back to the final stages of the Great (Late Heavy) Bombardment;
- the "Faint Young Sun Paradox", evidence of liquid water on the Earth's surface despite the fact that the Sun was a new star putting out only 75% of its modern energy level, a paradox that implies the Earth's earliest atmosphere consisted mainly of volcanic gases such as carbon dioxide;
- Chemical precipitates of iron-oxide minerals in banded-iron formation, implying that the early atmosphere and oceans were nearly completely anoxic;
- Pillow lavas, indicating widespread volcanic eruptions under water;
- Komatiite lavas, first described and named from the nominated property, that represent the hottest lavas to flow on Earth;
- Thick deposits of volcanic lapilli formed from explosive volcanic activity;
- Sediments that record river flows and wide sandy tide-dominated shorelines that reflect the near-Earth orbit of the Moon immediately after its formation 4 billion years ago;
- Microfossil evidence of early life on Earth, dispersed as abundant traces of organic material, as microscopic cells in black chert and as shallow-water biomats.

In summary, this combination of a large and thick, compact package of superbly preserved and exposed strata dating to the early Archean is unknown anywhere else in the world, and provides our clearest view of sedimentary and volcanic conditions on the early Earth.

3. COMPARISONS WITH OTHER AREAS

BMM is nominated for World Heritage Site status under criterion (viii). In the original nomination document, the Global Comparative Analysis was split into three separate sections, none of which provided the rigorous comparisons and scientific discussion necessary to assess the importance of the nominated property on a global scale. Some of the comparisons were based on outdated information, resulting in unsubstantiated assertions and inadvertent factual errors. Following an initial request to the State Party by IUCN, an Addendum to Section 3.2 was submitted on October 10th 2017 to update the Comparative Analysis, although this supplement does not provide details on the palaeontology of these properties. IUCN requested further comparative information which was submitted as Annexure A in the supplementary information provided by the State Party. The updated analysis in the supplementary information is rigorous, factual, and succinctly conveys the key information needed for global comparison.

Taken as a whole these comparisons confirm that current geological sites included on the World Heritage List are not comparable, having been defined on values that are not applicable to BMM. Granite-greenstone belts are significant features that are not

represented among any properties currently inscribed on the World Heritage List under criterion (viii). The only valid comparisons of BMM are with other Archean greenstone belts worldwide, which can be divided into three main groups based on relative age (i.e. older than BMM, younger than BMM, and coeval with BMM).

Older Archean Greenstone Belts comprise Isua in Greenland, Nuvvuaqqitug in northern Quebec, and a newly reported site in Sagak in northern Labrador. All of these sites are older than BMM but each is a very small area of mainly structurally deformed and metamorphosed rocks, resulting in a record that is more limited, fragmented, and obscured that in BMM. Putative evidence of early life has been reported from all three of these older sites, but these reports are highly contentious and none are widely accepted. Further discoveries are possible, especially at Isua where melting of the Greenland Icecap is gradually exposing new outcrop, but at the present time none of these earlier sites could be regarded as comparable with the superb record of early Earth processes preserved in BMM. The global comparisons with granite-greenstone belts older than BMM conclude that they are smaller, more tectonized and fragmented, more altered through metamorphism, and contain a less diverse suite of rock types than BMM.

Younger Archean Granite-Greenstone Belts include Abitibi and Superior Province in Canada, and several African belts (Pietersburg, Lake Victoria, Zimbabwe, etc.) as listed in the dossier. These are on the same scale as BMM, but typically are more structurally deformed and metamorphosed so their record is more obscure. None of these properties is as rugged as BMM and the level of exposure is correspondingly poorer than in BMM, although to some degree this is compensated by the lack of weathering in the glacially-polished outcrops of the two Canadian properties. Putative microbial fossils have been reported from some of these sites. Global comparisons with granite-greenstone belts younger than BMM conclude that they are more weathered and exhibit fewer rock types recording the processes and products of the early Earth.

Regarding coeval Archean Greenstone Belts, analysis of a range of sites identifies Pilbara Greenstone Belt in Western Australia as the only site that represents a close comparison regarding the OUV proposed for BMM. Pilbara is closely comparable to BMM in its size and thickness, outcrop abundance, outcrop quality, and geological/rock type diversity. Both BMM and Pilbara contain all the key features and processes that formed the first supracrustal sequences on the early Earth, with komatiites and meteorite-impact fallback breccias better developed in BMM, and iron formation and carbonates better developed in Pilbara. Currently the fossil evidence for Earth's earliest microbial life is slightly older and more diverse at Pilbara, and this might provide one basis for a separate serial extension, with the part of Pilbara containing the key fossil occurrences (e.g. Marble Bar and Sellery Pool) sometime in the future. The updated analysis ranks the geological features of both BMM and Pilbara as essentially equal, but ranks BMM slightly higher than Pilbara overall because of secondary criteria regarding its greater accessibility and infrastructure. It should also be noted that BMM has been on the Tentative List for South Africa since 2009, whereas Pilbara does not appear on the Tentative List of Australia.

In the view of IUCN, BMM fulfils the claim of being the best-preserved example of the oldest and most diverse sequence of volcanic and sedimentary rocks on Earth. For the reasons discussed above the older and younger sites available are less able to demonstrate the full range of attributes associated to the early history of the Earth. The approximately coeval succession at Pilbara is closely comparable to BMM and of essentially an equivalent value, although secondary considerations such as access distinguish BMM. IUCN therefore concludes that comparative analysis supports the case that BMM meets criterion (viii).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

South Africa has enshrined environmental rights in its constitution, and this is reflected in the strength and diversity of environmental laws protecting its lands. The State Party provided the field mission with a list of all national, provincial, and municipal laws relevant to the legal protection and management of the nominated property. The five reserves that collectively constitute 67% of the nominated property are effectively protected by the National Environmental Management: Protected Areas Act, No. 57 of 2003 (NEMPAA) and the Mpumalanga Tourism and Parks Agency Act, No. 5 of 2005 (MTPAA). Issuing of any new mining and mineral exploration rights in these areas is specifically prohibited under the Mineral and Petroleum Resources Development Act, No. 28 of 2002 (MPRDA). Inscription of the nominated property would provide additional protection under the World Heritage Convention Act, No. 49 of 1999 (WHCA).

Approximately one-third of the nominated property lies outside formal Protected Areas. These areas are privately owned by timber plantations (16.5% of the nominated property) and farming/tourism (16.5% of the nominated property), and thus require different approaches to protection and management. These areas were chosen to include key geosites with essential attributes that are not well represented inside any of the five formal Protected Areas.

Geosites inside the nominated property but outside the protected areas currently have limited or no legal protection. This is being actively addressed by the South African Heritage Resources Agency (SAHRA), who have completed an inventory all of these geosites and are in the process of applying for protection for them under the National Heritage Resources Act, No. 25 of 1999 (NHRA). This process may require public consultations and, although it seems likely to proceed successfully, informal estimates for its completion given to the field mission ranged from a few months to more than a year among the different

experts interviewed. Inscription of the nominated property on the World Heritage List would provide immediate additional protection under the World Heritage Convention Act, No. 49 of 1999 (WHCA). The State Party supplementary information conveyed that notification of intention to declare geosites outside the boundaries of the reserves as protected heritage sites was issued on 26 September 2017 and that these geosites will be formally published in a government gazette in March 2018. If enacted this would appear to provide adequate protection for these geosites under South African environmental law. Protection of geosites outside the reserves was a key concern throughout the Evaluation mission, and, whilst the State Party has responded quickly and definitively in this regard, at the statutory date of finalization of the IUCN evaluation, the formal protection of the geosites was not able to be confirmed. As these sites are crucial in conveying the attributes of the nominated property, the confirmation of protection appears to IUCN to be of a fundamental importance, before the site could be recommended for inscription on the World Heritage List.

Land use outside the protected areas but inside the nominated property is sympathetic with the protection of the property's proposed OUV and nearly all land use immediately bordering the Reserve is similarly sympathetic. One additional major benefit of World Heritage inscription would be the immediate establishment of a 10 km zone around the nominated property subject to the National Environmental Management: Protected Areas Act, No. 57 of 2003 (NEMPAA), which requires that any proposal for new activities or rezoning in this area undergo an environmental review.

IUCN considers that the protection status of the nominated property does not fully meet the requirements of the Operational Guidelines, as there is a need for the geosites located outside the protected areas to have received statutory protection.

4.2 Boundaries

The nominated property is a single, contiguous entity with its boundaries carefully chosen to represent the key attributes of OUV within the context of land use compatible with World Heritage designation. The nominated property is of sufficient size, comprising 113,137 ha that accounts for 40% of the total area of the Barberton Greenstone Belt. Care has been taken to include all key attributes and as many of the key geosites (outcrops) as possible, as justified in the nomination dossier. An international team of four eminent geoscientists, chosen for their extensive published research on the Barberton Greenstone Belt and their familiarity with comparable regions elsewhere in the world, selected the 380 most important geosites in the Barberton Greenstone Belt and graded them as "essential" (Grade 1) or "important" (Grade 2). This map was then integrated with present and anticipated land use to produce a nominated property that exhibits as many key geosites as possible within a contiguous nominated property. The nominated property encompasses 51% of the 380 geosites identified in Barberton Greenstone Belt, but more importantly contains 75% (71 of 95) of the Grade 1 geosites in the area. The IUCN field mission verified that all of the key features of early Earth crustal evolution listed in the dossier are represented by world-class geosites that are reasonably undeformed and only very slightly metamorphosed. Some of the localities from which putative fossils of early life were first reported from the Barberton Greenstone Belt lie within active mining areas that could not be included in the nominated property, but lateral equivalents of these units are well represented in the nominated property. Most attributes are illustrated at more than one geosite within the nominated property. Carbonaceous fabrics that are reasonably interpreted as ancient microbial mats are readily available for public viewing on the Barberton Makhonjwa Geotrail and can be examined for research purposes elsewhere in the nominated property.

Areas with land use incompatible with World Heritage designation were specifically excluded from the nominated property. These areas include urban and semi-urban centres such as Barberton, which in any case are mostly situated on flat alluvium that lacks the geological features that might constitute OUV. Lawfully held mining rights adjacent to the northern edge of the nominated property resulted in a northern boundary that is strictly defined on land use irrespective of the geological attributes in this region. One community specifically requested that it not be included within the nominated property so it could negotiate exploration rights with a mining company, but may seek to be included at a later date if mineral exploration is unsuccessful.

No buffer zone is proposed on the basis that the State Party considers a buffer zone is unnecessary. The State Party informed the field mission (with supporting maps provided), that with the exception of the area of mining rights in the north discussed below and a very small built-up area on the southern boundary, most land adjacent to the boundaries of the nominated property is zoned as "Agricultural" with smaller amounts zoned "Forestry" or "Open Space". These land use restrictions are reported to be strictly implemented by municipalities under the MSA. The State Party indicated that all of the individual geosites protected in the privately held areas of the nominated property will in future have a 20-50 m buffer zone that is protected under the South African World Heritage Convention Act No 49 of 1999. The State Party also indicated that any proposed activity or rezoning within 10 km of an inscribed World Heritage nominated property in South Africa requires environmental review under the National Environmental Management: Protected Areas Act, No. 57 of 2003 (NEMPAA).

IUCN acknowledges that the complicated land use that has evolved in and around the nominated property is such that it may not be possible to establish a viable buffer zone that completely encloses the entire nominated property. However the need for a buffer zone for protection is most critical for geosites outside of the reserves, and the confirmation of these buffers should be part of the confirmation of protection for the geosites as discussed above. The need for a wider

buffer zone is reduced for the heavily fenced reserves, most of which have boundaries that in part correspond to the sharp interface between the flat and arable land outside the reserves and the mountainous land inside the reserves. The fact that any proposed activity or rezoning within 10 km of an inscribed World Heritage nominated property in South Africa would require strict environmental review, if the site was inscribed, also represents a *de facto* buffer for the proposed World Heritage nominated property.

IUCN considers that the boundaries of the nominated property meet the requirements of the Operational Guidelines, provided that the confirmed protection of the geosites outside the protected areas includes appropriate wider protection for each geosite. However strengthened buffer zone arrangements are desirable for the nominated property as a whole.

4.3 Management

The dossier proposes that Mpumalanga Tourism and Parks Agency (MTPA), the agency currently overseeing the five protected areas that comprise 67% of the nominated property, have its role expanded to act as the Management Authority for BMM. There is considerable logic in this proposal in that MTPA has been successfully overseeing protected areas in the nominated property for decades, is one of the main bodies spearheading the World Heritage nomination, and has the infrastructure and much of the staff and expertise to assume its new role and carry out its additional mandate.

Should the nominated property be inscribed, there will need to be a significant expansion from an apparent biologically oriented management approach to one which gives strong standing to geology. Among the three Integrated Action Plans provided in the nomination, the Nkomazi Integrated Management Plan (Appendix F) mentioned geology only once in the introduction. Songimvelo Integrated Management Plan (Appendix D) mentioned “geology” only in the chapter on “Background” and listed “paleontological” features once in section 7.4.1 on Cultural Resource Management. Geology plays a bigger role in the Mountainlands Integrated Management Plan (Appendix E), where an action item to construct a geological database is included in all five years of operations. The dossier proposes that the new geological opportunities and responsibilities inherent in World Heritage status can be tacked onto the existing plan with little new resources or changes in direction.

This limited approach is repeated in the proposed Barberton Makhonjwa Mountains Integrated Management Plan (Appendix N), included in the nomination dossier as the future management plan for the World Heritage Site, which states that “normal biodiversity management will be more than adequate to protect and manage their geological heritage”. IUCN considers this is not adequate to the management requirements for a geological site, even if the proposed new plan sees a more significant role for geology than in the previous management plans for the individual reserves and a greater integration of geology into a regional framework. The nominated property requires high-level geological expertise necessary to manage the increased attention, pressures, and opportunities that World Heritage would entail. There is a specific need to improve capacity in the areas of engagement with the Scientific Advisory Committee, responding to directed requests from the World Heritage Committee (and UNESCO and IUCN), designing proactive and retroactive programs to protect the outstanding geological attributes of the nominated property, training the interpretive staff in geology and geoheritage, encouraging and facilitating national and international geological research and education programmes, designing new interpretive displays based on recent discoveries, and popularizing the geology of BMM both locally and worldwide to generate increased geotourism.

MTPA has committed to hiring four or five new staff to assume the extra duties inherent with World Heritage. The budget for these new positions indicated in the nomination seems appropriate. Only minor extra funding is promised in the dossier for the wider increased responsibilities inherent in World Heritage designation, however the supplementary information from the State Party reports that the National Department of Environmental Affairs has been allocated a ZAR 20 million (c. USD 1.6 million) grant to MTPA over four years to fund the training and deployment of World Heritage village guides and rangers to, inter alia, address geosite protection and visitor management tasks. IUCN considers that these additional resources represent a minimum requirement to meet the future management needs of the nominated property in relation to its geological values, whilst noting the need to maintain at least the current levels of expertise and effort regarding biodiversity conservation.

The nominated property is accessible, being relatively close to O.R. Tambo Airport in Johannesburg which is the busiest airport in Africa, and even closer to the world-class game reserve at Kruger National Park. The potential of the nominated property to enhance global earth science education is heightened by Barberton Makhonjwa Geotrail, a 37 km-long paved public highway through a geological cross-section of the Barberton Greenstone Belt from Barberton to the Swaziland border. Each roadside overlook has high quality interpretive displays that illustrate the geological evolution of the early. There is a clear need for more signage at key BMM boundary access points and additional training of the staff in geology and geological stewardship, but all other essential management mechanisms are already in place and appear likely to be enhanced by inscription.

IUCN considers that, in view of the lack of geological capacity currently in place in the proposed management body and the fact that the Integrated Management Plan remains a proposal, the management of the nominated property does not fully meet the requirements of the Operational Guidelines.

4.4 Community

The landscape is rugged and sparsely populated, with less than 500 permanent inhabitants and no medium- or large-scale settlements, nor industrial uses within the nominated property. Approximately 250,000 people live on the flatter and more arable lands that surround the site. There are multiple land uses and ownership throughout the Barberton Mountains and a complex mosaic of land uses including barren rock ridges, small subsistence farms, managed forest plantations, tourist resorts, and isolated small communities. Land ownership is similarly complex, and includes protected areas governed under Mpumalanga Tourism and Parks Agency (MTPA), private companies operating timber plantations (SAAPI Manufacturing and York timbers), private land owners, and communally held land with some simple dwellings. Other land uses and ownership outside the boundaries of the property include medium-sized communities with commercial activities such as stores, restaurants, and mining, and have also been included as stakeholders in all negotiations.

Barberton Tourism and Biodiversity Corridor (BATOBIC) has held public meetings with all of these groups, and additional meetings were held as part of the IUCN Evaluation field mission. These meetings verified very strong support for the World Heritage initiative from all of the local land owners and dwellers. An open, outdoor meeting of local inhabitants in the village of Avontuur on September 5th (held in Siswati with English translation) was attended by 77 people from Avontuur with an additional 28 people attending from the community of Mbhejeka, ended with a unanimous show of hands supporting the initiative. A meeting of land owners, principally managers of the Nature Reserves and timber plantations along with some local landholders, held in English in Barberton the next day, also produced a unanimous show of support for the initiative. Support for the World Heritage initiative is widespread among all types of landowners throughout the nominated property, and the efforts of BATOBIC in meeting openly with all potential stakeholders to discuss their concerns are to be commended.

The land-owners within the nominated property have signed a resolution (included as Appendix J in the nomination) committing themselves and their properties to support the proposed World Heritage Site on condition that they are afforded formal representation on all decision-making structures and that their land ownership rights are protected. Most of these land owners have also signed individual agreements for their identified properties to be included within the proposed World Heritage Site.

IUCN sought information from the State Party regarding a reference to relocation of people in the nomination. The State Party confirms in reply that relocation of people within the property is part of a process that has been ongoing for the last 30 years and which is well legislated and takes place strictly in accordance with the legal framework which deals with consultation with affected parties, their compensation and improved tenure security and livelihoods. Specifically the above process relates to land claims in terms of the Restitution of Land Rights Act No 22 of 1994 and an integral part of the country's attempts to address past social injustices. No direct concerns have been raised about this process with IUCN.

4.5 Threats

Barberton was established during the 1884 Barberton Gold Rush, and gold has been mined in Barberton nearly continuously since that time. There is limited evidence of historic mining activity in the nominated property, but this has not resulted in lasting damage to the features of the proposed OUV. Two companies, Barberton Mines and Vantage Goldfields, lawfully hold mining rights adjacent to the northern edge of the nominated property and there is active mining at a depth of approximately 1000-1200 m below the surface immediately to the north of the nominated property.

The rights of these companies to legally extract minerals from their existing mineral properties and to explore for new mineral resources in areas outside protected areas is not disputed. However a century of mining is depleting the known reserves of gold ore in these mineral claims, and Barberton Mines expressed concern that World Heritage status would further restrict them from prospecting for further mineral deposits, particularly in the protected areas immediately south of the existing mining properties. The National Environmental Management: Protected Areas Act (2003) already ensures that no mining, agricultural tillage and timber growing can take place within protected areas, and mining in protected areas is also specifically prohibited by the MPRDA (Minerals and Petroleum Resources Development Act, 2003). The interpretation of these acts as banning mineral exploration and mining in the protected areas immediately south of the active mines was challenged in two recent court cases (Supreme Court of South Africa Case No. 216/2016 and Constitutional Court of South Africa Case CCT-84/17), and both judgements confirmed that prospecting or mining may not proceed in the protected areas.

For perspective, greenstone belts host a huge percentage of the world’s mineral resources, and mining will be a threat in any greenstone belt worldwide except the most remote. The level of threat in the nominated property is not high by comparison with other greenstone belts worldwide and is now largely under control due to the relatively high standards of South African environmental law. At least for the moment the matter seems to be settled on the side of conservation, but continued diligence is necessary.

Outcrops in the reserves are well protected, with enforcement officers and protocols already in place, and require only an additional focus on the geological attributes proposed for OUV rather than the biological attributes for which the reserves originally were established. Most of the rock outcrops that are the key attributes of the proposed OUV of the nominated

property are in excellent condition, but despite the assurances given in the dossier it became obvious during the IUCN field mission that there has been major uncontrolled collecting from the komatiite outcrops outside the current protected areas to a level that threatens their long-term existence. The wildlife managers who run the protected areas have considerable knowledge and experience dealing with poachers of biological resources but are less sensitized to illegal collecting of geological material. The increased exposure that World Heritage designation could bring to these komatiites would also increase the pressure on these key geosites. Adequate laws to protect the outcrops already exist however, will only come into effect if the nominated property is inscribed on the World Heritage List. Successful application of these laws will require in-house geological expertise and local community support to deal with geosite protection both proactively and retroactively. Supplementary information confirms that the MTPA has undertaken to mobilise its staff from the adjoining Songimvelo and Barberton Nature Reserves to patrol and protect the geosites located outside the reserves. Thus it appears a range of measures are in train to combat threats to the geosites.

Broader threats to the proposed OUV appear relatively minor. The region is seismically stable. Threats to the biodiversity of the region (such as the spread of alien invasive species and increased erosion) do not diminish its geological attributes. There is a small population of traditional owners living through sustainable agriculture on the nominated property, and any expansion of the population would probably take place mainly on flat lands covered in alluvium that do not contain key geosites. Educational and some logistical facilities for increased geotourism as a result of World Heritage designation are already active, and the procedures are currently being honed on the modest number of current visitors. The Barberton-Makhonjwa Geotrail was designed for present and future needs and is more than adequate for the likely increase in visitation that inscription on the World Heritage List would bring. The Geotrail is a well-maintained, paved trail with superb interpretive overviews, and as such will focus visitation into a defined area that is easy to manage and patrol.

In conclusion, IUCN considers that the integrity requirements of the nominated property meet the requirements of the Operational Guidelines, but that the protection and management requirements in the Operational Guidelines are not yet fully met.

5. ADDITIONAL COMMENTS

5.1 Transboundary collaboration

IUCN noted the importance of possible transboundary collaboration in the management of the property, in view of its location at the national border with Swaziland, and the fact that the features of potential OUV extend over this border. IUCN sought information from South Africa about their view on transboundary collaboration, and in their supplementary information it is confirmed that South Africa had several engagements with Swaziland through different platforms including the Songimvelo-Malolotja Transfrontier Conservation Area (S-MTFCA) fora. The main purpose of these engagements was to inform Swaziland about South Africa's intention to nominate Barberton Makhonjwa Mountains as a World Heritage Site, to understand Swaziland's possible position on inclusion of potential geosites in Swaziland in the nomination process and later on to report on progress being made with the nomination.

South Africa states that, at present, there is insufficient data available about potential geosites in Swaziland, and acknowledges that the possibility may exist to add potential geosites that would complement those of the nominated property. In the event this is shown to be the case, South Africa confirms that it will be willing to accept extension should data become available.

IUCN recommends that this aspect of possible future extension is actively supported, and notes that inscription of the nominated property in South Africa would enhance scientific research throughout the whole of the Barberton-Greenstone Belt, including whether there are Swaziland geosites that could contribute to the potential OUV of BMM.

6. APPLICATION OF CRITERIA

Barberton Makhonjwa Mountains has been nominated under natural criterion (viii).

Criterion (viii): Earth's history and geological features

Barberton Makhonjwa Mountains represents the best-preserved, thick and diverse succession of volcanic and sedimentary rocks dating back 3.6 to 3.25 billion years to the early part of the Archean Eon when the first continents were starting to form on the primitive Earth. Features of the early Earth that are especially well-preserved in Barberton Makhonjwa Mountains include meteorite-impact fallback breccias dating to just after the end of The Great Bombardment (4.6 to 3.8 billion years ago) that had repeatedly sterilized the surface of the new Earth, tidal bedding that formed when the newly formed Moon was less than half as far away from Earth as it is today, and komatiites that represent the hottest lavas to have ever flowed on Earth. This was the natural setting for the origin of the first reasonably confirmed cellular life forms.

IUCN considers that the nominated property 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/18/42.COM/8B and WHC/18/42.COM/INF.8B2;

2. Refers the nomination of **Barberton Makhonjwa Mountains (South Africa)** to the World Heritage List back to the State Party, noting the clear potential of the nominated property to meet criterion (viii), in order to allow the State Party to:

a) Complete the current process of legal protection of the geosites located outside of the nationally protected areas, including an appropriate wider zone of protection around each of these geosites;
b) Commence the recruitment of the necessary geological staff, including at least one position at senior level, in order to ensure the necessary qualified capacity to assure the management of the geological values of the nominated property, and the protection of all of the geosites from illegal collection.
c) Expedite the implementation of the proposed Barberton Makhonjwa Mountains Integrated Management Plan as an agreed joint management framework for the nominated property in anticipation of its legal adoption should the property be inscribed.

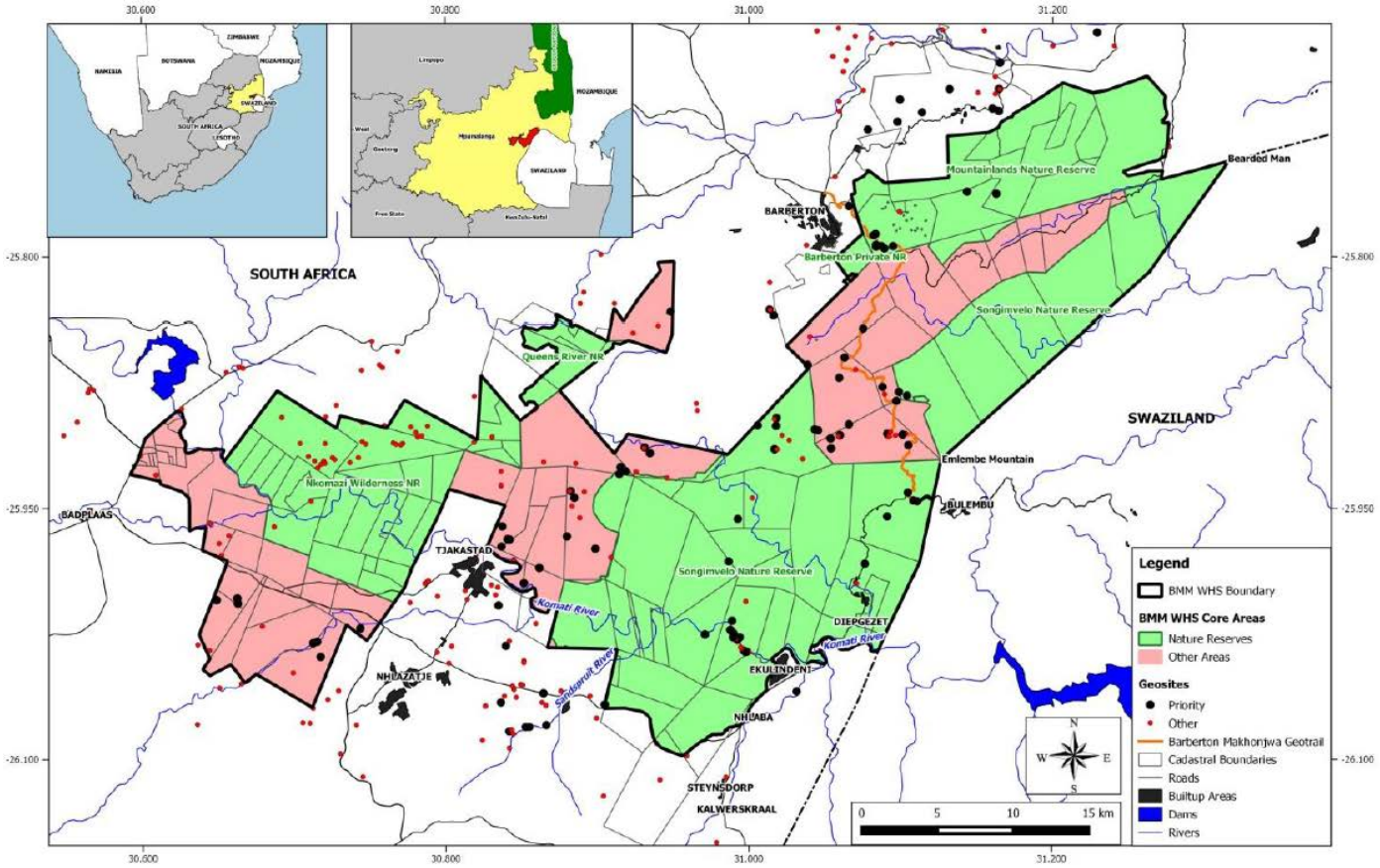
3. Requests the State Party to:

a) Ensure that all the proposed additional financial commitments to the nominated property are expedited, and that ongoing additional resources are provided to assure adequate staffing, including specific geological expertise, in the management bodies for the property;
b) Maintain and enhance vigilance regarding threats to the property, and ensure that the nominated property as a whole, and all of the individual geosites, are effectively protected, conserved and presented;
c) Evaluate the opportunities to further strengthen the buffer zone arrangements for the nominated property, and to give consideration to the specific creation of a World Heritage buffer zone, in collaboration with the relevant stakeholders.

4. Invites the States Parties of South Africa and Swaziland to continue their collaboration regarding protection, management and research on the key geosites in the greenstone belt that extends into Swaziland, and to evaluate further the possibility to include additional sites in Swaziland in a transboundary extension of the nominated property, should further research indicate this potential;

5. Commends the State Party, and the local stakeholders, for the participative process that has led to the creation of this nomination, and requests the State Party to ensure that this strong community collaboration remains at the heart of management of the nominated property in the future.

Map 1: Nominated property



ASIA / PACIFIC

FANJINGSHAN

CHINA

Guizhou Snub-nosed Monkeys (*Rhinopithecus brelichi)* – photo from the nomination dossier

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

FANJINGSHAN (CHINA) – ID N° 1559

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To refer the property under natural criteria.

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

1. DOCUMENTATION

a) Date nomination received by IUCN: March 2017

b) Additional information officially requested from and provided by the State Party: Following the IUCN World Heritage Panel a progress report was sent to the State Party on 20 December 2017. This letter advised on the status of the evaluation process and sought responses/clarifications on a range of issues including in relation to the consultation process with local communities on the nomination file and the relocation plan, and further information on requests related to species conservation in the nominated property. The letter also requested a copy of several documents, with adequate translation: detailed relocation plan; "plan to reduce permanent human population"; and Master Plan of the Eco-tourism Development of the Guizhou Fanjingshan National Nature Reserve. A formal response from the State Party to the issues raised in the progress report was received on 26 February 2018.

c) Additional literature consulted: Various sources, including: Bleisch W, Long Y, Richardson M. 2008. *Rhinopithecus brelichi*. The IUCN Red List of Threatened Species 2008. Downloaded on 16 November 2017. Kirkpatrick RC. 1998. *Ecology and behavior in snub-nosed and douc langurs*. In: Jablonski N, editor. The Natural History of the Doucs and Snub-Nosed Monkeys. Singapore: World Scientific Press. p 155-190. Kirkpatrick RC, Grueter CC. 2010. *Snub-nosed monkeys: multilevel societies across varied environments.* Evolutionary Anthropology 19:98-113. Kolleck J, Yang MY, Zinner D, Roos C. 2013. *Genetic diversity in endangered Guizhou snub-nosed monkeys (Rhinopithecus brelichi): contrasting results from microsatellite and mitochondrial DNA data*. PLOS ONE 8:e73647. Ministry of Housing and Urban-Rural Development, People's Republic of China, 2016. Fanjingshan. Convention Concerning the Protection of the World Cultural and Natural Heritage. Nomination document. Ministry of Housing and Urban-Rural Development, People's Republic of China, 2016. Fanjingshan Management Plan. Pan H J, Shi F L, Chang Z F, et al. 2011. *Mitochondrial DNA variation analysis suggests extreme low genetic diversity in Guizhou snubnosed monkeys (Rhinopithecus brelich*i). Chinese Science Bulletin 56:2541−2544. Pan Y, Wei G, Cunningham AA, Li S, Chen S, Milner-Gulland EJ, Turvey ST. 2016. *Using local ecological knowledge to assess the status of the Critically Endangered Chinese giant salamander Andrias davidianus* in Guizhou Province, China. Oryx 50:257-264. Tapley B, Okada S, Redbond J, Turvey ST, Chen S, Lü J. et al. (2015). *Failure to detect the Chinese giant salamander (Andrias davidianus) in Fanjingshan National Nature Reserve, Guizhou Province, China*. Salamandra 51, 206-208. Xiang Z, Nie S, Lei X, Chang Z, Wei F, Li M. 2009. *Current status and conservation of the gray snub-nosed monkey Rhinopithecus brelichi (Colobinae) in Guizhou, China*. Biological Conservation 142:469-476.

d) Consultations: 15 desk reviews received. The mission met with a wide range of stakeholders, representatives and staff of concerned national and local authorities, including high-level representatives of the Ministry of Housing and Urban-Rural Development, local governments, as well as of the Administration of Guizhou Fanjingshan National Nature Reserve and local communities.

e) Field Visit: Cyril Grueter and Remco van Merm, 10-16 October 2017

f) Date of IUCN approval of this report: April 2018

2. SUMMARY OF NATURAL VALUES

The nominated property, Fanjingshan, is located within the Wuling Mountain Range, near Tongren City in North-East Guizhou province, South-West China. It is located in the transitional zone between the Yunnan-Guizhou Plateau and the Western Hunan Hills. Covering a total area of 40,275 ha, the nominated property overlaps, but does not fully coincide with Fanjingshan National Nature Reserve, Yinjiang Yangxi Provincial Nature Reserve (Chayuan area) and a small area of National Non-Commercial Forest. Fanjingshan National Nature Reserve is also a UNESCO Biosphere Reserve. The supplementary information provided by the State Party confirms that the nominated property fully includes the core zone of the Biosphere Reserve, as well as parts of the buffer zone to the Biosphere Reserve. The nominated property is fully surrounded by a proposed World Heritage site buffer zone of 37,239 ha, which is not included in the nominated property.

The nominated property is located in two ecoregions, namely the Jian Nan subtropical evergreen forests ecoregion (64%) and the Guizhou Plateau broadleaf

and mixed forests ecoregion (36%). It includes the highest peak in the Wuling Mountain Range, Mt Fenghuangshan, with an elevation of 2,570 m above sea level (masl). With the lowest point at 500 masl, this gives the nominated property an altitudinal range of more than 2,000 m. The resulting vertical stratification of vegetation is common in mountain systems across the globe. In Fanjingshan, the three major altitudinal vegetation zones are evergreen broadleaf forest (<1,300 masl), mixed evergreen and deciduous broadleaf forest (1,300 – 2,200 masl) and mixed deciduous broadleaf and conifer and scrub forest (>2,200 masl). Fanjingshan National Nature Reserve is noted in literature as one of the best-preserved subtropical ecosystems in China. The climate is monsoonal, with mean annual temperatures varying from 5 to 17 °C. With annual precipitation varying from 1,100 to 2,600 mm and a mean annual relative humidity of more than 80%, Fanjingshan has the highest rainfall in Guizhou Province and is one of the wettest regions of China. The nominated property is an important source of water for the surrounding landscape and beyond, with some 20 rivers and streams finding their source here and feeding the Wujiang and Yuanjiang river systems, both of which ultimately drain into the Yangtze River. Many of these features, including the diversity of high quality forests, mountain scenery, wetlands, waterfalls, and meteorological phenomena are put forward in the nomination dossier as justifying the aesthetic importance of Fanjingshan.

The nomination dossier puts much emphasis on Fanjingshan being an island of metamorphic rock in a sea of karst, and notes that it is considered to be the first place in Southwest China to emerge from the sea. It is still home to many ancient and relict plant and animal species which originated in the Tertiary period, between 65 million and 2 million years ago, and it is stated that 75% of its flora "behaves as if it were on an island". The nominated property's isolation and changing climatic conditions have led to a high degree of endemism, with a total of 46 locally endemic plant species, 4 endemic vertebrate species and 245 endemic invertebrate species. The most prominent endemic species are Fanjingshan Fir (*Abies fanjingshanensis* - EN[1]) and Guizhou Snub-nosed Monkey (*Rhinopithecus brelichi* - EN), both of which are entirely restricted to the nominated property. Three species of *Fagus* (*F. longipetiolata, F. lucida,* and *F. engleriana*) are the dominant species of what the nomination dossier states is the largest and most contiguous primeval beech forest in the subtropical region, providing insight into how beech forests evolved from the subtropical to the temperate zone.

A total of 3,724 plant species have been recorded in the nominated property, an impressive 13% of China's total flora. The nominated property is characterized by an exceptionally high richness in bryophytes (791 species) as well as one of the richest concentrations of gymnosperms in China (36 species). The diversity of invertebrates (2,317 species) is also very high. A total of 450 vertebrate species are found inside the nominated property, including 80 mammal, 224 bird, 60 fish, 43 reptile and 43 amphibian species. Although the nomination dossier puts much emphasis on Fanjingshan being the only habitat in the world for Fanjingshan Fir and Guizhou Snub-nosed Monkey, as many as 64 plant and 38 animal species that are listed as Vulnerable (VU), Endangered (EN) or Critically Engandered (CR) on the IUCN Red List are also found here, including the tree *Bretschneidera sinensis* (EN), Chinese Giant Salamander (*Andrias davidianus* - CR), Forest Musk Deer (*Moschus berezovskii* - EN), Reeves's Pheasant (*Syrmaticus reevesii* - VU), and Asiatic Black Bear (*Ursus thibetanus* - VU).

3. COMPARISONS WITH OTHER AREAS

The nomination dossier undertakes a detailed comparative analysis for each of the criteria for which the property is nominated. Recognizing that an objective comparison of aesthetic value is challenging, the nomination dossier nevertheless attempts to compare Fanjingshan with all 133 sites listed under criterion (vii), by looking at the presence or absence of 10 recurring categories of scenic values (lakes, waterfalls, coastlines, panoramas, landforms, deserts, mountains, forests, meteorological phenomena, and wildlife spectacles). Further comparison is made with seven other mountain World Heritage sites in China, comparing the scales of these properties and the aesthetic values for which they have been inscribed.

The conclusions in the nomination document that Fanjingshan can claim Outstanding Universal Value (OUV) for seven of the abovementioned categories of scenic values is not substantiated. The aesthetically important geomorphological features of Fanjingshan all occur on a very limited scale at the top of Jinding Peak, and do not compare favourably with other dramatic rock formations already included on the World Heritage list, such as the sandstone columns of Wulingyuan Scenic and Historic Interest Area (China) or the remarkable granite rock formations of Mount Sanqingshan National Park (China). Similarly, there is no evidence that the aesthetic value of the nominated property's wetlands and waterfalls stands out when compared to other sites already on the World Heritage list, such as Pantanal Conservation Area (Brazil) or Canaima National Park (Venezuela). Claims made in the nomination document that the nominated property would meet criterion (vii) on the basis of wildlife spectacles are also not substantiated, as the nominated property does not feature any noteworthy wildlife spectacles in the sense of other such spectacles already recognized on the World Heritage list, such as the congregation of flamingos in Kenya Lake System in the Great Rift Valley (Kenya), the abundant marine life in the Galápagos Islands (Ecuador), the millions of cave swiftlets and bats in Gunung Mulu National Park (Malaysia), or the overwintering congregation of the monarch butterfly at Monarch Butterfly Biosphere Reserve (Mexico), to name but a few.

[1] These codes reflect the conservation status of each species as recorded in the *IUCN Red List of Threatened Species* at the time of the evaluation; for more information please visit http://www.iucnredlist.org

In terms of its biodiversity values, the nomination dossier lists Fanjingshan with other World Heritage sites in the same Udvardy Biogeographical Province (Oriental Deciduous Forest) and Terrestrial Ecoregion (Guizhou Plateau broadleaf and mixed forests), as well as other broad-scale global conservation priorities, including Freshwater Global 200 priority ecoregions and Endemic Bird Areas. However, it draws no conclusions on the significance of the nominated property in these contexts. Additional analysis undertaken by IUCN and UN Environment-WCMC to rank the irreplaceability of the nominated property on the basis of its species assemblages found that it has a high irreplaceability, particularly for its mammals, ranking 10th in all of China, and 1st in both the Jian Nan subtropical evergreen forests and the Guizhou Plateau broadleaf and mixed forests ecoregions. Within these ecoregions, the nominated property's irreplaceability ranking for birds and amphibians is also relatively high, respectively 34th and 16th for birds, and 18th and 12th for amphibians.

The nomination dossier goes on to compare Fanjingshan's nature as an 'ecological island' with other ecological islands on the World Heritage List, including some that are marine islands. While most marine islands are discarded for further comparison due to their vastly different context, a comparison is still made with Galápagos Islands (Ecuador), and five other mountain sites, i.e. Mount Emei Scenic Area, including Leshan Giant Buddha Scenic Area (China), Manú National Park (Peru), Putorana Plateau (Russian Federation), Kinabalu Park (Malaysia), and Virgin Komi Forests (Russian Federation). These sites differ fundamentally from Fanjingshan in terms of biogeography, climate and ecological processes. With the exception of Mount Emei, all these sites are also significantly larger than the nominated property. The comparative analysis provides little insight into how Fanjingshan compares to each of these sites in terms of demonstrating the evolutionary processes that led to its high levels of endemism and ancient and relict species. Other sites with landlocked ecological islands that demonstrate such processes, such as Canaima National Park (Venezuela), are not included in the comparative analysis.

The nomination document undertakes a thorough comparative analysis of each of the features put forward as a justification of the nomination of Fanjingshan under criterion (x), including Snub-nosed Monkeys, rare and endangered fir species, beech forests, bryophytes, plant diversity, and animal diversity. It concludes that the nominated property has significant global plant biodiversity, and an impressive number of endemic and endangered species (230 species of rare and endangered plants, 115 species of rare or endangered animals, and 46 local endemic plant species). Most importantly, it is the only habitat for Guizhou Snub-nosed Monkey and Fanjingshan Fir. A comparison of 17 sites in China in the same biogeographic province indicates that Fanjingshan is the richest in terms of overall plant diversity. It also ranks highest in terms of gymnosperms (a striking 36 species). Fanjingshan also constitutes an important distribution centre for mosses. According to a comparison with 12 Chinese sites, the diversity and level of endemism of bryophytes in Fanjingshan almost matches the Hengduan Mountains, which cover a much larger area (36.4 million ha). When measured against 16 other sites in the same biogeographic province, Fanjingshan boasts the second largest number of vertebrate species (450, after Shennongjia, which is substantially larger) and the largest number of amphibians and freshwater fish. As such the nominated property may be considered important for the conservation of freshwater biodiversity.

A separate, more thorough comparison is made with Hubei Shennongjia, which is located less than 500 km away in the same biogeographic province, and was inscribed in 2016 on the basis of criteria (ix) and (x). In terms of plant species richness, Fanjingshan is slightly more diverse than Shennongjia (3,724 vs. 3,644 including bryophytes; 2,933 vs. 3,386 excluding bryophytes) despite being significantly smaller in size (403 vs. 733 km^2). In terms of mammals, the two sites are very similar (Fanjingshan: 80; Shennongjia: 87). However, Shennongjia has more birds (389 vs. 224). The comparison of Fanjingshan with the previously inscribed Shennongjia provided in the nomination dossier is very useful. It demonstrates that despite many similarities, there are some key differences that set Fanjingshan apart from Shennongjia, including the much higher richness in bryophyte species, the higher richness and distinct species assemblage of gymnosperms, the higher richness of amphibians and freshwater fish, and its higher levels of endemism.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nominated property benefits from an adequate legal protection and management framework. Fully within the jurisdiction of Guizhou Province and Tongren City, the nominated property covers three counties: Jiangkou County, Yinjian Tujia and Miao Autonomous County, and Songtao Miao Autonomous County. It consists of three contiguous areas with different levels of legal protection, i.e. a National Nature Reserve, part of a Provincial Nature Reserve, and a small area of National Non-Commercial Forest. According to the nomination dossier, there are plans to incorporate this area of National Non-Commercial Forest into Fanjingshan National Nature Reserve. Furthermore, much of the buffer zone and the wider landscape enjoy various levels of legal protection, including parts of the Fanjingshan National Nature Reserve and the Yinjiang Yangxi Provincial Nature Reserve not included in the nominated property, the Fanjingshan-Taipinghe Provincial Park, the Yinjiang Muhuang Provincial Park, and multiple National Non-Commercial Forests.

All land in the nominated property is owned by the People's Republic of China, which governs and regulates the use of natural resources. The nominated property is divided into three management zones based on conservation value, presentation need, and community utilization.

The nominated property is protected by a comprehensive range of national and provincial legislation. In addition, the villages within the nominated property and its buffer zone each have their own village regulations, which prescribe certain behaviours that respect the natural environment of the mountain.

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

4.2 Boundaries

The boundaries of the nominated property and its buffer zone are clearly designated and at least partly demarcated on the ground. The nominated property covers all important local floristic elements, and is of sufficient size to encompass the entire known home range of Guizhou Snub-nosed Monkey. A buffer zone (37,239 ha) fully surrounds the property. The inclusion of the Chayuan area of the Yinjiang Yangxi Provincial Nature Reserve into the nominated property improves its ecological integrity, by extending the amount of suitable habitat for the Guizhou Snub-nosed Monkey to occupy. It should be noted that the continuity of ecological connectivity between the Chayuan area and Fanjingshan National Nature Reserve is interrupted by the presence of some roads and also impacted by village areas, as well as agricultural land (mainly cropping tea and vegetables). These villages are located in the experimental zone of Fanjingshan Biosphere Reserve, but are included within the nominated property. A wildlife corridor has been constructed over a road near the village of Longmenao, on the boundary of the nominated property, to enhance ecological connectivity. This corridor was purposely built with the integrity of the nominated property in mind.

Overall, the nominated property includes all key components required to express the claimed OUV and is of adequate, if minimal size to ensure the complete representation of the features which convey its significance; however in relation to the application of criterion (ix) the size of the nominated property is considered to be too small to sustain the full range of ecological functions. Any further reduction in size or increased fragmentation of the nominated property, through development of roads, infrastructure or modified or extension of agriculture or residential land uses would certainly be of concern in relation to its integrity.

There is a need to further clarify how the boundaries of the nominated property relate to those of the Fanjingshan Biosphere Reserve, with the aim of ensuring that any developments permitted in the experimental zone of the Biosphere Reserve do not cause any negative impact on the nominated property. Where feasible, the zones of the Biosphere Reserve should be rationalised to correspond with the boundaries of the nominated property and its buffer zone.

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

4.3 Management

There are three main management agencies responsible for the nominated property, i.e. the Administration of Fanjingshan National Nature Reserve, the Administration of Yinjiang Yangxi Provincial Nature Reserve (both department-level government affiliated institutions), and the Forest Department (directly affiliated with Guizhou Province). Current staffing levels, although relatively small, appear adequate, in part thanks to the collaboration with local police, the small portion of the nominated property that is open to the public, as well as its rugged terrain, and the use of advanced monitoring techniques. The latter include some 250 camera traps (not counting the 58 CCTV cameras used for monitoring tourists) scattered throughout the nominated property (i.e. one camera for every 1.6 km^2), the use of a GPS-based monitoring system akin to the Spatial Monitoring and Reporting Tool (SMART), and the use of drones to monitor inaccessible areas. The latter is particularly used for monitoring Guizhou Snub-nosed Monkey. A systematic monitoring system is in the process of being developed, which will involve monitoring of OUV, visitors, environmental quality, natural disasters, human activity, and villages. Monitoring indicators are still being developed and should in the future enable the adoption of an adaptive management approach.

The management organisation and capacity of the property appears to be adequate. However, noting that there are three agencies responsible for the management of the three component areas of the nominated property, management could be further streamlined by establishing one overarching agency responsible for the management of the entire nominated property. This would also facilitate the implementation of the management plan for the nominated property (Fanjingshan Management Plan 2016-2020).

Other relevant plans exist for the management of each of the component protected areas of the nominated property (except for the National Non-commercial Forest), for ecotourism development of Guizhou Fanjingshan National Nature Reserve, and for the conservation of Guizhou Snub-nosed Monkey. To a certain extent, these plans also address threats outside the boundaries of the nominated property, where the component protected areas extend beyond these boundaries.

The total estimated budget for the property for the period 2016-2020 is a generous 100,410,000 Yuan (approximately USD 15.1 million). More than 20% of this is directed to capacity building, while nearly 26% is allocated to the sustainable development of surrounding communities. Nearly 24% is allocated to ecological and environmental protection and management. There are three sources of funding, i.e. Central Government, Guizhou Provincial Government,

and a small part of self-generated funding coming from the operating incomes of Fanjingshan National Nature Reserve and Yinjiang Yangxi Provincial Nature Reserve. Among the financial safeguards included in the management plan, it is noted that the nominated property is encouraged to seek multilateral investments, including domestic and foreign long-term low interest loans and grants, and to use special funds deployed by central and local governments and departments, such as grain-for-green projects where villagers are given grain in return for allowing their land to be naturally reclaimed by the forest.

The current budget appears adequate to meet the needs of the nominated property, provided that actual allocations meet the estimates in the management plan. There are a number of management issues that are however not fully addressed in the current management of the nominated property, and which require resolution prior to possible inscription on the World Heritage List. These are discussed below in sections 4.4 and 4.5.

IUCN considers that the management of the nominated property does not fully meet the requirements of the Operational Guidelines.

4.4 Community

There are several villages within the nominated property (5, with 718 households) and in the buffer zone (18, with 4,974 households). Management of community lands and related decision-making is done by Village Committees, independent of the Nature Reserve administrations. Local communities also have a right to vote on any decisions being made by the Nature Reserve administrations that may affect them. The nomination appears to have facilitated a better relationship between the Nature Reserve administrations and the local communities, and during the nomination process, much effort has been made to address development needs of local communities.

The budget estimate in the management plan includes a significant portion (>25%) of funds allocated to the sustainable development of local communities, and the benefits flowing to some local communities were evident during the field mission, as demonstrated by the construction of new homes, repairs to existing structures, and training in alternative livelihoods such as bamboo weaving and furniture manufacture.

The nominated property has significant cultural values, as it has been influenced by Buddhism since the 12th century, and during the 17th and 18th centuries there were five Royal Temples and 48 Ordinary Temples in Fanjingshan. Most of these no longer exist, but some temples and ruins remain, and Buddhist worship, along with spirit and totem worship by local ethnic minorities, is still very evident. There are no indications that the rights of local communities to access places of worship and continue these cultural practices would be in any way impeded by the nomination. However, care should be taken to avoid negative impacts from growing numbers of tourists, especially if Fanjingshan starts to attract visitors from further afield in the case of an inscription on the World Heritage List.

The management plan for the nominated property refers to a detailed relocation and compensation plan, as well as plans to reduce the permanent population within the nominated property. Supplementary information submitted by the State Party asserts that the relocation process is entirely voluntary, but neither the nomination, nor the supplementary information, clarify adequately the process followed to ensure that this is the case and that there is adequate public consultation, beyond the stated public notice period of at least seven days for the list of people to whom relocation is proposed. Insufficient details are provided regarding compensation schemes. It is crucial that, prior to an inscription of the nominated property, the State Party further clarify the process and measures taken concerning the relocation of residents living within the nominated property to ensure that this process is fully voluntary and in line with the policies of the Convention and relevant international norms, including principles related to free, prior and informed consent (FPIC), effective consultation, fair compensation, access to social benefits and skills training, and the preservation of cultural rights. These matters need to be clarified before inscription could be recommended.

4.5 Threats

Approximately 90% of the property is made up of primary forests. The ruggedness of the terrain has contributed to preserving Fanjingshan largely in its natural state. Past deforestation has therefore only had a minimal impact on the nominated property. The one major development project that has been implemented within its boundaries is the construction of a cable car which may have caused some disturbance to native wildlife and made previously difficult to access areas in the upper altitudinal zones more accessible. On the other hand, the cable car has also led to a reduction of foot traffic on the path leading to Jinding Peak. Past hunting of wildlife may have led to the extirpation of Leopard (*Panthera pardus* - VU) and Clouded Leopard (*Neofelis nebulosa* - VU), and there is no recent evidence to support claims of their continued existence in the nominated property made in the nomination dossier. Poaching has decimated Giant Salamander, but is reported by the State Party to now be under control. Some recent literature still refers to active poaching of Giant Salamander, as well as to the risk of Wild Salamanders being harvested for restocking of nearby salamander farms. This risk is exacerbated by a lack of clarity regarding the regulation of the taming of wild animals, which is noted in the management plan as a permitted activity. However, the State Party noted during the field mission that farm restocking relies on captive bred salamanders from Shaanxi. The proximity of these farms to the nominated property further raises concern about risks of disease transmission, including the risks of the devastating disease chytridiomycosis.

Jiangkou County, the area of Fanjingshan where most salamander sightings were reported, has also been subjected to massive infrastructural development for tourism (roads, hotels, tourism villages) outside the buffer zone of the nominated property, thus making this salamander population particularly vulnerable. Without additional targeted conservation measures, the nominated property is unlikely to be providing adequate conservation for Giant Salamander.

Direct poaching of Snub-nosed Monkeys appears to be no longer a threat but reports of indirect poaching (through snares set for other wildlife such as Muntjac and Musk Deer) existed until recently. The nomination document mentions establishing an efficient breeding program for the Guizhou Snub-nosed Monkey as a suggested conservation measure. However, given the precarious state of the species in the wild, further extractions needed to establish a genetically diverse *ex situ* population are not justified. The Snub-nosed Monkey population is clearly vulnerable to catastrophic events because they are restricted to the nominated property, which is surrounded by modified habitat. It is particularly vulnerable to human-caused or natural disturbances that could wipe out an entire population, and changes in habitat suitability resulting from a rapidly changing climate. Research on the impacts of climate change on the biodiversity of the nominated property, especially on particularly sensitive species and ecological specialists such as Guizhou Snub-nosed Monkey and Fanjingshan Fir, is still in its infancy, but some projects are currently being funded by the National Natural Science Foundation of China.

Water pollution does not seem to be an issue, with the water having excellent quality. If and how industrial air pollution in areas in the vicinity of the property (such as the city of Tongren) affects forest health is unknown, and deserves further investigation as there have been some reports of acid rain. All mining operations inside the property have apparently ceased but areas affected by past mining were not visited during the field mission. The presence of various minerals poses the need for strict monitoring to prevent illegal mining activities. A busy ring road passes through the western portion of the enlarged reserve and has had some effect on the passage of wildlife but the construction of a sizeable tunnel has alleviated some of these threats. There are no reports of road-kill impacting species.

The main potential threat to the property would be a further increase in infrastructures to accommodate higher number of tourists and creating further fragmentation of the habitat and disturbance to the species of importance in response to an inscription of the nominated property.

Public use is tightly regulated and closely monitored, with a maximum of 8,000 visitors per day. All tourism activities are concentrated in a relatively small area (the presentation zone) which comprises only 2.1% of the nominated property, and tourists are strictly prohibited from entering the conservation zone. A cable car provides the main access to this area and effectively concentrates visitation. All overnight stays on the mountain tops are prohibited. Monitoring of tourist behaviour inside the nominated property is facilitated by a network of 58 CCTV cameras distributed throughout the presentation zone, which also ensure visitor safety. Tourist numbers have been steadily rising, from 180,000 in 2010 to 360,000 in 2014. The reserve administration is adamant about maintaining the quota of 8,000 visitors per day even in the face of a projected further upsurge in tourism numbers in case of an inscription. Current levels of visitation are not considered to be an immediate threat to the integrity of the property, but potential investment in additional infrastructure projects as an alternative to manage increasing tourist numbers is a concern, in particular in case of any plans to develop the currently little used western access. The existence of such plans should be fully clarified, and full impact assessments should be undertaken of any such plans before they are developed further. IUCN considers that there should be no additional cable car development given the small size of the nominated property and the excellent condition of its forest. Assurances are needed in this regard before inscription on the World Heritage List could be recommended.

There are significant tourism developments outside the buffer zone of the nominated property which may result in indirect impacts on the nominated property. Some of this development appears to be undertaken in an effort to diversify tourist attractions and reduce overcrowding in the nominated property during the high season; however, the scale of development is much larger than would be justified if this was the only purpose, and there appears to be a clear interest in increasing visitation to the wider area.

Delicate balance between visitation and conservation needs to be upheld and careful monitoring and management of tourism development and infrastructure projects will be required to circumvent any possible threats to the nominated property over the-long term. The management plan for the nominated property acknowledges that *"when tourist numbers start to damage the OUV, it is time to stop growth and reduce to sustainable levels"*. However, a more preventive approach should be adopted to avoid damage from excessive visitation. Clear measures to manage increasing visitation in relation to a possible inscription of the nominated property should be developed in the framework of a revised management plan, including firm restrictions on the further expansion of tourism infrastructure and visitor numbers. This is a further matter where assurances are needed prior to recommending possible inscription.

In conclusion, IUCN considers that the integrity, protection and management of the nominated property do not fully meet the requirements of the Operational Guidelines.

5. ADDITIONAL COMMENTS

Noting the similarities between the nominated property and the previously inscribed Hubei Shennongjia, as well as other sites included on China's Tentative List, IUCN recommends that the State Party should

coordinate future nominations with similar and complementary values. This should include consideration of the serial approach, including possible serial extensions to Shennongjia and/or the nominated property, in case of an inscription of the latter.

6. APPLICATION OF CRITERIA

Fanjingshan has been nominated under natural criteria (vii), (ix) and (x).

Criterion (vii): Superlative natural phenomena or natural beauty or aesthetic importance
The justification for criterion (vii) cites a diversity of landscapes and geological features and landforms, as well as the scenery of the mountain landscape, including its wetlands, waterfalls, its dense and diverse forest cover, and wildlife spectacles. In addition, meteorological phenomena such as rainbows, cloud seas, mirages and the so-called "Buddha's light" are put forward. Stark seasonal contrasts are stated to further enhance the natural beauty of the nominated property.

The nomination document emphasizes that the large elevational difference makes Fanjingshan special in that this results in vertical stratification of vegetation. However, many mountain ecosystems in China and elsewhere do feature such elevational gradients, often more pronounced than at Fanjingshan. The nominated property appears less rich in dramatic landscape features than other comparable sites in China.

The meteorological phenomena described in the nomination do not provide a basis to meet this criterion, as these are common among mountain landscapes with similar climatic conditions. While seasonal variation leads to dramatic changes in the landscape, this is not uncommon. The wetlands and waterfalls do not stand out compared to those in existing World Heritage sites, especially those listed for their aesthetic value.

Claims made in the nomination document that the nominated property would meet criterion (vii) on the basis of wildlife spectacles are not substantiated, and wildlife at the property is not easily observed due to the density of the forest and the shyness of the animals. The nominated property does not feature any wildlife spectacles at the scale of those recognized on the World Heritage List.

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

Criterion (ix): Ecosystems/communities and ecological/biological processes
The nomination dossier refers to Fanjingshan as an *"[ecological island] on a metamorphic dome emerging from a vast ocean of karst landscape"*, and states that 75% of its flora behaves as if it were on an island, as demonstrated by a high degree of endemism among its plants as well as a number of ancient and relict species, most notably Fanjingshan Fir. These species add to the significance of the nominated property as a place where evolutionary dynamics have been uninterrupted by mankind. However, a convincing case has not been made that the limited size of the nominated property can ensure the long-term continued natural occurrence of these ecological processes, particularly in light of the modified nature of the surrounding landscape and increased isolation and fragmentation in recent times as a result of infrastructure developments, such as the ring road around the reserve.

Fanjingshan is also the last refuge for the Guizhou Snub-nosed Monkey, which is one member of a monophyletic group of primates that has undergone an impressive adaptive radiation. However, the nominated property does not, on its own, convincingly demonstrate the adaptive radiation that this group of primates has undergone. A serial approach to encompass more Snub-nosed Monkey populations demonstrating their respective adaptations could be considered to make a more convincing case in this regard.

The nominated property also includes some 15,600 ha of primary beech forest with three species of *Fagus*, i.e. *F. longipetiolata, F. lucida,* and *F. engleriana*. This is claimed in the nomination dossier to be "*the world's biggest and most contiguous primeval beech forest in the subtropical region"*, providing insight into how beech forests evolved from the subtropical to the temperate zone. However, this claim is not substantiated by the nomination document or the additional literature referred to therein. IUCN notes that while this feature is put forward as a justification for criterion (x), it would be more appropriately considered under criterion (ix). Nevertheless, the argument that the nominated property's *Fagus* forests justify its inscription under either criterion (ix) or (x) remains unconvincing.

On balance IUCN does not consider that the case for application of criterion (ix) has been made convincingly in the nomination, at the present time, and also considers that a possible inscription under criterion (x) only would be the most appropriate means to recognise the potential OUV of this nominated property.

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

Criterion (x): Biodiversity and threatened species
Fanjingshan is characterized by an exceptional richness in bryophytes, with 791 species, of which 74 are endemic to China. The nominated property also has one of the richest concentrations of gymnosperms in the world, with 36 species. A significant number of endemic species is distributed inside the nominated property, including 46 local endemic and 1,010 Chinese endemic plant species, as well as four locally endemic vertebrate species. The most notable of these is the endangered Guizhou Snub-nosed Monkey, for which Fanjingshan constitutes its only distribution area in the world. Another prominent endemic species is Fanjingshan Fir, which has a very restricted distribution within the nominated property.

The nominated property contains 64 plant and 38 animal species that are listed as Vulnerable (VU), Endangered (EN) or Critically Engandered (CR) on the IUCN Red List, most notably Guizhou Snub-nosed Monkey, Chinese Giant Salamander, Forest Musk Deer, Reeves's Pheasant, Asiatic Black Bear, and *Bretschneidera sinensis*. A total of 450 vertebrate species are found inside the nominated property, including 80 mammal, 224 bird, 60 fish, 43 reptile and 43 amphibian species. Compared with other properties in the same biogeographic region already on the World Heritage List, or included in Tentative Lists, the nominated property stands out in terms of its diversity of amphibian species. The diversity of invertebrates (2317 species) is also very high.

While the nomination document claims that large cats, in particular Clouded Leopard and Leopard still roam the forests of Fanjingshan, there is no unequivocal direct or indirect evidence for the continued existence of these species within the nominated property. In supplementary information provided by the State Party it is noted that there has been no specific research on cat species in Fanjingshan since 2001. In the absence of verifiable evidence of their continued existence in the nominated property, it is therefore likely that these species are locally extinct, and the only cat species still found in Fanjingshan is Leopard Cat (*Prionailurus bengalensis*), listed as Least Concern (LC) on the IUCN Red List.

IUCN considers that the nominated property 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/18/42.COM/8B and WHC/18/42.COM/INF.8B2;

2. Refers the nomination of **Fanjingshan (China)** to the World Heritage List back to the State party, taking note of the strong potential for this property to meet criterion (x), in order to allow the State Party to undertake and document significant further work taking into account the need to:

a) Clarify the process and measures taken concerning the relocation of residents living within the boundaries of the nominated property to ensure that this process is fully voluntary and in line with the policies of the Convention and relevant international norms, including principles related to free, prior and informed consent (FPIC), effective consultation, fair compensation, access to social benefits and skills training, and the preservation of cultural rights;
b) Clarify measures taken to manage increasing visitation in relation to the possible inscription on the World Heritage List, and include adequate provisions to this effect in a revised management plan for the nominated property, and provide clear assurances that no expansion of tourism infrastructure and visitor numbers will be permitted inside the nominated property;
c) Clarify fully whether there are any plans for the future development of the western access to the nominated property, which is currently relatively free from visitation and associated human impact, and undertake a full assessment of any such plans, prior to any decision to proceed with their implementation.

3. Requests the State Party to provide further information regarding the measures taken to:

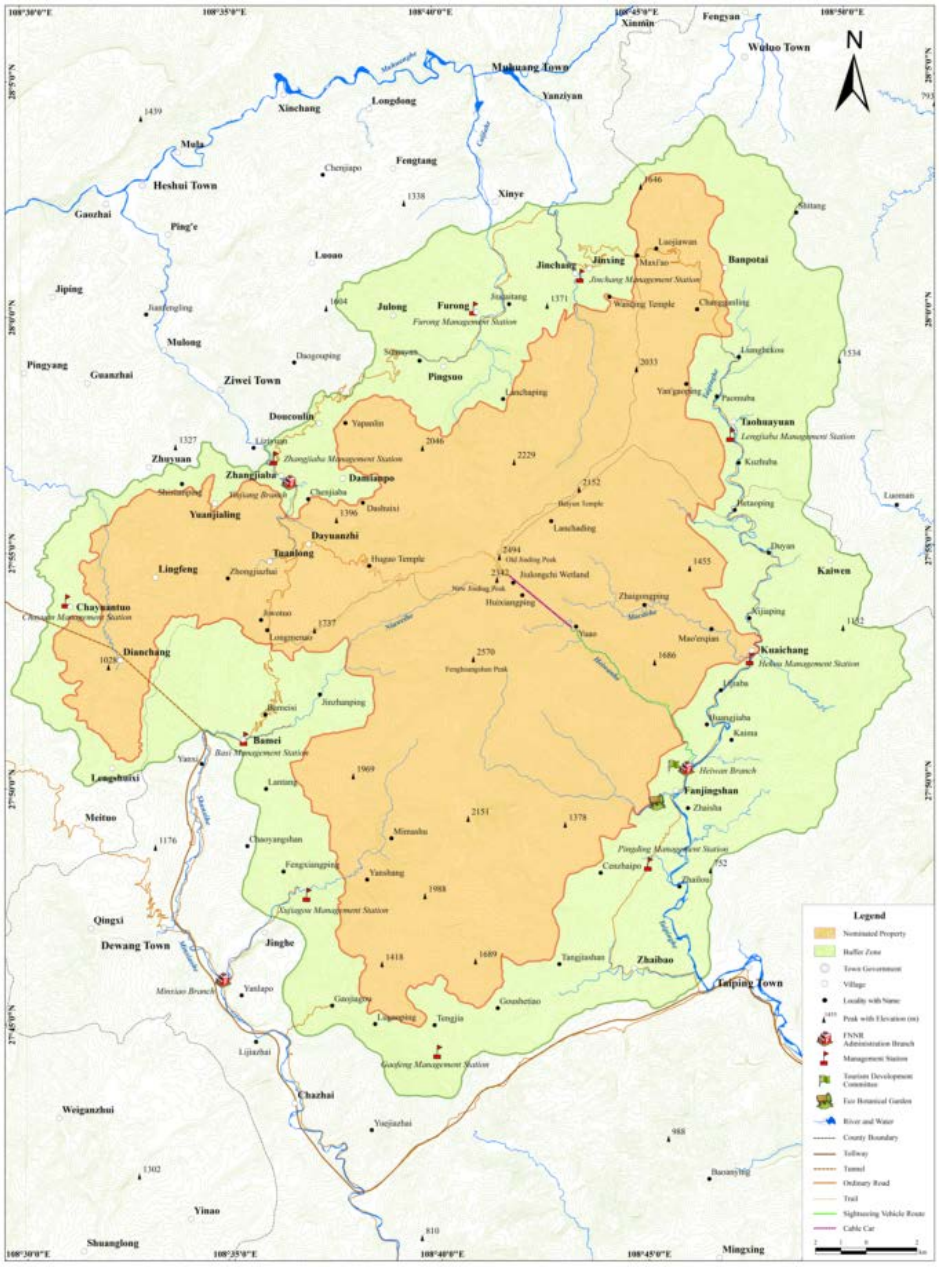
a) Regulate and monitor the reported taming of wild animals, and which species are included or excluded from this permitted activity, including any applicable quotas;
b) Manage potential impacts on wild Giant Chinese Salamander populations that could result from the presence of salamander farms in close proximity to the nominated property, including measures taken to avoid and mitigate the risk of transmission of diseases, including the risks of the devastating disease chytridiomycosis.

4. Further requests the State Party to clarify how the boundaries of the nominated property relate to those of the Fanjingshan Biosphere Reserve, with the aim of ensuring that any developments permitted in the experimental zone of the Biosphere Reserve do not cause any negative impact on the nominated property, and further requests the State Party to rationalise, where feasible, the zones of the Biosphere Reserve to correspond with the boundaries of the nominated property and its buffer zone.

5. Commends the State Party for its efforts to protect Fanjingshan through highly sophisticated visitor and ecological monitoring systems, including CCTV, camera traps, drones, and a GPS-based patrol system, and encourages the State Party to continue these efforts and to adopt an adaptive management system.

Map 1: Location of the nominated property in China

Map 2: Nominated property and buffer zone



ASIA / PACIFIC

ARASBARAN PROTECTED AREA

IRAN (ISLAMIC REPUBLIC OF)

Tazehkand National Park © IUCN / Wendy Strahm

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

ARASBARAN PROTECTED AREA (ISLAMIC REPUBLIC OF IRAN) – ID N° 1543

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: Not to inscribe the property under natural criteria.

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

1. DOCUMENTATION

a) Date nomination received by IUCN: March 2017

b) Additional information officially requested from and provided by the State Party: None requested; however the State Party submitted additional information on 28 February 2018 concerning values, farmland, and integrity.

c) Additional literature consulted: Various sources, including: Breitenmoser, U., Breitenmoser-Würsten, C., Zazanashvili, N. & Heidelberg, A. (2014). *International Experts Workshop "Conservation of the Leopard in the Caucasus". Workshop Report. 9-10 October 2014, Tbilisi, Georgia*. COE. CEPF (2003). The Caucasus Hotspot Briefing Book. Critical Ecosystem Partnership Fund. 98 p http://www.cepf.net/Documents/final.caucasus.briefing book.pdf Darvishi, A., Fakheran, S., & Soffianian, A. (2015). *Monitoring landscape changes in Caucasian black grouse (Tetrao mlokosiewiczi) habitat in Iran during the last two decades*. Environ Monit Assess 187: 443. https://doi.org/10.1007/s10661-015-4659-3. Iran (2016). Arasbaran Biosphere Reserve. UNESCO/MAB periodic review for Biosphere Reserves. Islamic Republic of Iran. Vajari, K.A., Veiskarami, G., & Attar, F. (2014). *Recognition of Endemic Plants in Zagros Region* (Case Study: Lorestan Province, Iran). Ecologia Balkanica 6(1): 95-101. WWF and IUCN (1994). Centres of Plant Diversity. *A guide and strategy for their conservation. Volume 1*. Europe, Africa, South West Asia and the Middle East. IUCN Publications Unit, Cambridge, UK. Zazanashvili, N. & Mallon, D. (eds.)(2009). *Status and protection of globally threatened species in the Caucasus.* CEPF Biodiversity Investments in the Caucasus Hotspot 2004-2009. CEPF/WWF. Tbilisi, Georgia. 232 pp... *Strategy for the Conservation of the Leopard in the Caucasus Ecoregion. Revised Version 2017.* Caucasus Leopard Working Group1 2017. *IUCN/SSC Cat Specialist Group, Muri b. Bern, Switzerland and WWF Caucasus Office, Tbilisi, Georgia. 29 pp..*

d) Consultations: 6 desk reviews received. The IUCN field mission met with a range of government officials, authorities and stakeholders including the Deputy Governor, and several officials of the East Azerbaijan Province. The mission also met with senior officials of the ICHHTO (Iranian Cultural Heritage, Handicrafts and Tourism Organization) as well as researchers from the Forests and Rangelands Departments, and Researchers from the Natural Resources Faculty and Botany Department of the University of Tehran. In addition, the mission interacted with a number of local guides, business people, rangers, teachers, and community representatives.

e) Field Visit: Wendy Strahm and Faisal Abu-Izzeddin, 14-20 October 2017

f) Date of IUCN approval of this report: April 2018

2. SUMMARY OF NATURAL VALUES

The Arasbaran Protected Area is located in the north of Iran near the border with Armenia and Azerbaijan. The nominated property covers a total of 57,764 ha which includes five small but strictly protected areas covering 7,188 ha, and is surrounded by a larger buffer zone covering 105,601 ha. The protected areas comprise three national parks: Shah-Heydar (1,604 ha), Tazehkand (1,418 ha) and Heresar National Parks (1,081 ha), in addition to two Conservation Zones: Kalan (2,104 ha) and Aynaloo Conservation Zone (1,081 ha). The nominated property partially coincides with the larger 72,460 ha Arasbaran Biosphere Reserve which was declared a UNESCO Biosphere Reserve in 1977. The Biosphere Reserve includes a sixth national park which was excluded from the nomination proposal.

The nominated property is located at the junction of the Caspian, Caucasian, and Mediterranean climates, and are characterized by high mountains, alpine meadows, semi-desert plains, pastures, and forests. The nomination notes the property's altitude ranges from 302m in the lowlands to 2,685m in the mountains, thus embracing representation from three different phyto-geographical regions: Euro-Siberian (27%), Irano-Turanian (23%) and Mediterranean (4%), or a combination of these (46%).

785 plant species belonging to 89 families (6 pteridophytes and 83 families of flowering plants) are recorded in the nominated property. Three notable tree species are reported to be found in the primary woodlands: Caucasian or Persian Oak (*Quercus macranthera* - not evaluated*)*, Georgian Oak (*Quercus iberica* - not evaluated*),* and European or Common

Hornbeam (*Carpinus betulus* - LC[1]). However, the nomination file mentions that Georgian Oak has now been replaced in most parts by the invasive species Christ's Thorns (*Paliurus spina-christi* - not evaluated). The main argument for the global significance of the nominated property is the diversity of its flora, including ten endemic plant species in a very small area. IUCN notes that the flora of the Lesser Caucasus mountains is quite different from that of the Greater Caucasus (which is represented by the Western Caucasus World Heritage Site), and that Arasbaran is situated close to a Centre of Plant Diversity.

Over 360 vertebrate species, including 56 mammals, 235 birds, 45 reptiles, seven amphibians and 17 fish are reported as recorded in the nominated area which represent a high percentages of Iran's fauna (29% of Iran's mammals, 44% of its birds, 20% of its reptiles, 32% of its amphibians, and 9% of its fish).

The nominated property and its surroundings has significance in the wider regional ecological context. It lies within the wider Arasbaran ecological corridor which was identified by the Critical Ecosystem Partnership Fund (CEPF) as one of ten priority corridors for conservation outcomes in the Caucasus. These corridors were defined on the basis of the presence of globally threatened species and intact habitats. The Arasbaran Corridor includes the nominated property and is described as comprising important mountain habitats for the Persian Leopard (*Panthera pardus saxicolor* - VU), in addition to three sites along the Aras River which are particularly important for waterfowl. However, this specific corridor was not identified as an area for conservation investment due to other higher priorities in the study attributed to CEPF.

The nomination places much emphasis on its hosting of the Persian Leopard. However, the status and trend of this charismatic mammal within the nominated property cannot be presently confirmed. In addition to the Leopard, several important mammal species are reported in the area including the Wild Goat (*Capra aegagrus* - VU), Wild Boar (*Sus scrofa* - LC), Brown Bear (*Ursus arctos* - LC) and Jungle Cat (*Felis chaus* - LC). Other mammals reported to occur in the area include the Roe Deer (*Capreolus capreolus* - LC) and Major Vole (*Microtos majori* - LC). The Striped Hyena (*Hyaena hyaena* - NT) is also known to occur in the area. The nominated property also includes a captive breeding program for the Red Deer (*Cervus elaphus* - LC).

The property is also an Important Bird Area with four species of threatened raptors likely to nest within the property [Egyptian Vulture (*Neophron percnopterus* - EN), Eastern Imperial Eagle (*Aquila heliaca* - VU), Greater Spotted Eagle (*Clanga clanga* - VU) and Saker Falcon (*Falco cherrug* -EN)]. The nomination notes Sociable Plover (*Vanellus gregarius* - CR) and Lesser White-fronted Goose (*Anser erythropus* - VU) as occurring within the property during migration, however this is not confirmed. Other bird species recorded in the nominated property include the Caucasian Black Grouse (*Tetrao mlokosiewiczi* - NT), Common Pheasant (*Phasianus colchicus* - LC), and Bearded Vulture (*Gypaetus barbatus* - NT), in addition to several other species such as the Black Partridge (*Francolinus francolinus* - LC), Grey Partridge (*Perdix perdix* - LC), Chukar (*Alestaris chukar* - LC), and Caspian Snowcock (*Tetraogallus caspius* - LC). Three globally threatened reptiles, one threatened amphibian and one threatened fish are also recorded within the property.

It is important to note that the Arasbaran Protected Area, as nominated, includes extensive farmed areas in proximity to about 47 small villages. These villages have declining populations due to emigration to urban centers, and there are now large areas of abandoned farmland that are gradually returning to naturally functioning ecosystems. Furthermore, the nominated property is seasonally used by an estimated 42,577 nomads representing 7,232 households according to an official 1998 census. Economic activities in the property include agriculture, animal husbandry, horticulture, apiculture, handicrafts, and tourism.

3. COMPARISONS WITH OTHER AREAS

The nomination dossier included a detailed comparative analysis predicated on a comparison with temperate mountainous forests and ranges on the World Heritage List with 16 sites and one tentative listed site (Hyrcanian Forests, Iran) identified. From this only four sites are chosen for direct comparisons: Hyrcanian Forests (Iran), Western Caucasus (Russia), Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe (across 12 States Parties) and Bialowieza Forest (Poland and Belarus). Comparisons are also made based on species richness per area, on which basis Arasbaran's small size results in a higher rating. Further comparisons are made on plant communities. A further series of species richness per unit area comparisons are made with a list of sites from temperate mountain forested ecosystems. The faunal comparisons are drawn nationally to demonstrate the importance of Arasbaran within Iran. The comparative analysis does not provide clear arguments in support of Outstanding Universal Value (OUV). The analysis also suffers from repetition and also plays down the high levels of land use and their impacts.

Additional IUCN and UN Environment WCMC analysis of the nominated property indicates a regional level of importance, based on spatial analyses and literature review. The analysis shows that the nominated property is situated within the Caucaso-Iranian Highlands Udvardy province, which is represented on the World Heritage List by the Western Caucasus World Heritage Site in Russia, inscribed under biodiversity criteria. Additionally, 17 similar sites are inscribed on the Tentative List of several State Parties.

[1] These codes reflect the conservation status of each species as recorded in the *IUCN Red List of Threatened Species* at the time of the evaluation; for more information please visit http://www.iucnredlist.org

The area is nominated under criterion (ix) for its range of biological and ecological processes, including ice-age relict species that are present due to the altitudinal movement of plant communities attributed to past climate change. While it is accurate to say that the nominated area is a "unique eco-region between Irano-Turanian and Euro-Siberian regions" hence not comparable with other areas, at the same time it is inaccurate to say that the area is "the last refuge of the Caucasus hotspot biodiversity in the northern hemisphere". It is clear that much of the property has been subject to a legacy of human use and disturbance and, although some areas are recovering, the core high quality areas within the property are limited to the five smaller protected areas totaling only 12.4% of the overall nominated area. Parts of the nominated area are far from pristine, with the nomination noting that areas between 600-1250 m have been greatly altered due to human activities and the invasion of Christ's Thorn. It is noted that succession towards primary woodland is occurring due to land abandonment. However, these on-going ecological and biological processes in the nominated property are neither distinctive nor exceptional at either regional or global levels.

Concerning criterion (x) the nominated nomination demonstrates importance at a national level, with 1071 plant taxa recorded with 13 species endemic to Iran, and of global significance as representing intact examples of unique plant associations, with ten species endemic to this relatively small property. The property has international importance for fauna, even if the Persian Leopard probably no longer exists in the property. Wild Goats appear to be fairly common and Marbled Polecat (*Vormela peregusna* - VU) and Mehely's Horseshoe Bat (*Rhinolophus mehelyi* - VU) have also been recorded in the property. However Red Deer have been exterminated (although there is a reintroduction programme underway). The property lies within an Important Bird Area, serving as a refuge for 6 globally threatened species. Egyptian Vulture, Eastern Imperial Eagle, Greater Spotted Eagle and Saker Falcon are recorded within the property (although not noted if they are breeding and if so, how many pairs), and Lesser White-fronted Goose and Sociable Plover are recorded within the property, presumably on migration. Unfortunately the population of Caucasian Black Grouse appears to be fragmented, probably due to hunting and habitat fragmentation and disturbance. Other globally important species said to occur within the nominated property include 3 species of reptiles [Persian Toad Agame (*Phrynocephalus persicus* - VU), Spur-thighed Tortoise (*Testudo graeca* - VU) and Armenian Steppe Viper (*Vipera eriwanensis* - VU)], an amphibian the Talysh Toad (*Bufo eichwaldi* - VU), and a fish *Luciobarbus capito* (VU).

IUCN and WCMC's analysis confirms that Arasbaran is home to a high number of plant and animal diversity compared to similar sites already inscribed on the World Heritage List, but in overall terms it has a relatively low level of threatened and endemic species. But the nominated property does not overlap with any protected area considered to be amongst the most irreplaceable in the world for the conservation of mammals, birds and amphibians. It is noteworthy that the Hirkan Forests of Azerbaijan was nominated in 2006 but the inscription was deferred to consider a renomination with other Hirkanian forest areas in Iran. This latter area is the subject of a nomination to be considered in 2019 and appears to have a higher level of plant diversity than Arasbaran with an estimated 1,296 species.

The nomination places great emphasis on the site's importance for Persian Leopard. IUCN has examined these claims carefully however is unable to substantiate the claims made in the nomination. The nomination dossier includes some clear overstatements, for example that "normal regeneration of Persian Leopard subspecies is only found in the nominated property". This is questionable given the wider distribution of Persian Leopards and many expert reviewers doubt the Persian Leopard is present within the property today. A multi-partner report from 2017 includes the most up to date assessment of the conservation status of the species in the region. It notes that leopard monitoring has considerably advanced since 2007 and includes distribution map indicating that Persian Leopards are only possibly extant within the nominated property. Further consultation with the IUCN Species Survival Commission confirms that Arasbaran, whilst providing important potential corridor habitat between north-eastern Iran and into Armenia, is not as critical as other areas for this species. The area is not considered to constitute an appropriate leopard habitat where resident leopard population could be established. There is much better leopard habitat in the region further east along the border between Turkmenistan and Iran.

In conclusion, comparative analysis does not support inscription under either criterion (ix) or (x).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nominated property is mostly state-owned with the exception of villages and farmlands which are owned privately. Such private tenure is categorized as customary ownership in Iran based on long established residence and resource utilization. According to Iranian legislation, inactive farms which are left for more than ten years are subject to direct acquisition by the government as public lands.

The protective framework for the nominated property is primarily based on two general legal instruments. Article 45 of the Constitution of the Islamic Republic of Iran states that public property and assets, such as uncultivated or abandoned land and open pasture land, shall be at the disposal of the Islamic government to be utilized in accordance with public interest. Article 50 states that the preservation of the environment is considered a public duty in the Islamic Republic; economic and other activities that involve pollution of the environment or cause irreparable damage to it are therefore forbidden. Protected areas, national parks,

and other protective designations are included in the Act of Conservation and Optimization of Environment, which describes the mandate and modalities of operation for the Supreme Council for the Protection of the Environment and the Department of Environment. Only 7,188 ha (12.4%) of the nominated property is located with the five protected areas, hence, in IUCN's view, the vast majority of the nominated property lacks adequate legal protection in relation to the protection of species and ecosystems.

The nomination dossier also does not specify any more detailed legal regulations, which leaves the nominated property vulnerable to legal interpretations and gaps in applying an effective law enforcement system. It is very important for protected areas to have specific legally recognized and agreed upon regulations for boundaries, zones, permitted and prohibited activities, penalties, and enforcement procedures. This is particularly important for a site such as the nominated property where legal mandates and legislative jurisdictions overlap and various right owners, land users, and interest groups compete for the various services provided by the site.

IUCN considers that the protection status of the nominated property does not meet the requirements of the Operational Guidelines.

4.2 Boundaries

The nominated property covers 57,765 ha, of which 7,188 ha are considered to be 'strict protection zones' in five protected areas. The nominated property is surrounded by a larger buffer zone of 105,601 ha, however, it is hard to distinguish it from the nominated property in terms of physical, ecological, and land-use. The buffer zone includes a significant part of the Arasbaran Biosphere Reserve. The boundaries of the nominated property seem to be well marked with 51 boundary points that are clearly visible.

It is important to note that the nominated property overlaps with more than 68% of the Arasbaran Protected Area, which was designated as a UNESCO Biosphere Reserve in 1977. The majority of the remaining parts of the Biosphere Reserve were included in the proposed buffer zone of the nominated property. As a result of this overlap, much of the information presented in the nomination file does not consistently differentiate between the nominated property and the Biosphere Reserve.

The IUCN field mission reported that the boundaries of the nominated property were designed to exclude as much farmland as possible, in order to strengthen the case of naturalness and intactness. Nonetheless, the zonation scheme appears rather ineffective, with numerous plots of ploughed land disbursed around the many villages located within the property. Land seems to be, or has been, cultivated wherever the slope of the terrain allows. The only areas completely free of cultivation are within the five strict protection zones. The result of this complex incision approach is an irregular configuration of the property which is not well justified against natural values and attributes.

In the context of a wider ecological landscape, the small size and configuration of the nominated property overall does not seem to support a strong case under the integrity conditions as set in the Operational Guidelines. The areas which fall under strict protection measures are minimal and it is evident they will not be sufficient to protect the targeted natural values and their associated attributes. This is demonstrated by the past and ongoing levels of resource use and utilization by numerous human settlements and their associated infrastructure and socio-economic activities, including significant pastoralism.

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

4.3 Management

The Arasbaran Protected Area falls under the legal jurisdiction of the Department of Environment (DOE) which is administratively responsible for the protection of the nominated property and part of the buffer zone (i.e. all parts belonging to the Biosphere Reserve). The Forests, Range and Watershed Management Organization (FRWMO) is responsible for the rest of the buffer zone. Throughout the nominated property and buffer zone, the protection of the historical, cultural, and natural heritage is the responsibility of the Iranian Cultural Heritage, Handicrafts and Tourism Organization (ICHHTO).

The management of the nominated property is supervised by a steering committee which is mandated to oversee the conservation and integrated management program of the Arasbaran Protected Area and oversees the responsibilities of the three government institutions as follows:

- The Iranian DOE is responsible for management/protection of all Wildlife Sanctuaries, hunting in the buffer zone, and environmental assessment of future development projects in the area. This Department has 34 staff (80% are rangers) with continuous 24-hour patrolling to protect the area from violations.
- The FRWMO manages national land ownership, assignment and exploitation, and investigation and implementation of watershed management in the Arasbaran Protected Area. This organization has 23 staff (50% are forest guards) to prevent encroachment on the area, fire making, new construction, overgrazing, and changes in land use of the forest and pastures.
- The ICHHTO is in charge of management of tourism, handicrafts in rural areas, and protection/remediation of relics and historical heritage in the nominated area.

In addition to the steering committee, two further committees are involved in the planning and management of the nominated property: the executive committee and the research and planning committee. The nomination generally describes the modality of coordination among the three structures, with all decisions ultimately being referred back to the steering committee as the highest decision making-

platform. The planning and management coordination structure explained in the nomination file presents a rather ad-hoc approach to the management of the protected area, with a short term and reactive management style.

A third level of management structure including four functional units implements on-ground operations. These include the financial, legal and administrative unit, the protection unit, the assessment and monitoring unit, and the archive and documentation unit. The governance arrangements for the nominated property are complex and, associated with the mixture of explicit and implicit legislative frameworks and implementation modalities, do not seem to fulfill the requirements for effective coordination and long-term protection. There is lack of clarity in terms of institutional boundaries, lines of communication, planning approaches, management processes, and enforcement mechanisms, all coupled with multilayered decision making systems linked to a high number of institutional mandates and jurisdictions.

The nominated property does not appear to have an adequate management plan which is endorsed and integrated into the legislative system. The nomination file briefly describes a master plan which is being prepared for the management of the nominated property by the Ministry of Housing and Urban Development in coordination with the DOE. It is worth noting that the national entity leading the preparation of the plan is not represented in the above mentioned governance structures, thus creating a risk of relevance and adequacy, especially noting its potentially conflicting development mandate. The nomination includes a section on a number of objectives and activities addressing management of the nominated property; however, they cannot be perceived as the minimal accepted requirement for a management system as specified under Paragraph 108 of the Operational Guidelines.

Human resources associated with management seem to be sufficient and include key competencies needed for law enforcement, enhanced by a large number of local people with strong traditional knowledge and experience. The on site management team has sufficient facilities and tools required for their daily operations including vehicles, communication systems, monitoring tools, and uniforms.

All protected area management appears to be financed by the government through various ministries or organizations, and there appears to be a long-term commitment by the government to manage its protected areas, including the nominated property. The IUCN field mission concluded that the DOE is under severe financial pressure, and struggles to effectively fund nature conservation given other competing national priorities.

There is therefore a crucial need for an integrated management plan which is based on up-to-date inventories of the values, attributes, and uses of the nominated property. This management plan would need to be developed with the full participation of all key stakeholders including local residents, users, and interest groups; have adequate financial and human resources committed and made available for its implementation; and be officially endorsed by respective government authorities.

IUCN considers that the management of the nominated property does not meet the requirements of the Operational Guidelines.

4.4 Community

As nominated, the Arasbaran Protected Area contains extensive human activities of farming and grazing, however these are said to be rapidly decreasing, with abandoned farmland gradually being restored to primary forest. According to the nomination file, there were 47 active human settlements and 12 abandoned villages in the nominated property in 1996, and the total population was approximately 6,202. In 2006 this number declined to 2,057 with an additional 16,714 in the buffer zone. According to the 1998 census, Arasbaran nomads were estimated to be 42,577. Little is explained or documented regarding activities and perceptions of the nomadic groups. Local authorities confirm that the seasonal nomadic movement follows a strict network of paths and corridors.

Consultation and consent of local communities and right holders are not described in the nomination file, nor were they able to be elucidated during the IUCN field evaluation mission. The impression given is that local people had little say in the process or decision making related to the nomination of the property. Further, nomads were not seen or interviewed during the mission, despite specific requests made to relevant authorities on the matter. All of the management and most of the decision-making rights seem to be exclusively held by the agencies of the State Party. Neither the nomination file nor discussions with officials during the IUCN field mission provided clear answers on consultation with, or consent of, local users and right holders in regard to their perceptions of the nomination process.

4.5 Threats

The character of most of the nominated property seems to be that of a cultural landscape which has been utilized and transformed over millennia. Regarding village infrastructure and facilities, underground gas lines have been built throughout the property so that many of the villages have piped liquid gas for heating and cooking. Road access, water related infrastructure, and other services are all provided to local villages as part of the government's rural development masterplan. In addition, electricity lines and cellphone towers are installed throughout the nominated property. Although important for local development, such infrastructure provides access, creates pressure, and causes disturbance to the landscape, ecosystems, biodiversity, and wildlife.

Farming, which includes planting (primarily wheat) and grazing of livestock (primarily sheep and some goats), remains the major current and midterm land use in the

property. The IUCN field mission learned that there has been no new land acquisition allowed since 1977, and farmland and pastures are monitored by satellite as well as field based tools.

Hunting, although strictly forbidden in the nominated area, was one of the most widespread human activities, causing the severe decline of many wildlife species such as the Red Deer, Persian Leopard, Brown Bear, Caucasian Black Grouse, and many others. According to local authorities, some hunting licenses are still granted in the buffer zone areas around the nominated property.

There are cases of serious negative impacts caused by the introduction and spread of invasive alien species. A clear example is the Christ's Thorn tree (*Paliurus spina-christi)*. These trees spread and create virtually monotypic stands, possibly as a result of the fact that it is the only woody tree not subject to grazing due to its very sharp thorns. The IUCN field mission was informed that the spread of the tree is part of the process of natural succession in which the species dominates secondary vegetation, before transforming again into a primary forest composition.

Tourism does not appear to represent an immediate threat or pressure on the nominated property. This is due to the currently low numbers of visitors and lack of infrastructure or facilities required for a large tourism operation. Several small hotels and restaurants are available in Kalibar, and many tourists visit the area as part of a program from Tabriz. Spring and summer witness the highest numbers of visitors. Local guides provide basic touring services and orientation to visitors, and local rangers ensure sustainable tourism. Solid waste is a clear issue related to recreational tourism in and around the nominated property as noted by the IUCN field mission.

The management plan of the area, once developed, needs to fully address all threats related to climate change, anthropogenic and other factors, and their impacts on the area. An integrated monitoring system should inform the decision making process and ensure that the impacts of such pressures are minimized.

In conclusion IUCN considers that that the natural values of the nominated property represent an assemblage of relict landscapes of what was once a much larger, more diverse landscape with its characteristic culture, ecosystems and associated biodiversity. This is reinforced by the fact that only the smaller five protected areas covering 12.4% of the overall nominated area remain fully in a substantially natural condition. This view appears to be consistent with the statement within Iran's fourth national CBD report of 2010 which describes the Arasbaran broadleaf deciduous forests, to which the nominated property belongs, as "located in the northwest of Iran, with many endemic species, very degraded at present, with only 60,000 ha remaining of the original 500,000 ha".

In conclusion, IUCN considers that 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

Arasbaran Protected Area has been nominated under natural criteria (ix) and (x).

Criterion (ix): Ecosystems/communities and ecological/biological processes

The nominated property contains mountain forests that provide important habitats for a variety of species. It is located in two ecoregions, Azerbaijan shrub desert and steppe, and Elburz Range forest steppe and in two biodiversity hotspots (the Caucasus and Irano-Anatolian), a terrestrial priority ecoregion (the Caucasus-Anatolian-Hyrcanian Temperate Forests), and an Endemic Bird Area (the Caucasus). The proposed justification for criterion (ix) is notably for the ongoing plant succession and ecological processes that are occurring with the presence of ice-age relict species, demonstrating altitudinal movement of plant communities due to past climate change, and thus resulting in a unique flora that includes significant levels of endemism. While these biological and ecological processes are important, they are not exceptional at the global level, but are important at national and perhaps regional levels. The loss of a key herbivore such as the Red Deer due to hunting and other factors will have had a great impact on natural ecological processes, even though there are plans to restore their populations in the protected area. IUCN also notes that the integrity of the nominated property as a natural ecosystem is heavily compromised by the extent of human disturbance which means that only the five core protected areas provide for high quality ecosystems. The biodiversity that characterizes the nominated property is considered to be of very high regional significance.

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

Criterion (x): Biodiversity and threatened species

The nominated property is home to a significant level of plant and animal diversity compared to similar sites already inscribed on the World Heritage List, but overall it exhibits a relatively low level of threatened and endemic species. Some notable plant species found in the property are the Caucasian and Georgian Oak, and important animal species include the Caucasian Black Grouse and the Brown Bear. Although mentioned as part of the ecological corridor supporting the Persian Leopard population, the occurrence of this flagship mammal is not confirmed in the area and it is evident that other areas are more critical for the long term strategy to conserve this species. The nominated property includes impressive

levels of floral and faunal diversity, however, when compared to national and regional sites such as the Western Caucasus, or even the wider Arasbaran Biosphere Reserve, the area is of national and regional significance for biodiversity. As for criterion (ix) the integrity of the nominated property as a natural area is greatly altered by human use. There is however, encouraging natural habitat recovery which could in time create a more intact landscape for the region's characteristic flora and fauna.

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

7. RECOMMENDATIONS

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

The World Heritage Committee,

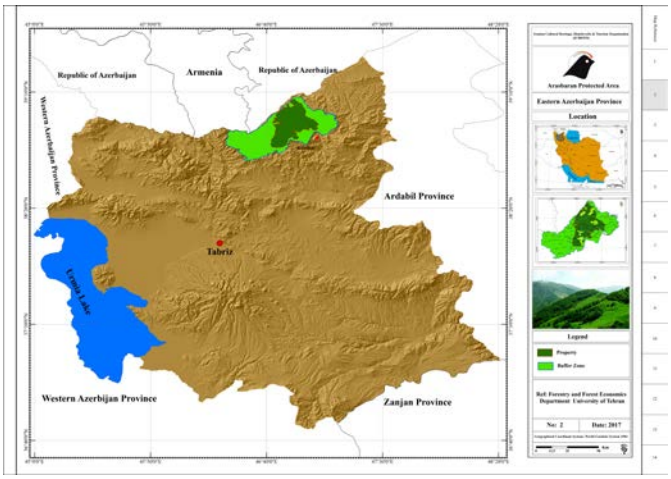
1. Having examined documents WHC/18/42.COM/8B and WHC/18/42.COM/INF.8B2;

2. Decides not to inscribe **Arasbaran Protected Area (Islamic Republic of Iran)** on the World Heritage List under natural criteria (ix) and (x).

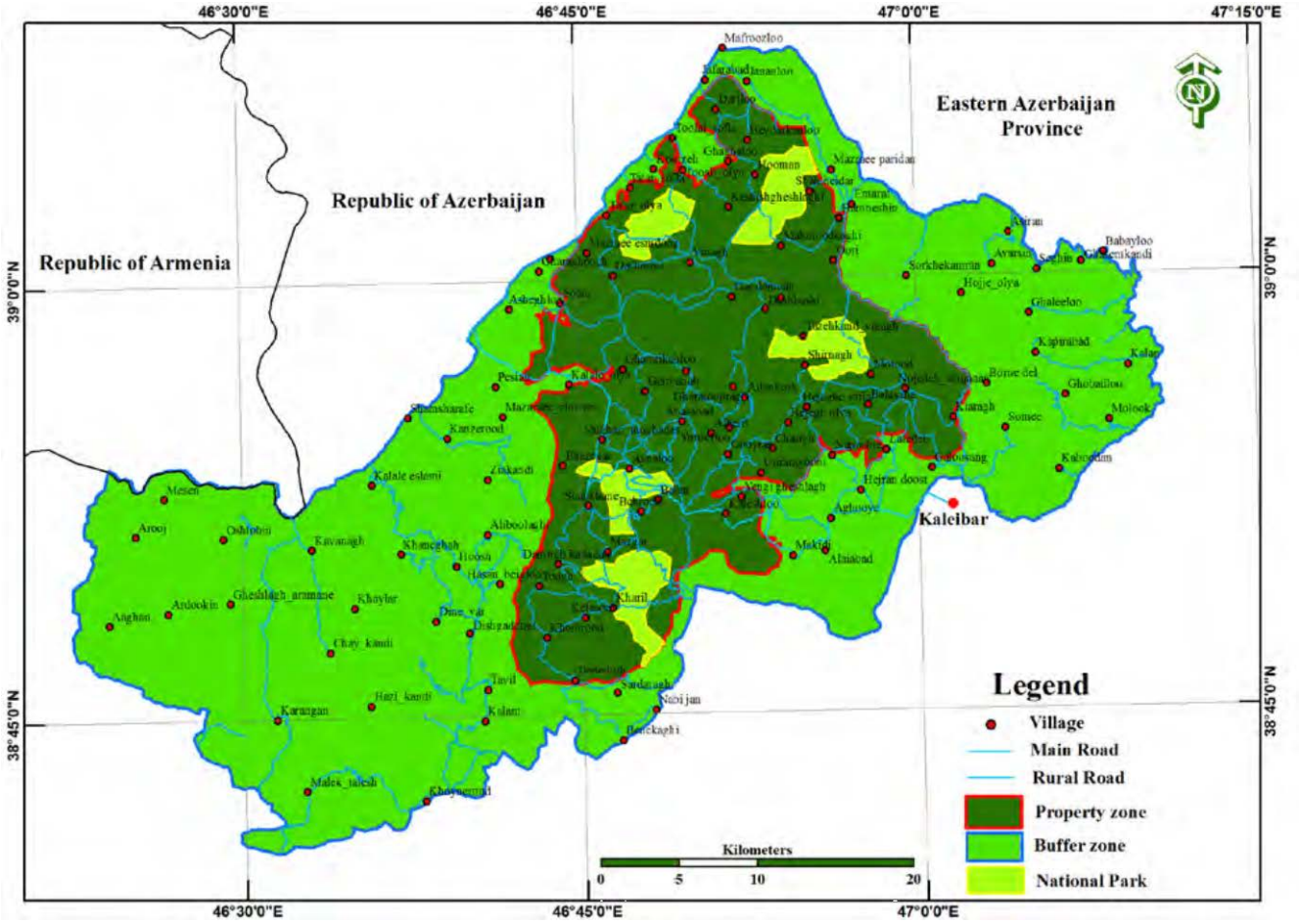
3. Thanks the State Party for the efforts made to protect and enhance the natural values of Arasbaran Biosphere Reserve, and encourages it to:

a) Further enhance the effective management of the biosphere reserve to integrate conservation and sustainable development objectives taking advantage of the global network of UNESCO Biosphere Reserves and international best practice;
b) Develop and adopt an integrated management plan with clear targets and indicators on protection and sustainable utilization, as well as effective governance mechanisms for the biosphere reserve involving key stakeholders and interest groups;
c) Continue monitoring the transformation of the abandoned and reallocated farmlands back into naturally functioning ecosystems and the foreseen positive impacts on the area's biodiversity.

Map 1: Location of the nominated property in Iran



Map 2: Nominated property and buffer zone



ASIA / PACIFIC

AMAMI-OSHIMA ISLAND, TOKUNOSHIMA ISLAND, THE NORTHERN PART OF OKINAWA ISLAND, AND IRIOMOTE ISLAND

JAPAN

Mangrove forest, Iriomote-Ishigaki National Park, Iriomote Island © IUCN / Bastian Bertzky

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

AMAMI-OSHIMA ISLAND, TOKUNOSHIMA ISLAND, THE NORTHERN PART OF OKINAWA ISLAND, AND IRIOMOTE ISLAND (JAPAN) – ID N° 1574

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To defer the nominated property under natural criteria.

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property does not meet World Heritage criterion (ix) but has potential to meet criterion (x).
Paragraph 78: Nominated property does not meet integrity requirements, but does meet protection and management requirements.

1. DOCUMENTATION

a) Date nomination received by IUCN: March 2017

b) Additional information officially requested from and provided by the State Party: Following the IUCN field mission, a letter requesting supplementary information was sent by IUCN on 26 October 2017; information was sought notably on consultation with local communities; the current status, plans and timelines for the designation of the returned Northern Training Area (NTA); further information on private lands within the nominated property; on the preparation and implementation of tourism master plans; and on measures to prevent the entry of new Invasive Alien Species (IAS) to the nominated property. A response was received by IUCN on 28 November 2017. Following the IUCN World Heritage Panel a progress report was sent to the State Party on 20 December 2017. This letter advised on the status of the evaluation process and sought responses/clarifications on a range of issues including clarifications in relation to boundaries; potential future extensions; the overall management of the nominated property; and issues with feral cats. A response was received on 28 February 2018, and representatives of the State Party also travelled to IUCN to explain the content of this response.

c) Additional literature consulted: Various sources, including: Amori, G., S. Gippoliti and K.M. Helgen. 2008. *Diversity, distribution, and conservation of endemic island rodents*. Quaternary International 182: 6-15. Belle, E., Y. Shi and B. Bertzky. 2014. *Comparative Analysis Methodology for World Heritage nominations under biodiversity criteria: A contribution to the IUCN evaluation of natural World Heritage nominations*. UNEP-WCMC, Cambridge, UK and IUCN, Gland, Switzerland. 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. Ito, Y., K. Miyagi and H. Ota. 2000. *Imminent extinction crisis among the endemic species of the forests of Yanbaru, Okinawa, Japan*. Oryx 34 (4): 305-316. Japan Tiger and Elephant Fund (JTEF). 2017a. Statement on the Nomination of Iriomote Island for inscription on the World Heritage List from the aspect of conservation of Iriomote cat. September 2017. Japan Tiger and Elephant Fund (JTEF). 2017b. *What is the "holistic approach" to address increasing tourism/visitors pressure in Iriomote Island?* November 2017. Le Saout, S. et al. 2013. *Protected areas and effective biodiversity conservation*. Science 342 (6160): 803-805. Mittermeier, R.A., P. Robles Gil, M. Hoffmann et al. 2004. *Hotspots Revisited*. CEMEX, Mexico City, Mexico. Natori, Y., M. Kohri, S. Hayama and N. De Silva. 2012. *Key Biodiversity Areas identification in Japan Hotspot*. Journal of Threatened Taxa 4 (8): 2797-2805. Olson, D.M., E. Dinerstein, E.D. Wikramanayake, et al. 2001. *Terrestrial ecoregions of the world: A new map of life on Earth*. BioScience 51 (11): 933-938. Olson, D.M. and E. Dinerstein. 2002. *The Global 200: Priority ecoregions for global conservation.* Annals of the Missouri Botanical Garden 89: 199-224. Safi, K., K. Armour-Marshall, J.E.M. Baillie, N.J.B. Isaac. *2013 Global patterns of evolutionary distinct and globally endangered amphibians and mammals*. PLoS ONE 8(5): e63582. Stattersfield, A.J., M.J. Crosby, A.J. Long and D.C. Wege. 1998. *Endemic Bird Areas of the World: Priorities for Biodiversity Conservation.* BirdLife International, Cambridge, UK. WWF Japan. 2010. *Nansei Islands Biological Diversity Evaluation Project Report*. WWF Japan, Tokyo.

d) Consultations: 10 desk reviews received. The mission met with a wide range of stakeholders including representatives of the Ministry of the Environment (MoE; from headquarters, the Naha Nature Conservation Office, and each island's Ranger Office for Nature Conservation), Forestry Agency (from headquarters, the Kyushu Regional Forest Office, and the two District Forest Offices), Kagoshima Prefecture, Okinawa Prefecture, the 12 municipalities concerned, and various non-profit organizations (NPOs).

e) Field Visit: Bastian Bertzky and Scott Perkin, 11-20 October 2017

f) Date of IUCN approval of this report: April 2018

2. SUMMARY OF NATURAL VALUES

The nominated property "Amami-Oshima Island, Tokunoshima Island, the northern part of Okinawa Island, and Iriomote Island" encompasses 37,946 ha of subtropical rainforests on four islands referred to in the nomination as the Ryukyu Chain of southwestern Japan. The serial property includes 24 entirely terrestrial component parts, grouped in four island clusters, which stretch over 700 kilometers from the north east to the south west. This island arc lies on the boundary of the East China Sea and Philippine Sea, and consists of a number of larger islands and hundreds of smaller islands. The highest point in the nominated property is Mount Yuwandake on Amami-Oshima Island with an elevation of 694 m.

Island cluster	Compo-nent parts	Property (ha)	Buffer zone (ha)
Amami-Oshima Island	9	11,537	14,468
Tokunoshima Island	2	2,434	2,852
Northern part of Okinawa Island	11	5,133	3,083
Iriomote Island	2	18,835	5,542
TOTAL	**24**	**37,939**	**25,945**

Table 1 Overview of the four island clusters that make up the nominated property

The eventful geological and environmental history of this region over the past 20 million years has shaped the evolution of the islands' species and ecosystems, and resulted in the high species endemism and richness that characterize the islands today. The terrestrial biota of the nominated property are characterized by two patterns: first, a high number of endemic species overall – both relict endemics whose relatives were once widely distributed across the continent, but which can now be found only in the central part of the archipelago (due to their long isolation; there are no such species on Iriomote), and new endemics that have further speciated after having been isolated. Second, marked differences exist in the pattern of endemism between the central and southern islands, on individual islands or island groups. Hence, in recognition of their diverse and unique island biodiversity shaped by these complex geological, environmental and evolutionary forces, the area has sometimes been referred to as the "Galápagos of the East".

Although the whole island chain shares some common geological origins, the islands now show a marked biogeographic stratification from north to south, and fall into an important biogeographic transition zone between the Palearctic and Indo-Malayan realms, where subtropical, tropical and temperate species mix. The nominated area lies within two Udvardy biogeographical provinces. Amami-Oshima Island, Tokunoshima Island and Okinawa Island are located in the Palearctic Realm and within Udvardy's Ryukyu Islands Biogeographic Province (RIBP [1]), whilst Iriomote Island lies in the Indo-Malayan Realm and within Udvardy's Taiwan Biogeographic Province (TBP). According to a more recent classification system, it also lies in the '*Nansei Islands Subtropical Evergreen Forests*' terrestrial ecoregion within the 'Tropical and Subtropical Moist Broadleaf Forests' biome of the Indo-Malayan realm. The dominant vegetation in the nominated property consists of different subtropical rainforest ecosystems including evergreen broadleaved forests, cloud forests (on the highest peaks between 400-694m), mountain stream zones, and mangrove forests (only on Amami-Oshima and in particular on Iriomote). Most of the nominated property lies in the still intact mountainous inland areas of the four islands, away from the human-dominated coastal lowlands, but on Iriomote the nominated property also extends to the southern and western coast. Frequent typhoons are a key ecological force on the islands, and the islands' unique forest ecosystems and species have adapted to this major natural disturbance regime.

Japan as a whole is recognized as one of the world's 36 terrestrial biodiversity hotspots, and the nominated areas represent some of the most diverse and unique ecosystems in the country. The nominated property is within a Global 200 terrestrial priority ecoregion, the Nansei Shoto Archipelago Forests, and also belongs to the Nansei Shoto Endemic Bird Area. The nominated property includes three Important Bird Areas and at least two Alliance for Zero Extinction sites, all identified for their global significance for species conservation.

The nominated property supports a large number of endemic and globally threatened species, including several Critically Endangered species, as well as a number of relict endemic species [or 'living fossils': e.g. the Amami Rabbit (*Pentalagus furnessi* - EN[2]) and the Ryukyu Long-haired Rat (*Diplothrix legata* - EN)] that represent ancient lineages and have no living relatives anywhere in the world. Five mammal species, three bird species, and three amphibian species in the nominated property have been identified globally as Evolutionarily Distinct and Globally Endangered (EDGE) species.

Although the nominated property and its surrounding areas cover less than 0.5% of the land area of Japan, they support an exceptionally large proportion of the country's flora and fauna (the percentages in brackets are all relative to the country totals): over 1800 vascular plant taxa (26% of Japan), including 185 taxa endemic to the nominated property and its surrounding areas; 6148 insect species (20% of Japan), including 1062 endemic and 19 globally threatened species; 22 terrestrial mammal species (20%), including 13 endemic (31%) and 10 globally threatened (42%) species; 394 bird species (62%), including 4 endemic (36%) and 12 globally threatened (66%) species; 21 amphibian species (30%), including 18 endemic (30%)

[1] RIBP and TBP are used through the report, to distinguish the geographical areas of Udvardy's biogeographic provinces, which are areas defined in relation to the natural occurrence of biodiversity.

[2] These codes reflect the conservation status of each species as recorded in the *IUCN Red List of Threatened Species* at the time of the evaluation; for more information please visit http://www.iucnredlist.org

and 12 globally threatened (60%) species; and 36 terrestrial reptile species (50%), including 23 endemic (49%) and 5 globally threatened (56%) species.

Overall, 58% of the terrestrial vertebrates of the Japanese biodiversity hotspot are represented in the nominated property and its surrounding areas, including 44% of the country's endemic vertebrates and 30% of the country's globally threatened vertebrates. The level of endemism is also very high in many species groups: 86% of the amphibians, 64% of the terrestrial reptiles, and 59% of the terrestrial mammals in the nominated property are endemic.

The nominated property consists of a number of nationally designated, relatively strictly protected areas or zones of protected areas on the four islands: the Special Protection Zones and Class I Special Zones of three National Parks (equivalent to IUCN Protected Area Management Category II or higher), the Preservation Zones of two Forest Ecosystem Reserves (IUCN Category Ib), and several National Wildlife Protection Areas (IUCN Category IV) and National Natural Monuments (probably IUCN Category III).

Together, the nominated areas support about 90% of the many endemic and threatened species found in the archipelago and include their most important habitats. The nominated property also includes most of the remaining large, intact forest areas that are currently protected in the central and southern parts of the archipelago. The only large and intact forest areas not included in the nomination are the returned and remaining parts of the Northern Training Area (NTA) of the US military in the northern part of Okinawa Island. It is important to note that in the supplementary information provided, Japan makes clear that its intention is to include large parts of the returned areas within the NTA into the nominated property as soon as possible. The supplementary information includes information that shows how the nomination would be amended through the addition of those areas.

The nominated property is uninhabited and there are only 15 residents within the buffer zone; however, over 100,000 people inhabit the four regions containing the nominated property (three islands and the northern part of Okinawa Island), and Okinawa Island as a whole has well over 1 million residents. Together, the four islands receive between 8-9 million visitors per year, of which only a fraction (maybe 10-15%) is estimated to visit the nominated property and buffer zone.

3. COMPARISONS WITH OTHER AREAS

The comparative analysis included with the nomination was well elaborated and includes three geographical scales of comparison.

At the global and regional scale, Japan as a whole is recognized as one of the world's 36 terrestrial biodiversity hotspots. Globally there are 142 Global 200 terrestrial priority ecoregions, but the Nansei Shoto Archipelago Forests, which encompasses, *inter alia*, the nominated property, form the only Global 200 terrestrial priority ecoregion within Japan. Within this Global 200 ecoregion, but in the distinct northern part of the archipelago, Yakushima is already recognized as a natural World Heritage site under (vii) and (ix). In Udvardy's biogeographic classification system, Yakushima belongs to the Japanese Evergreen Forest biogeographical province in the Palearctic realm, but the nominated property belongs to two different biogeographical provinces that are not yet represented on the World Heritage List: RIBP in the Palearctic realm and, in the case of Iriomote Island, TBP in the Indo-Malayan realm. There are no natural World Heritage sites or natural Tentative List sites identified in TBP. The nominated property is part of the Nansei Shoto Endemic Bird Area, and includes three Important Bird Areas, several Key Biodiversity Areas and two or possibly three Alliance for Zero Extinction sites, all identified for their global significance for species conservation.

The global analysis of protected area irreplaceability of 2013 was carried out before the three National Parks in the nomination were established and/or expanded to their current extent; however, even the three much smaller protected areas in existence then (Amami - Gunto Quasi National Park, Okinawa Kaigan Quasi National Park and Iriomote National Park) achieved very high global irreplaceability scores, ranking them among the world's 1,000 most irreplaceable protected areas for the conservation of mammal, bird, and amphibian species.

The nominated property supports a number of evolutionary distinct species with very high global Evolutionary Distinctiveness (ED) ranks such as: Amami Rabbit (31st among mammals), Okinawa Spiny Rat (*Tokudaia muenninki* - CR) (190), Amami Spiny Rat (*Tokudaia osimensis* - EN) (191) and the Ryukyu Long-haired Rat (270). The nominated property also supports many globally threatened species: 10 terrestrial mammals, 12 birds, 12 amphibians, 5 terrestrial reptiles, and 19 insects. Several of these are Endangered or even Critically Endangered. Many other species are not yet globally assessed.

There are six Udvardy biogeographical provinces in Japan, and Japan has four natural World Heritage sites, all of which have biodiversity values recognized under criterion (ix), in addition to Shiretoko which was also inscribed under (x). At the national scale, each of these four sites represents a different Udvardy biogeographical province. The two unrepresented provinces are RIBP and TBP. The latter biogeography is indeed an area which has no natural World Heritage sites or Tentative Listed sites, but it is noted that the Japanese part of this province is small, relative to the province as a whole, and thus the technical arguments for OUV on that element of the nomination are questionable, and in particular in relation to the application of criterion (ix).

IUCN consider that the nominated property is seeking to protect values clearly of outstanding importance within the Japanese biodiversity hotspot, and

represents some of the most diverse and unique ecosystems in the country. Although the area covers less than 0.5% of the land area of Japan, it supports 26% of the country's vascular plant species, 20% of the country's insect species, and a staggering 58% of the terrestrial vertebrates of the country, including 44% of Japan's endemic vertebrates and 30% of the globally threatened vertebrates.

Of the two closest natural World Heritage sites in Japan, Yakushima belongs to a different biogeographical province and shares many species with Kyushu / mainland Japan, and supports overall fewer species than the nominated property. It hosts a number of broader endemic species to Japan, but does not have as many narrow (island) endemics and relict endemics as the nominated property, or similarly high levels of endemism. The Ogasawara Islands, on the other hand, are oceanic islands with far less species compared to the continental setting of the nominated property. Unlike in the nominated property, there are hardly any vertebrates on the Ogasawara Islands, but levels of endemism are high among the other species groups.

The exceptional importance of the nominated property within Japan has also been confirmed in a recent analysis of globally important Key Biodiversity Areas (KBAs) in the Japanese biodiversity hotspot. The results show that the World Heritage nomination includes 3 of the 9 identified Alliance for Zero Extinction sites in Japan, plus the top 3 KBAs out of 228 identified KBAs in terms of the number of trigger species.

Within Japan, a Scientific Committee helped to identify the areas proposed for the nomination. The rigorous evaluation used eight indicators in three thematic areas to score and rank the different islands / island areas. As a result, the four selected island clusters represent the vast majority of the endemic and/or threatened flora relevant to the nomination, without any major gaps that could be closed – using the same strict selection criteria – with other areas on these islands, or on other islands. IUCN considers that this pertains to the application on criterion (x). Furthermore, as discussed in later sections, IUCN considers the selection has not adequately filtered possible components in relation to integrity considerations.

Due to their different histories, Amami-Oshima Island, Tokunoshima Island and the Northern Part Of Okinawa Island have many relict endemic species as noted above, but also some new endemics between them (e.g. the three island-endemic Spiny Rats), whereas Iriomote to the south has new endemic species and subspecies (e.g. Iriomote Cat, *Prionailurus bengalensis iriomotensis* - *CR*) but no relict endemics, and also has strong links to the biota of neighbouring countries. However other species groups are indeed represented by endemics on all four islands (e.g. the four Tip-nosed Frog species).

A detailed biodiversity assessment by WWF Japan in 2010 identified the four nominated areas as terrestrial Biodiversity Priority Areas (BPAs). The study also showed that the four nominated areas, together with central Yakushima, represent the largest such BPAs in this region of Japan.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nominated areas have adequate long-term legislative, regulatory, and formal institutional protection and management in place. The nominated property consists of relatively strictly protected areas under various domestic laws and regulations with national designations that include:

- the Special Protection Zones and Class I Special Zones of three National Parks: Amami Gunto National Park established in 2017 on Amami-Oshima and Tokunoshima, Yambaru National Park established in 2016 in northern Okinawa, and Iriomote-Ishigaki National Park established in 1972 and extended in 2016, all managed by the Ministry of Environment under the National Parks Act;
- the Preservation Zones of two Forest Ecosystem Reserves: Amami Gunto Forest Ecosystem Reserve established in 2013 on Amami-Oshima and Tokunoshima and Iriomote Forest Ecosystem Reserve established 1991 and extended in 2012 and 2015, managed by the Forestry Agency under the Act on the Administration & Management of National Forest;
- several National Wildlife Protection Areas and National Natural Monuments.

The buffer zones consist mainly of the Class II Special Zones in the three National Parks as well as the Conservation and Utilization Zones of the two Forest Ecosystem Reserves.

In addition to the significant efforts to establish or expand the various protected areas, the State Party has also made significant efforts to strengthen the legal protection for threatened species, designating many of the endemic and/or threatened species as National Endangered Species under the Act on Conservation of Endangered Species of Wild Fauna and Flora, or as Natural Monument or Special Natural Monument under the Act on Protection of Cultural Properties. It is prohibited to kill, capture / collect or harm National Endangered Species, and there are protection and recovery programs in place for a number of these species including the Amami Rabbit, Okinawa Rail (*Gallirallus okinawae* - EN) and Iriomote Cat.

In total, 81% of the nominated area is under public ownership, either as national land (64%) or as prefectural and municipal land (17%). The proportion of private land, including land with unknown ownership, is 19% overall but varies from island to island: 4-5% on Tokunoshima and Iriomote, 7% on Okinawa and 49% on Amami-Oshima. There is no traditional ownership in the nominated property. A

process is underway whereby the Ministry of Environment and Kagoshima Prefecture are purchasing private land on Amami-Oshima with a view to increase public ownership from 51% to 85%.

There is very limited resource use permitted in the nominated areas, as they correspond to the highest protection zones of the National Parks and Forest Ecosystem Reserves, where any resource use is strictly regulated. No human interventions are permitted in the Preservation Zone of Forest Ecosystem Reserves. In the Class I Special Zones of the National Parks, the existing landscape must be protected, and most human activities require permission of the Ministry of Environment. The Special Protection Zones have even stricter protection with Wildlife Protection Areas, also protected from hunting and logging without permission.

The nominated property enjoys strong governance arrangements. Key pillars of the system include a multi-agency approach in the Regional Liaison Committee, a high level of participation of local communities and other stakeholders in the Committee's sub-local meetings, and a strong advisory role for a Scientific Committee. The decision making is consensus based, follows a bottom-up approach, and involves local communities and other stakeholders. The mission noted the overall good collaboration among different levels of government and a wide range of stakeholders in the preparation of the World Heritage nomination, the Comprehensive Management Plan, and the regional action plans.

There is also a basic 'collaboration agreement' (memorandum of 7 December 2016) between the Government of Japan and the US Government on their cooperation for nature conservation – especially IAS control and species monitoring – in the remaining Northern Training Area which neighbors the nominated property on Okinawa.

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

4.2 Boundaries

The nominated property seems to include a major proportion of features and processes necessary to express global significance under criteria (ix) and (x). Nevertheless, its 'wholeness' will not be fully satisfactory without the inclusion of the areas of greatest significance within the returned Northern Training Area on Okinawa and possibly some smaller extensions to include more of the important river valleys in north/northwest Iriomote. This does not alter the fact that the nominated areas were selected following a rigorous selection process (based on scientific criteria, strict protection levels, and stakeholder consultations), and are both highly irreplaceable and complementary.

In regards to criterion (ix), the nominated areas demonstrate the key aspects of the evolutionary and ecological processes that are essential for the long-term conservation of the islands' unique forest ecosystems and species: they include variation in elevation above sea level (from sea level on Iriomote and Amami-Oshima to the highest points on all four islands); diverse mountain topography; different rock and soil types (e.g. limestone and non-limestone areas); all the major ecosystem types (evergreen broadleaved forests, cloud forests, mountain stream zones, and mangrove forests); and complex patch systems and naturally regenerating patches, resulting mostly from the frequent typhoons that are the dominant natural disturbance regime and trigger treefall and landslides.

In regard to criterion (x), the nominated areas are of global importance for biodiversity conservation: they contain critical habitats for maintaining the diverse and unique fauna and flora that is characteristic of the relevant Udvardy biogeographical provinces and the 'Nansei Islands Subtropical Evergreen Forests' terrestrial ecoregion.

The nominated property seems of sufficient size to ensure a very good representation of the key features and processes which convey the serial property's global significance. The four selected island clusters represent the vast majority of the relevant endemic and/or threatened flora and fauna, without any major gaps that could be closed – using the same strict selection criteria – with other areas on these islands, or on other islands.

The only large and intact forest areas not included in the nomination are the returned and remaining parts of the Northern Training Area (NTA) of the US military in the northern part of Okinawa Island. Due to the timing of the US military's return of around 4,000 ha in December 2016, the State Party was not able to take this into account when preparing the nomination proposal. The returned NTA is currently undergoing both a 'decontamination' process led by the Ministry of Defense and a designation process as Forest Ecosystem Reserve (including all the required consultation, planning and zoning).

According to the supplementary information received from the State Party, the Ministry of Environment is planning to include as much as possible the returned NTA in the Yambaru National Park and the nominated property, and is in a position to add areas to the property quickly (in the next year). For the time being, the remaining NTA remains under US control but acts as an important *de facto* buffer zone to the nominated property, contributing to landscape connectivity and also supporting important habitats for key species. The IUCN mission confirms in general terms the great apparent significance of these areas, but it is notable that at the time of the mission these areas were not accessible and so were not visited – thus IUCN cannot fully evaluate them at the present time.

The proposed boundaries of the nominated property and buffer zones were drawn based on the zoning of existing protected areas, and represent a compromise based on scientific criteria, strict protection levels, and stakeholder consultations. As a result, the property

also includes a number of small (and in some cases very small) component parts: 4 parts smaller than 10 ha and another 11 smaller than 100 ha. Several of these appear to add little value on their own, but were included in the serial property simply because they belong to the stricter protection zones of the existing protected areas. In terms of integrity, IUCN considers that a number of these areas are too small to be acceptable for inclusion in a serial inscription, and revisions to the nomination in this regard will need to be made.

While there is naturally limited connectivity between the islands (which has been one of the driving factors of evolution), there is overall relatively good connectivity within the four island clusters. On Iriomote, the nominated area is essentially one big block of intact forest habitat with very high connectivity, and there is also relatively high connectivity in the nominated area on Amami-Oshima. On Tokunoshima, the two nominated mountain areas are separated by a lower-lying area where connectivity is limited by human settlements, infrastructure and agriculture. On Okinawa, the nominated areas appear quite fragmented on the map, although there is a good degree of overall landscape and habitat connectivity, mostly through the intact forests in the returned and remaining NTA, which are not currently included in the nominated area, nor buffer zones.

In conclusion, IUCN does not consider that the area as nominated meets the integrity requirements for either criterion, although with adjustments these could be met for criterion (x). There is therefore a need for the State Party to revise the nomination, not only to add the appropriate returned areas of the NTA before possible inscription, but also to remove some component parts that are not appropriate in relation to OUV considerations. Given the potential additions of the NTA have not been visited by a field mission, and are newly created protected areas, IUCN also considers that such areas would require a further evaluation mission.

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

4.3 Management

The responsible management authorities include the Ministry of Environment represented by the Naha Natural Conservation Office plus four regional ranger offices, the Forestry Agency (Kyushu Regional Forest Office), the Kagoshima and Okinawa prefectures, and the 12 municipalities represented on the Regional Liaison Committee.

The Naha Nature Conservation Office serves as the secretary general and the secretariat for external affairs for the Regional Liaison Committee, and has dedicated staff and resources for this role. The Agency for Cultural Affairs, as the principal national agency in charge of protection of cultural properties including Natural Monuments, is also involved through the Board of Education of Okinawa Prefecture and Kagoshima Prefecture.

The Naha Nature Conservation Office, the various regional, district, and local offices of the Forestry Agency, both prefectures, and the 12 municipalities all have staff dealing with and supporting some management aspects of the nominated property and buffer zone. However, the four regional ranger offices of the Ministry of Environment only have 2 staff on Tokunoshima and 6-8 staff on Iriomote, Yambaru and Amami respectively, with 2 national park rangers usually supported by assistant park rangers. They also staff the three excellent Wildlife Conservation Centers which are run by the Ministry of Environment at Amami, Yambaru and Iriomote.

Unlike in many other countries, the national park rangers in Japan essentially act as park manager and deputy manager, thus spending comparably little time in the field. Further, there is a mandatory 3-year rotation system that requires all national park rangers to change to another national park every three years. Some of the recently designated component parts are not yet adequately staffed, and the supplementary information received from the State Party confirmed the intention of key organizations involved in the management of the nominated property to allocate and deploy additional human resources to further enhance the management of the property.

Patrolling and monitoring are carried out mostly by partners such as local communities, not-for-profit organizations, and other stakeholders under various agreements with the Ministry of Environment and National Parks. However, the management authorities themselves and their partners do not have law enforcement capacity. Only the Japanese police can arrest poachers, for example, or enforce speed limits on roads inside the nominated property. This limits the effectiveness of patrolling efforts within the nominated property, and requires effective collaboration with the police.

The nomination file includes a concise yet adequate ‘Comprehensive Management Plan’, adopted in December 2016, which includes the overarching management targets and basic management policies that commonly apply to the four island clusters. This plan is for a period of about 10 years. Progress with implementation will be evaluated after 5 years and 10 years, and these evaluations will be used to inform the revision of the plan.

The Comprehensive Management Plan is complemented by four regional action plans for Amami-Oshima, Tokunoshima, northern Okinawa, and Iriomote. These plans have been developed with broad participation of all relevant stakeholders, and list specific action items, implementing agencies, time lines and target areas, and desired outcomes including specific targets and indicators.

Key management indicators adopted include changes in the distribution and abundance of key species (e.g. Amami rabbit, Okinawa rail, and Iriomote cat) and progress on the control of IAS, particularly the mongoose and feral cats. An overall monitoring plan for the nominated property is still pending; however, many of the existing conservation and management activities already include regular monitoring.

Overall, there presently appear to be adequate financial resources, and a relatively secure financial outlook. The different levels and bodies of government involved with the conservation and management of the nominated area and surroundings all contribute funding for staff and/or specific facilities, activities, etc. In addition, the IUCN field mission took note of substantial additional resources that contribute directly or indirectly to the conservation and management of the nominated property, including activities by research institutions, non-government organizations, not-for-profit organizations, and other partners. These activities also include excellent environmental education programs and awareness raising campaigns. Various non-government organizations, not-for-profit organizations, and local communities also run many facilities such as the impressive Okinawa Rail Captive Breeding Centre and the Yambaru Discovery Forest Centre and Lodge on northern Okinawa.

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

4.4 Community

Little information was provided on community related issues in the nomination file. However, the IUCN field mission reported positively on the various efforts made to involve communities and stakeholders in the planning of protected areas and the World Heritage nomination process. In fact, the participation and collaboration of local communities are stated management objectives, and local communities, residents, and businesses are involved in many conservation activities. The Regional Liaison Committee and its four sub-local meetings, which include representation from each island's administrative authorities, local governments, concerned bodies, and not-for-profit organizations, are tasked with consensus building among the large number of stakeholders involved in the governance and management.

However, in letters sent to IUCN, several Japanese non-government organizations reported perceived shortcomings in the consultation process, noting that some residents and/or other stakeholders believe that they were not consulted enough on the selection and delineation of nominated areas and buffer zones, or the development of the regional action plan. Specific concerns were also raised in relation to a naval base which is under construction on Okinawa, at some distance from the nominated property, and which is opposed by sections of the community, who assert a number of possible indirect impacts that could threaten elements of the nominated property, including in relation to invasive alien species. This matter has also been raised in resolutions of IUCN's quadrennial World Conservation Congress.

In response to an IUCN request, the State Party provided a summary of the efforts made to consult with the community. The consultation process seemed very elaborate and inclusive, and provided a strong basis for a high level of involvement from local communities and other stakeholders in the planning and management of the protected areas' designation, management, and monitoring, as well as the nomination process itself. The IUCN field mission clarified that the World Heritage nomination and recent protected area / national park designations did not involve relocations or exclusion of tenure and traditional access and use rights. Where no agreement could be reached with private landowners, the areas concerned were excluded from the nominated area, which is one of the reasons for some of the gaps in the proposed boundaries.

In regard to local livelihoods, benefit-sharing, and rights, it is well established that local stakeholders have benefited significantly from the protected area designations and management as well as the nomination process. This includes many contractual agreements between the national parks, local communities, and organizations to support patrolling and monitoring, conservation of endemic species, and control of IAS.

4.5 Threats

As noted in the nomination, some parts of the nominated property and its buffer zones have been heavily affected by human activities in the past, mostly logging and the deliberate or accidental introduction of IAS. Especially during the post-war reconstruction period (and when Amami Island Group was returned to Japan in 1953 and Okinawa in 1972), various parts of Amami-Oshima, Tokunoshima, and northern Okinawa were deforested to develop farmland and construct dams and roads. Today, thanks to the high regeneration capacity of the forests, most nominated areas that were logged in the past are now considered to have recovered to an almost natural state. There are no agricultural areas within the nominated property, there is no encroachment or pollution, and both logging and mining are now prohibited within the nominated property.

The most important current and potential future threats to the biodiversity of the nominated property are IAS, including feral and stray cats and dogs, roadkill of endemic wildlife (e.g. Iriomote Cat, Okinawa Rail, and Amami Rabbit), illegal wildlife collection (poaching of orchids, beetles, etc.), and impacts from tourism. The invasive Small Indian Mongoose (*Herpestes auropunctatus* - LC*)* has heavily affected endemic and threatened species on Amami-Oshima and northern Okinawa in the past, but is now approaching eradication thanks to long-standing, and highly intense and commendable control efforts. There are also other

invasive animal and plant species on all the islands, but so far there has been no major damage reported, and many control efforts are underway.

Feral and stray cats (and to a far lesser extent, dogs) also affect native species in and around some of the nominated areas. Control programs have been effectively implemented on Tokunoshima, northern Okinawa, and Iriomote, but not yet on Amami-Oshima. Supplementary information received from the State Party confirms that the control program will be expanded to all areas in addition to their buffer zones and surroundings.

The mission also provided the opportunity to consider questions raised on the naval base, and confirmed, in relation to World Heritage considerations, that this development is distant from the nominated property. The key issue in this development of relevance to World Heritage, in common with any other projects involving land-claim in Okinawa, is to ensure a rigorous level of protection from any introductions from IAS resulting from either construction activities or operations. IUCN has indicated, as a separate matter to the World Heritage nomination, the willingness to contribute technical expertise on this matter if so requested by the Government of Japan.

There are both public roads and a network of forestry roads within many of the nominated areas. Roadkill is an issue especially along some of the public roads, although major efforts have been made on all islands in recent years and these show some encouraging results. The ongoing efforts include awareness campaigns, speed bumps, speed limits, warning signs, special roadside ditches, fences, and many underpasses. Many forestry roads have been closed to the public, at least temporarily (e.g. during the night), but many others are still open and provide easy access to the forest, including for poachers and tourists.

Illegal wildlife collection (e.g. orchids and beetles) is an important current threat on northern Okinawa but may also affect other nominated areas, while disturbance and other impacts from tourism, and associated facilities and activities, are a major future threat (and an important current threat on Iriomote) that needs to be carefully managed. Both Iriomote and northern Okinawa already receive substantial visitor numbers, and Iriomote has seen a dramatic increase in recent years, raising concerns among local communities and stakeholders.

Despite various ongoing and encouraging initiatives (tourism planning, tourism guidelines, tour guide training and certification, etc.), there is an urgent need to take a more holistic approach and to proactively plan any future tourism development on the nominated islands, which should address questions such as: how to establish, monitor and enforce island and area-specific carrying capacities; how to regulate, minimize, or mitigate impacts from present and planned tourism facilities and activities; and how to protect particularly sensitive areas from any adverse effects of tourism development. This is especially important and urgent as access to the islands has and will continue to become easier and cheaper, dramatically increasing visitor numbers, including from cruise ships.

While the Kagoshima Prefecture has recently prepared a Master Plan for Sustainable Tourism on the Amami Island Group, no such recent plan seems to exist for Okinawa Prefecture. Supplementary information received from the State Party confirmed the launch of several tourism planning initiatives covering the remaining parts of the nominated areas including the development of a tourism planning concept for Iriomote and northern Okinawa, an overall concept for Yambaru Forest tourism promotion, the Iriomote Island ecotourism guidelines, and the Taketomi town ordinance for tour guides. Further, the State Party provided information on the current status of a proposal for a large cruise ship base on Amami-Oshima, confirming that no specific site has been selected and no development plans are intended in the foreseen future.

Overall, the nominated property does not meet the conditions of integrity, principally with regard to the nominated property's boundaries, and related considerations regarding protection and management. Amendments appear feasible to provide a solution to these concerns in relation to criterion (x) but are challenging in relation to criterion (ix). The nominated property is of sufficient scale to ensure a very good representation of the key features and processes which convey the serial property's global significance. However, some of the boundaries of the nominated property and its buffer zones are considered inadequate from a biodiversity conservation standpoint, and the integrity and coherence of the nominated property would be greatly enhanced with the planned inclusion of the returned Northern Training Area (NTA) on Okinawa, and a number of smaller changes to the boundaries of the nominated property and its buffer zones. IUCN considers that the addition of the returned NTA and further boundary changes would constitute a significant amendment to the nomination, and would include areas that were not evaluated through a field mission, thus requiring a further evaluation mission to be undertaken. Such a mission could be focused only on the amendments, once they have been made. Furthermore, as the supplementary information from the State Party notes that the additions of areas in the NTA is a matter that is essentially ready to proceed, IUCN considers that the correct procedure would be to await the submission of those areas by the State Party, within a new nomination.

In conclusion, IUCN considers that the nominated property does not meet the integrity requirements of the Operational Guidelines, but does meet the protection and management requirements. However, protection and management, including buffer zones, would need to be reconsidered as part of the revisions required to the nomination.

5. ADDITIONAL COMMENTS

5.1 Consideration in relation to serial properties

a) What is the justification for the serial approach?
The nominated property is proposed as a 'serial national property' under criteria (ix) and (x), consisting of four island clusters with a total of 24 component parts. The nomination follows a framework that distinguishes between the northern, central, and southern parts of the archipelago in Japan, and demonstrates how the nominated areas are quite distinct. The story of the evolution of the distinct terrestrial biota is remarkable and, given the big differences between individual islands and between the different parts of the island chain, can only be represented using a serial approach. The nomination argues that the selected areas are the most important, most intact, and largest forest areas, overall representing about 90% of the relevant endemic and threatened species.

Despite the compelling entry point justifying the serial nomination, the current configuration of the nominated property is problematic with regard to two requirements of serial properties:

- While the nomination does include clear descriptions of the four island clusters, including their unique values, threats, protection, and management arrangements, it does not include such descriptions for all the 24 component parts that make up the serial property. The justification for the site selection is almost entirely based on the four island clusters but does not allow one to evaluate the contributions of the 24 individual component parts.
- While it is clear that each of the four island clusters contributes to the suggested OUV of the nominated property as a whole in a substantial, scientific, readily defined, and discernible way, this is not true for all the 24 individual component parts. Several of the small component parts on Okinawa, Amami-Oshima, and Iriomote add no or little value or integrity on their own, but were included simply because they belong to the stricter protection zones of the existing protected areas that were used to identify the nominated areas. It would be preferable, as appropriate, to either connect these areas with the bigger component parts nearby, or to remove them from the nomination. This would also enhance the overall manageability and coherence of the serial property.

IUCN finds the serial approach appropriate in principle and necessary in order to represent the most important evolutionary and ecological processes, and the endemic and threatened terrestrial biodiversity of the area. However, the current configuration of the nominated property raises serious integrity related questions in terms of ecological viability of small fragmented and disconnected components.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the Operational Guidelines?
The four island clusters and their individual component parts are functionally linked in the sense that they share a) some common geological origin, b) the same broad general biogeographic context, and c) the same general evolutionary and ecological processes; and only together support most of the relevant endemic and threatened terrestrial biodiversity. While there are some notable differences in the specific natural history, flora, and fauna between islands, all the nominated areas are dominated by very similar evergreen broadleaved forests. The functional links include evolutionary and ecological connections, as well as varying degrees of landscape and habitat connectivity on each island as described in Section 4.2.

c) Is there an effective overall management framework for all the component parts of the nominated property?
The nominated property has an effective overall governance and management framework covering all component parts. A Regional Liaison Committee has been set up and includes representatives of all administrations involved in the management of the nominated areas on all four islands: the Ministry of Environment, Forestry Agency, two prefectures, and 12 municipalities. Four sub-local meetings, which include representation from each island's administrative authorities, local governments, concerned bodies, and not-for-profit organizations, support the Regional Liaison Committee and have developed, and are now implementing, regional action plans through collaboration and cooperation, also with other local stakeholders. A Scientific Committee, and its two local working groups, provides scientific advice to the management authorities.

The nominated property has a 'Comprehensive Management Plan', adopted in December 2016, which includes the overarching management targets and basic management policies that commonly apply to the four island clusters (covering the nominated areas, buffer zones, and even their surrounding areas except the returned and remaining NTA on northern Okinawa).

6. APPLICATION OF CRITERIA

Amami-Oshima Island, Tokunoshima Island, the northern part of Okinawa Island, and Iriomote Island has been nominated under natural criteria (ix) and (x).

Criterion (ix): Ecosystems/communities and ecological/biological processes
The four selected island clusters include some components that protect outstanding examples of evolutionary processes on continental islands including speciation and diversification resulting from separation and isolation. However there are significant concerns regarding the ecological viability of the fragmented and disconnected configuration of the property as nominated, and the small size of some component

parts. Thus integrity considerations are not met for the nominated property.

The nominated areas support many relict and/or evolutionary distinct species, exhibit outstanding examples of ecological processes on islands such as behavioral adaptations, and support unique and diverse subtropical rainforest ecosystems which are relatively rare ecosystems globally. Despite this, there are, depending on the scientific framework adopted for classification, notable ecological connections and evolutionary processes which extend beyond the nominated property, notably in relation to the values represented on Iriomote Island.

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

Criterion (x): Biodiversity and threatened species

The four selected island clusters contain the most important natural habitats for *in-situ* conservation of the unique and diverse biodiversity of this region. The nominated areas, in general, show high species richness associated with small islands in many species groups. The area also supports a large number and ratio of threatened species, including several Critically Endangered species, and a large number and ratio of endemic species, including many relict and/or evolutionary distinct species. The nominated property includes areas of overall high global irreplaceability for the protection of globally threatened species. However, as noted in earlier sections of this report, there are both important areas, in the returned NTA, that would significantly add to the values and integrity of the property proposed for almost immediate addition to the nomination, as well as a number of adjustments needed to the selection of component parts to remove inappropriate small areas that do not add significant value to the nomination, nor meet integrity requirements.

IUCN considers that the nominated property, following addition of the relevant areas of the returned NTA, and removal of some inappropriate component parts that do not add value to the nomination, has the potential to meet 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/18/42.COM/8B and WHC/18/42.COM/INF.8B2;

2. Defers the examination of the nomination of **Amami-Oshima Island, Tokunoshima Island, the northern part of Okinawa Island, and Iriomote Island (Japan)** to the World Heritage List under natural criteria to allow the State Party to:

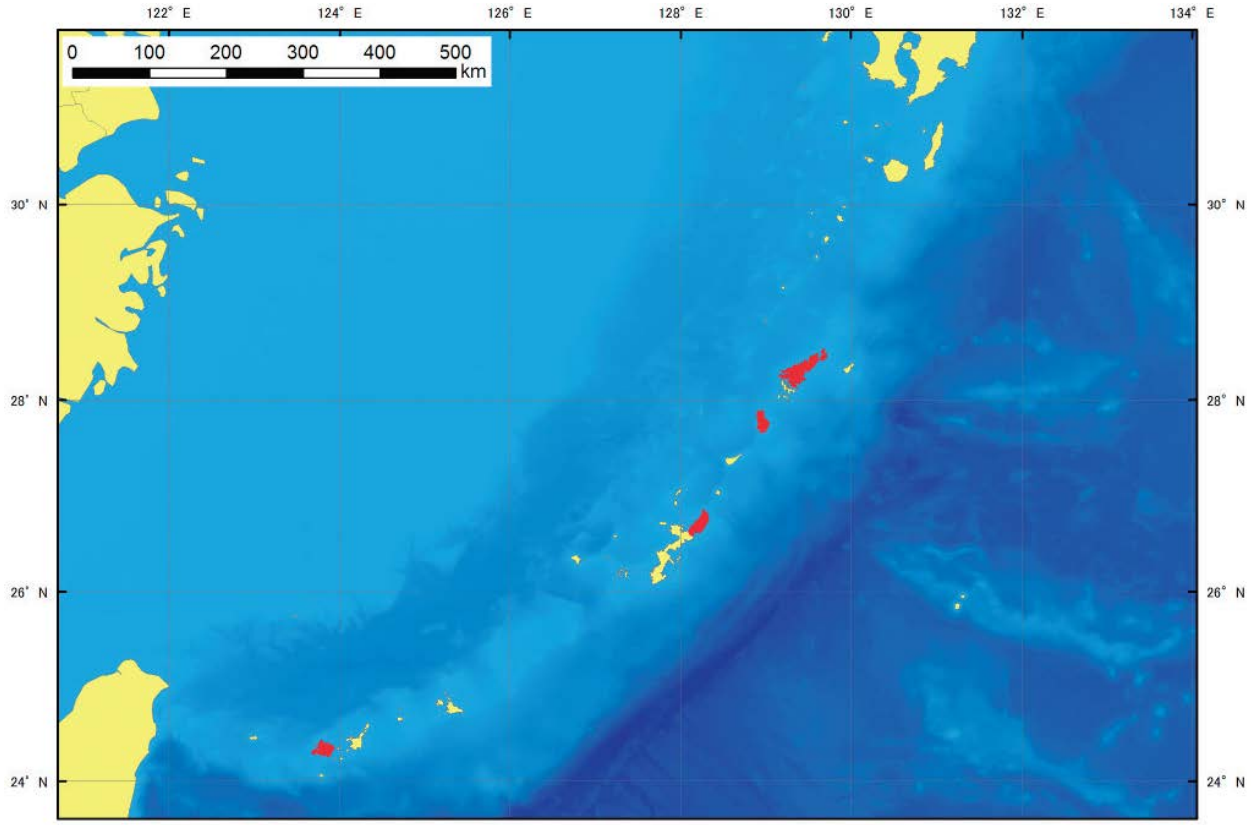
a) Revisit the nominated property's configuration to more specifically focus on criterion (x), including in relation to the selection of, and the connectivity between component parts, and the viability of long-term protection of species;
b) Integrate the returned areas of the Northern Training Area on Okinawa Island into the nominated property, as appropriate, taking into consideration their contribution to the justification of criterion (x), and further develop the necessary coordination mechanisms to integrate the remaining areas of the Northern Training Area into the overall planning and management of the nominated property;
c) Proceed further with the strategy adopted for acquiring, protecting and integrating the enclaves of private lands into the nominated property along with the associated arrangements to secure the owners' and or users' involvement in the strategic and day-to-day management of the nominated property through effective decision-making platforms and processes.

3. Notes with appreciation the State Party's efforts on the control and management of invasive alien species (IAS), including through the adoption and foreseen activation of the Feral Cat Management Plan for Amami-Oshima Island, and encourages it to expand the existing programs on IAS to address all other species negatively impacting the nominated property's biodiversity.

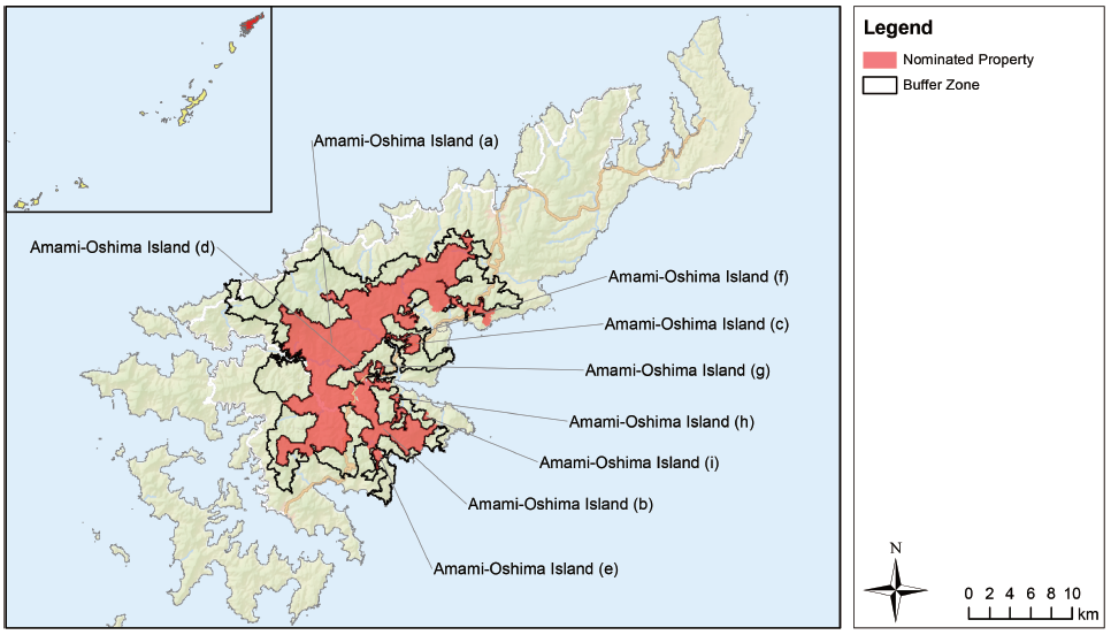
4. Recommends that the State Party pursue the activation of the tourism development plan and visitor management plan for key tourism development zones and attraction areas, according to their interest to visitors and carrying capacities, including the installation of adequate visitor control mechanisms, tourism management facilities, interpretation systems, and monitoring arrangements.

5. Further recommends that the State Party complete the development and adoption of the integrated monitoring system focusing on the status and trends of threatened species as well as direct anthropogenic and climate change induced impacts.

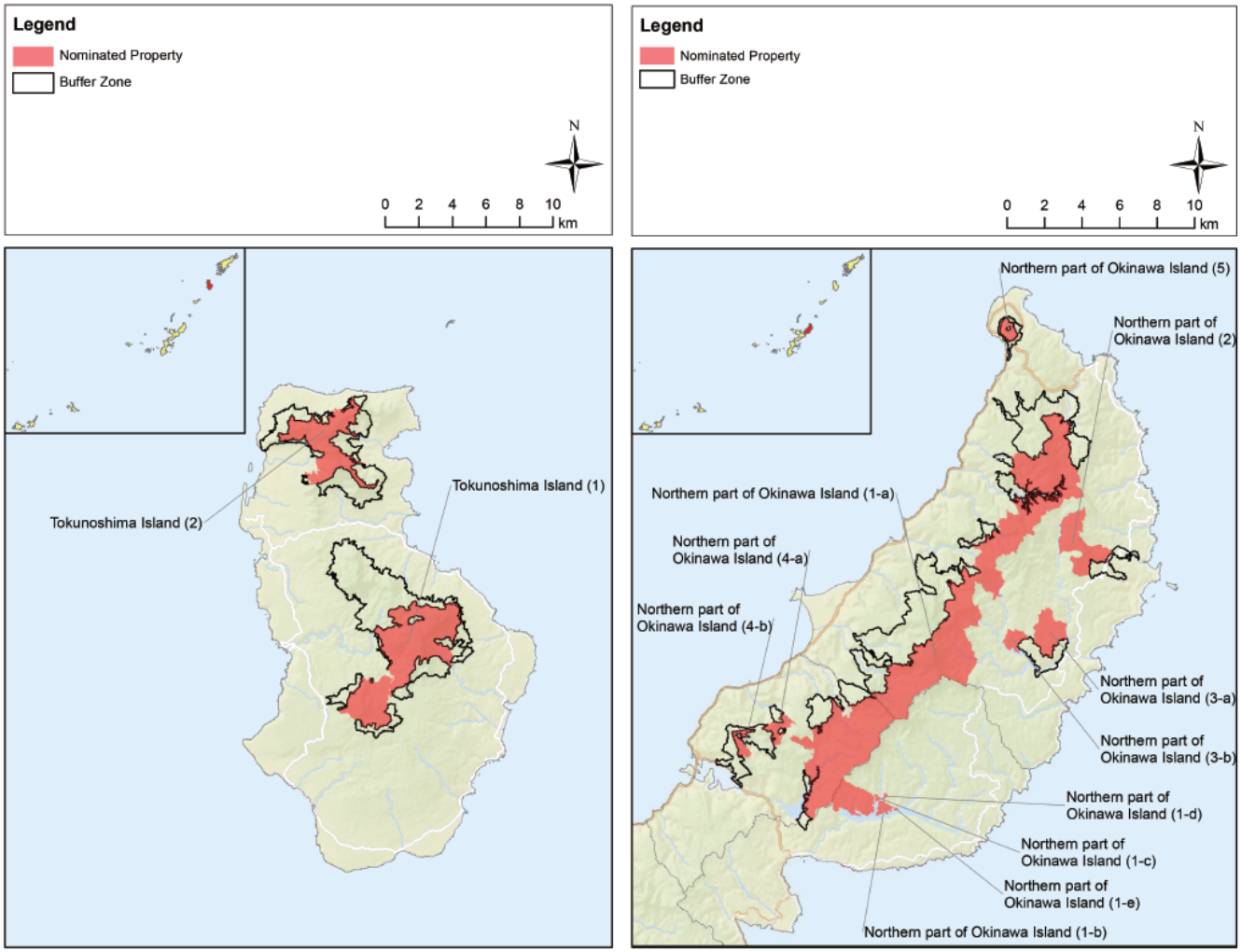
Map 1: Location of the four regions of the nominated property



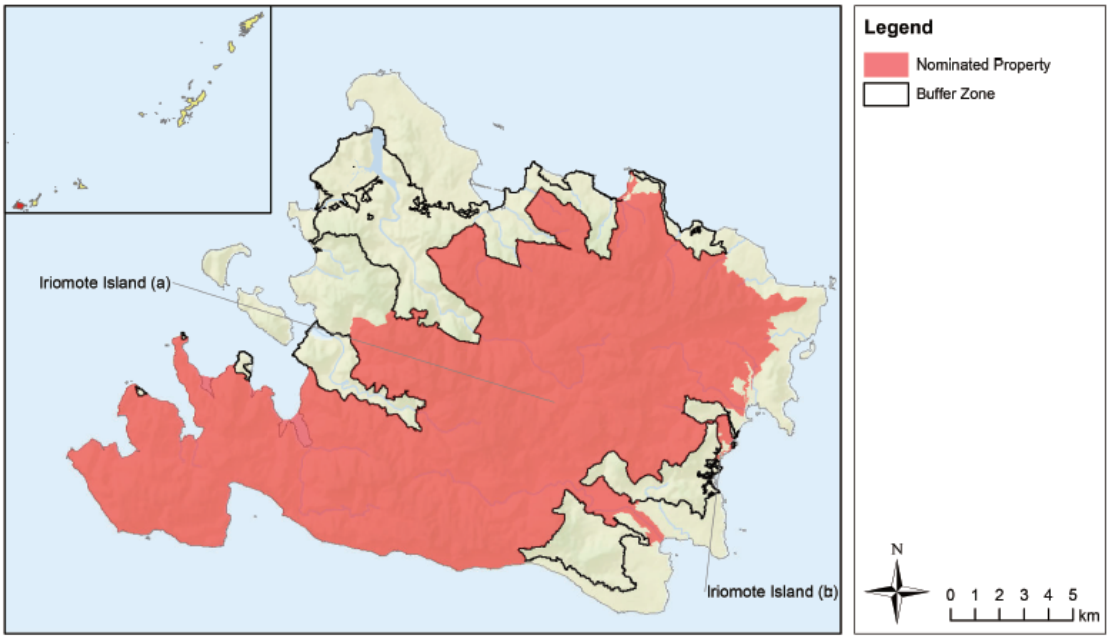
Map 2: Nominated property and buffer zone – Amami-Oshima Island



Map 3 and 4: Nominated properties and buffer zones – Tokunoshima Island and northern part of Okinawa Island



Map 5: Nominated property and buffer zone – Tokunoshima Island



EUROPE / NORTH AMERICA

BIKIN RIVER VALLEY
(extension of Central Sikhote-Alin)

RUSSIAN FEDERATION

View of Bikin River Valley © IUCN / Tilman Jaeger

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

BIKIN RIVER VALLEY (RUSSIAN FEDERATION) – ID N° 766 Bis

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To refer the property under natural criteria.

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property meets World Heritage criteria.
Paragraph 78: Nominated property does not fully meet integrity, protection and management requirements.

Background note: An area corresponding substantially to the current extension proposal was examined in the original nomination of the Central Sikhote-Alin property in 2001, but was not agreed as part of the inscription at that time (Decision CONF 208 X.A), on the grounds of its then legal status and management arrangement being inadequate at that time. In the same decision, the World Heritage Committee encouraged the State Party to "improve management of the Bikin River protected areas […] before nominating it as an extension."

1. DOCUMENTATION

a) Date nomination received by IUCN: March 2017

b) Additional information officially requested from and provided by the State Party: Following the meeting of the IUCN World Heritage Panel, a progress report was sent to the State Party on 20 December 2017. This letter advised on the status of the evaluation process and sought responses/clarifications on a range of issues, including: the lack of buffer zone; the lack of an overarching management plan/system for the serial site; the approach taken to ensure the full and active participation of local communities and indigenous peoples; the long term vision for ensuring the connectivity of conservation areas within the wider region; and the legal challenge to the establishment of the National Park. A response was received on 26 February 2018.

c) Additional literature consulted: Various sources including: Bocharnikov VN, Martynenko, AB, Gluschenko YN, Gorovoy PG, Nechaev VA, Ermoshin VV, Nedoluzhko VA, Gorobetz KV, Doudkin RV (2004) *The Biodiversity of the Russian Far East Ecoregion Complex*. Chief editor: GorovoyPG. Russian Academy of Science / Far Eastern Branch, Pacific Institute of Geography, Institute of Biology and Soil Sciences, Pacific Institute of Bioorganic Chemistry, WWF, The Conservation organization, Far Eastern Branch. Carroll C, Miquelle DG (2006) *Spatial viability analysis of Amur tiger (Panthera tigris altaica) in the Russian Far East*: *the role of protected areas and landscape matrix in population persistence*. Journal of Applied Ecology 43: 1056-1068. KfW Development Bank (2016) Environmental Protection – Russian Federation. Protection of the Bikin Valley. Miquelle DG, Smirnov EN, Zaumyslova OY, Soutryina SV, Johnson DH (2015) *Population Dynamics of Amur Tigers* (P. t. altaica, Temminck 1884) in Sikhote-Alin Zapovednik: 1966-2012" (2015). USGS. Northern Prairie Wildlife Research Center. Paper 293. http://digitalcommons.unl.edu/usgsnpwrc/293. Ministry of Natural Resources and Environment of the Russian Federation (2010) Strategy for Conservation of the Amur Tiger in the Russian Federation. Newell JP, Simeone J (2014) *Russia's forests in a global economy: How consumption drives environmental change*. Eurasian Geography and Economics 55(1): 37-70. Russian Federation (2016) Ministry of Natural Resources and Environment of the Russian Federation Order dated August 12, 2016, No. 429 on Approving the Regulations of the Bikin National Park. Russian Federation (2015) The Government of the Russian Federation Decree dated November 3, 2015, No. 1187 on Creation of the National Park 'Bikin'. Russian Federation (2015) Draft retrospective Statement of Outstanding Universal Value. Central Sikhote-Alin, Russian Federation. Russian Federation (1995) On the Specially Protected Natural Territories. A Federal Law of the Russian Federation dated March 14, 1995. Turaev V, Sulyandziga R, Sulyandziga V, Bocharnikov V (2001) *Encyclopedia of Indigenous Peoples of the North, Siberia and the Far East of the Russian Federation*. CSIPN. UNESCO-WHC, IUCN (2004) Proceedings of the World Heritage Boreal Zone Workshop. Held in St. Petersburg, Russia, 10-13 October 2003. Vandergert, P; Newell, J (2003) *Illegal logging in the Russian Far East and Siberia*. International Forestry Review 5(3): 303-306. WCS (n.d.) Tiger Conservation in the Russian Far East. World Bank (n.d.) Protected Areas Network for Sikhote-Alin Mountain Forest Ecosystems Conservation in Khabarovsk Kray (Russian Far East). Medium-Sized Project Brief. Project Summary. Miquelle D., Darman Y. and Seryodkin I. 2011. *Panthera tigris* ssp. altaica. The IUCN Red List of Threatened Species 2011: e.T15956A5333650. Downloaded on 08 November 2017.

d) Consultations: 6 desk reviews received. The mission met with a wide range of stakeholders including the Ministry of Natural Resources and Environment of the Russian Federation (MNR), leadership and staff of Bikin National Park, Director of Central Sikhote-Alin, Russian Association of Indigenous Peoples of the North (RAIPON), representatives of the Udege, WWF Russia including past and current leadership of the Amur Branch, Greenpeace Russia, Territorial-Neighbour Community

of the Indigenous Small-Numbered Peoples (TSO KMN). Informal consultations were also undertaken with BMUB, WWF International, WCS Russia, ZSL, KfW, and selected members of the network of the IUCN Integrated Tiger Habitat Conservation Programme.

e) Field Visit: Tilman Jaeger and Chimed-Ochir Bazarsad, 17-26 September 2017

f) Date of IUCN approval of this report: April 2018

2. SUMMARY OF NATURAL VALUES

The Bikin River Valley (BRV) is nominated as a serial extension of the existing Central Sikhote-Alin World Heritage site and is located about 80-100 km to the north of the existing property. The nominated extension covers 1,160,469 ha, which is almost three times larger than the existing World Heritage property. Central Sikhote-Alin was inscribed as a serial property under criterion (x) in 2001, and has a total area of 406,349 ha comprised of two components, the Sikhote-Alin Nature Reserve (401,600 ha) and the Goralij Zoological Preserve (4,749 ha).

The Sikhote-Alin Mountains are located in the South-East of the Russian Far East, northeast of Vladivostock. The existing property of Central Sikhote-Alin is located on the eastern slope of the range from around 1,600 metres above seas level (masl) down to sea level. The nominated extension extends from 200 to 1900 masl and is the most important intact and effectively protected forest on the western slope of the Sikhote-Alin, which is distinct from the slopes exposed to the Sea of Japan in terms of relief, climate, vegetation and landscape, and known to be more biodiverse than the eastern slope. It includes a vast area of practically undisturbed mountain taiga landscapes almost completely forested (more than 95%), with traces of ancient glaciations and volcanism, and a greatly partitioned relief of numerous deep ravines, scree steeps, rocky ridges, insular mountains, and greatly indented plateaus. The area includes valleys, mountain taiga, and forests. In particular, according to the nomination file, it contains one of the largest and best preserved broadleaf and pine-broadleaf far-eastern forests, the Ussuriyskaya Taiga.

The area holds significant biodiversity values. A wide spectrum of altitudinal belts are well developed in the nominated property including a mountain tundra belt, a forest belt of dwarf Siberian Pines, a forest belt of Erman's birch, a fir-spruce forest belt, a spruce-pine forest belt, and a pine-broadleaf forest belt. No specific floristic research has been conducted in BRV, but the nomination estimates the property could contain approximately 1,000 species of higher vascular plants.

The fauna of BRV combines species from the taiga, found among the Okhotsk-Kamchatka flora, with representatives of southern Manchurian species. Faunal diversity comprises 52 mammal, 241 bird, 7 amphibian, 10 reptile and 48 inland water fish species, including a full range of mammalian and avian apex predators. Threatened animal species present include the mammals: Amur Tiger (*Panthera tigris altaica* – EN[1]), Musk Deer (*Moschus moschiferus* - VU), and Himalayan Black Bear (*Ursus thibetanus* - VU). The nominated property is considered one of the last reliable shelters of the Amur Tiger. Studies have suggested the tiger range that is the most robust to threat of extirpation is the area that connects Sikhote-Alin with the Iman and Bikin watersheds to the north. However, the entire Russian population of Amur Tiger was estimated to contain only 360 tigers based on a survey carried out in 2005 (cited in 2011). Furthermore, the Amur Tiger monitoring program has indicated a significant decline in the population, and over 90% of the population is reported to be found in the Sikhote-Alin mountain region, where there is very limited gene flow with other populations.

Threatened birds include Hooded Crane (*Grus monacha* - VU), Scaly-sided Merganser (*Mergus squamatus* - EN), Siberian Ruddy Crake (*Porzana paykullii* - EN), and Blakiston's Fish-owl (*Ketupa blakistoni* - EN). There is also one threatened reptile, Chinese Softshell Turtle (*Pelodiscus sinensis* - VU).

BRV is also reported to host some relict, endemic, and rare animal species, especially mammals, birds and reptiles. These include according to the nomination file, in addition to the Amur Tiger mentioned above, another 51 species of mammals. In addition to the threatened bird species mentioned above, rare species found in flood plain forests include the Black Stork (*Ciconia nigra* - LC), Mandarin Duck (*Aix galericulata* - LC), Greyfaced Buzzard (*Butastur indicus* - LC), and Osprey (*Pandion haliaetus* - LC). The Long-billed Ringed Plover (*Charadrius placidus* - LC) is another very rare and endemic species which is commonly found in vast pebble river bars. Rare and endemic reptile species include the Grass Lizard (*Takydromus wolteri* - NE), European Grass Snake (*Rhabdophis tigrina* - NE), Siberian Ratsnake (*Elaphe schrenki* - NE), Amur Ratsnake (*Elaphe rufodesata* - NE), Mamushi (*Agristrodon blomhoffi* - NE) and Korean Snake (*Gloydius saxatilis* - LC); however, none of these species are considered as globally threatened, but either considered of Least Concern or have not yet been assessed on the IUCN Red List (2017).

There is limited human presence in the property, with only 1,000 inhabitants residing adjacent to its boundaries and distributed over four small settlements. Many are Indigenous Peoples, mostly belonging to the Udege with some belonging to the Nanai and Orochi. As most non-indigenous "settlers" (as the nomination puts it), the Indigenous Peoples near Bikin National Park continue to directly depend on local natural resources, including explicitly within the national park. The residents are mainly continuing a long established traditional utilization of the forest resources, which seems to have limited impact on the area's biodiversity and ecological integrity.

[1] These codes reflect the conservation status of each species as recorded in the *IUCN Red List of Threatened Species* at the time of the evaluation; for more information please visit http://www.iucnredlist.org

3. COMPARISONS WITH OTHER AREAS

The nominated extension is nominated in relation to criterion (x), and the nomination includes an adequate comparative analysis as confirmed by the expert review base consulted. As the nomination is for an extension, the focus of comparison is how the area would add to the already inscribed property.

The main argument presented in the nomination file is based on the same justification used for the successful inscription of the Central Sikhote-Alin World Heritage site: the global conservation value of the large and significant intact tracts of 'Ussuriyskaya taiga's' native dark coniferous, light coniferous, coniferous-broadleaf, and broadleaf forests, and as a key habitat of the Amur Tiger.

The biodiversity that characterizes the proposed extension is evidently of global significance, based on the information provided in the nomination file, the spatial analyses and literature review undertaken by the IUCN and UN Environment WCMC, as cited above, and adds significantly to the justification of criterion (x) for the existing inscribed property.

Compared with existing World Heritage sites found in Russia and/or the same biogeographical provinces (the East Siberian Taiga and Manchu-Japanese Mixed Forest) or freshwater priority ecoregion (the Russian Far East Rivers & Wetlands), the nominated extension has a relatively high biodiversity, with a higher number of plant species than most comparable World Heritage sites. It has approximately the same number of plant, mammal, bird and fish species as the existing site of Central Sikhote-Alin, despite being over three times larger.

Spatial analyses undertaken by UN Environment WCMC suggest that more mammal species than currently reported could potentially be present in the nominated extension. In summary, IUCN considers that there is a clear basis for the nominated area to justify the natural criteria under which it has been nominated. IUCN notes that the proposed extension would be an important addition to the natural values targeted by the existing World Heritage site of Central Sikhote-Alin.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nominated extension enjoys a high level of protection, through the creation of Bikin National Park (BNP), in accordance with the Russian Federal Protected Area Legislation. The federal protected area category corresponds to an IUCN Category II protected area. BNP was formally created by federal Decree No. 1187 dated 03 November 2015. The regulations for BNP were approved by Order No. 429 of the Ministry of Natural Resources and Environment of the Russian Federation dated 12 August 2016. The Charter of Bikin National Park was likewise adopted in 2016.

It is important to highlight that the legislative framework includes strong and explicit provisions on the protection of rights of the indigenous peoples to use natural resources within substantial zones of the national park. However, these provisions are not derived directly from the federal law, but are legalized through a decree, which in principle could be changed or altered in the future.

The territory of the nominated property is federally owned in its entirety under the authority of the Ministry of Natural Resources and Environment of the Russian Federation and constitutes a "Federal State Budgetary Establishment". In 674,184 ha (58.1%) of the national park, indigenous peoples are permitted to use natural resources for traditional economic activities, as a way of life and for subsistence, in line with the federal decree that established Bikin National Park, and subsequently established regulations.

A good example of the strength and adequacy of the protection system for the nominated property is demonstrated by the strong federal protection status, which has brought an end to the possibility of industrial-scale logging for the foreseeable future, arguably addressing the most tangible threat to the integrity of the middle and upper reaches of the Bikin River watershed in the past.

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

4.2 Boundaries

The nominated extension is large and coincides with the boundaries of BNP. It covers substantial areas of intact forests, and represents a significant increase in both the scale and ecological representativeness of protected lands, in addition to the already inscribed property. The large scale, remoteness, high degree of naturalness, and inclusion of the entire middle and upper watershed of a major river ensure that the conditions of integrity are high.

The spatial configuration of BNP follows the watershed boundaries of the middle and upper Bikin River. The nominated area is located entirely within the administrative boundaries of the Pozharsky District, an administrative unit of the Primorsky Kray. The national park borders with Khabarovsky Kray to the north, and the Terneysky and Krasnoarmeysky Districts to the east and southeast, respectively (both within Primorsky Kray). The national park covers 51% of the Pozharsky District. This is a positive aspect in terms of governance and management, as only one local counterpart is involved in the federally managed lands, although it is also substantively influenced by the local district as half of its territories are allocated to federal land use. Overall, the coincidence of the national park boundaries with the watershed and administrative boundaries is advantageous for communication, decision-making, and management effectiveness.

Buffer zone arrangements are however less satisfactory. According to the nomination, a protective zone of 129,509 ha has currently only been established west of the national park, to serve as BNP's buffer zone. This represents a good starting point for what needs to be a more comprehensive configuration of a fully functioning buffer zone for the whole of the nominated property, which should be based on an assessment of potential threatening activities in the wider landscape, which are discussed further in section 4.5 of this report.

According to the supplementary information received from the State Party, a special working group has been commissioned to complete the configuration of the buffer zone by 2018. It is important to emphasize that a fully functional buffer zone is a critical requirement to safeguard the nominated extension from development and land use pressures coming from adjacent areas. The buffer zone is even more important in the context of the serial nomination, as it has the potential to form the foundation for ecological connectivity and effective governance across the different components of the extended property. IUCN notes that the development of the buffer zone would require close coordination with the governments of Primorsky and Khabarovsky Krays. The planned actions of the State Party are supported by a number of legislative requirements already enforced in the Russian federal legal system and from which the nominated property could benefit significantly. These include provisions contained in the national protected area legislation dated 1995 for the mandatory establishment of buffer zones around national parks. Regulations for buffer zones of protected areas were reportedly approved by Federal Decree 138 dated 19 February 2015. Provisions elaborated in the Presidential Order that are dedicated specifically to the conservation of the Amur Tiger and the Amur (Far Eastern) Leopard were ratified on 07 November 2013. This order was reported to include provisions for the mandatory establishment of buffer zones around all federal protected areas including all national parks and federal nature reserves located in Primorsky and Khabarovsky Krays (i.e. the tiger and leopard range). Provisions of the Russian Forest Code are also dedicated to "specially protected forests", and annex 3 to the Russian Forest Inventory Instructions grants protection status to forest belts along water courses and all forests on slopes exceeding 30% inclination.

Further, the process of configuration of the buffer zone of the nominated property could be linked to a number of important planning platforms, including the ongoing development of a cultural inventory, the ongoing revision of the buffer zone of the Central Sikhote-Alin Biosphere Reserve and the potential integration of buffer zone planning with the management of the recently established Udege Legend National Park, as well as the existing large protected area of Chukensky Zakaznik, and the nearby Mataisky Wildlife Refuge, as areas in the immediate vicinity of the property or the nominated extension which merit incorporation in the wider planning outlook of protection of key species such as the Amur Tiger.

Lastly, the connectivity between the existing property and the proposed extension would benefit from land and resource use planning that integrates conservation considerations. It is important to recall that Amur Tigers have huge home ranges (250 to 450 km^2 for females and 450 to over 1,000 km^2 for males), hence, most protected tigers inevitably also range outside of their protected areas, increasing their vulnerability. Examples of mitigation measures include strategic environmental assessments, development project impact assessments, and safeguards from transport infrastructure, resource extraction, and tourism development.

IUCN considers that the boundaries of the nominated property do not meet the requirements of the Operational Guidelines, in view of the need to strengthen buffer zone arrangements for the nominated extension, and connectivity with the existing property and other key conservation areas.

4.3 Management

The nomination file contains limited information on the exact arrangements for the governance and the collaborative management of the nominated extension and the existing inscribed property. This may be due to the early stage of development of the national park, which was declared and given legal status only recently between 2015 and 2016. Nevertheless, it is evident that significant efforts and important steps have been undertaken to communicate and negotiate with stakeholders in preparation for the establishment of the national park. For example, harvesting and use rights were negotiated and granted to indigenous groups well before the establishment of the national park.

As a result, a Committee for Indigenous Issues has been set up within the national park administration, and seems to be functional. The objective of this committee is to ensure participation of local people in the decision-making process, to protect and support the legal rights of local people in terms of economic activities, to elaborate on recommendations regarding management priorities, to adopt regulations promoting traditional use of natural resources in line with the national park's protection regime, and to maintain traditional knowledge on nature conservation and natural resource use. The Committee has 15 elected members with a two-thirds majority of indigenous representatives. The chair of the Committee serves as one of several Deputy Directors of the National Park, responsible for traditional nature resource use.

At present there is no complete and adopted management plan for the nominated extension, and thus the requirements for inclusion on the World Heritage List are not yet in place. However, the State Party included an outline of the foreseen management plan in the nomination file, which could be an important basis for an effective management system. Also encouraging are the notable efforts and achievements made by the national park administration in terms of engagement of local people, law enforcement, and management capacity development.

The management plan of the nominated property needs to consider both the existing inscribed components and the proposed extension, and to be based on adequate levels of ecological and land use baselines and interactions. The successful preparation of the management plan will enable the management authorities to integrate knowledge related to natural values in terms of inventories, distribution, status, and trends with the current or foreseen sustainable utilization of resources associated with social rights or economic prospects. Furthermore, as noted above, there is an absence of baseline data for some key values, such as floristic diversity. It is imperative that such baseline knowledge is put in place as the foundation of the national parks management system. Whilst the mission has focused on the proposed extension, it is apparent that there is a need to strengthen the connections between the management of the proposed extension and the existing property.

The IUCN field mission was made aware of the "Strategic Development Plan of the Bikin River Basin in Cooperation with the national park", a document prepared by the Russian Education Center of Indigenous Peoples (Moscow, 2016). The document identifies several impacts and risks related to the establishment of the national park including notably: overall limitation of areas accessible for hunting, fishing, and collection of wild plants by local people; limited access to sacred places; limited commercial use of natural resources and consequently, reduced household income; risk of alteration of the national park decree related to local rights of access and use which are not guaranteed by federal legislation. Addressing these concerns and other use-related issues requires in depth analysis and the incorporation of mitigation measures into the strategic management of the nominated extension. The management plan should clearly define the nature, level, and distribution of all resource use and utilization with a clear assessment of their interaction and impacts on the natural values of the national park.

The capacity to manage the nominated extension seems to be developing steadily considering the recent establishment of the national park. The nomination states that approximately 30 staff were dedicated to the park management in 2016, with about 80 additional staff being planned for deployment in 2017. At the time of the field mission, the property had three directors (head and deputies), 12 inspectors, and 36 local staff, mostly locally recruited. Building technical and administrative capacity of the property's management team is essential to ensure effective management, monitoring, and reporting. The management capacities of the nominated property should also extend to cooperating and coordinating with neighbouring protected areas as part of the planning process associated with the buffer zone establishment and management. This could include, *inter alia*, the Chukensky Zakaznik and Mataisky Wildlife Refuge in the Khabarovsk district. Should this extension be approved it will also be necessary to significantly improve coordination with the existing Central Sikhote-Alin property to ensure consistent capacity across the serial property and to boost management capacity within the smaller (regional level) component.

At the time of nomination, the annual federal budget allocated to the national park was about USD 780,000. Additionally, the park seems to benefit from several bilateral cooperation programs undertaken with NGOs and donor agencies. Locally, the nominated property is perceived as relatively well financed due to its high-level political support related to tiger conservation priorities. Adequate funding for the capital investment and running costs of the nominated extension will need to be addressed on an ongoing basis.

IUCN considers that the management of the nominated property does not meet the requirements of the Operational Guidelines, significantly due to the absence of an adequate management system.

4.4 Community

The establishment of the national park appears to have resulted from many years of efforts that have taken place to promote participatory decision-making of resource use. The indigenous peoples appear well-organized and have contributed and represented themselves actively in the designation process.

The area has been and continues to be used by indigenous peoples for hunting, fishing, and harvesting of a broad range of non-timber forest products. While such use has certainly influenced the forest ecosystem and in all likelihood has reduced populations of some target species, such as *Panax ginseng*, it is not known to have resulted in any loss of nature conservation values. Aside from a few modest management facilities and traditional wooden huts and smoke houses temporarily used by hunters and tourists, there is no infrastructure within the park. Access is restricted to foot, small plane/helicopter, and boat. Snowmobile access is also possible in winter. As noted above the designated area includes a management zone explicitly designated as an exclusive traditional natural resource use area by indigenous people. As long as these rights are not changed, the situation may be regarded as a significant consolidation of indigenous rights at the federal level.

The intact and productive native forest underpins the local livelihood systems. Moreover, the forest and many places, features and species, including Tigers and Bears within it, are considered intangible cultural and spiritual values for the Indigenous Peoples of the region. The IUCN mission heard that the erosion of traditions, lifestyles and knowledge is considered less pronounced than in many other, more accessible regions of the Russian Far East. Despite some tensions and conflicts, the coupling of the establishment of the national park with the granting of far-reaching rights to Indigenous Peoples appears to be an encouraging response to the local reality. IUCN understands that analysis of cultural values is ongoing which may result is the establishment of cultural zones, which is to be encouraged.

Participation rights are incorporated in the national park regulations. One mechanism to ensure indigenous participation is a corresponding committee, the chair of which serves as one of several Deputy Directors of the national park. Furthermore, the national park administration is an important local employer, thus providing socio-economic incentives to the local population from its establishment and management. Tourism could also provide further income and employment opportunities. Cultural rights are acknowledged in both the decrees and the regulations of the national park.

Despite the apparent positive approach to questions of rights, it is noteworthy that a law suit was filed against the establishment of the national park by the Tribal Commune Tiger (TCT). Supplementary information from the State Party confirmed that this was dismissed by the Supreme Court of the Russian Federation, including an appeal attempt filed in November 2017. Whilst resolving questions of legal status, the fact of the law suit indicates that engagement of local stakeholders and right holders must remain integral to the governance system of the nominated property. To do so, effective ongoing mechanisms and platforms need to be established and regularly assessed and maintained.

4.5 Threats

The nominated extension is substantially wild and unmodified by past or current human influence and pressures. The remoteness of much of the nominated area both reduces access for threatening activities, but also makes control and law enforcement difficult. The strong federal protection status and the presence of indigenous rights-holders are widely considered to serve as effective deterrents to illegal resource users.

The nomination dossier provides limited information on land use related interactions between the national park and the economic activities of surrounding districts, including marble mining north of the national park, commercial logging in most areas adjacent to the park, and poaching and illegal extraction of wild biodiversity products for trade and subsistence use. The main threat facing the integrity of the nominated area is the large-scale industrial logging going on in the wider Sikhote-Alin range, which comes with multiple direct and indirect impacts at the landscape level. For example, logging increases the risk of poaching for the wildlife trade. It is evident that widespread active logging in the lower Bikin River Valley is taking place close to the west side of the national park. This increases the importance of establishing an effective buffer zone, especially in areas of high potential for human-nature conflict such as the western peripheries of the nominated property.

Historically, what is now the national park was once subjected to very high levels of trapping for the fur trade, the exact impacts of which are not known. Likewise related to the fur trade, farmed American Mink (*Neovison vison* - LC) escaped into the wild decades ago, and today, it is the only known non-native vertebrate species in the national park. The impacts of this species on the ecosystem are presently unknown.

Wildlife poaching is difficult to address in the remote areas of the nominated property, and no accurate estimates of current poaching levels are available. It is noted that most areas remain accessible from several neighboring districts in both Primorsky and Khabarovsky Krays, especially in winter. It is known that Musk Deer is under pressure from poaching for its glands, and so are the two species of Bear for meat and selected organs. Tiger poaching appears strongly deterred due to severe sanctions and specific law enforcement efforts. Nonetheless, there are different opinions related to the level of direct and indirect threats facing tigers in the nominated property. Some local experts express their concern over the actual levels of tiger hunting, as many hunters are not deterred by hunting penalties due to the extremely high sums that tiger products can fetch. Reportedly, there are also some incidents of helicopter access by wealthy poachers. Overall, the exact poaching levels remain unknown and ill documented.

Recreational angling apparently reached excessive levels prior to the establishment of the national park, which is likely to have impacted target fish species. Unregulated fishing tourism was described as a serious past threat, with more than 1,200 anglers documented for a single day in 2014 just on the Bikin River. Technically, under an effective management system, the control of angling should be readily achievable as all anglers must access the Bikin River through a well-equipped checkpoint at the park entrance.

Tourism is an explicit objective for the corresponding zones and potentially an important source of income and employment for indigenous people, for example, as guides. Proper tourism planning and development is essential to take advantage of opportunities while minimizing the risks and negative impacts.

The local hunting and harvesting rights should be accompanied by participatory monitoring, as well as strategies that prevent hunting and harvesting levels to reach beyond natural productivity and regeneration capacities. As highlighted above, tiger prey species deserve particular attention in the management program of the nominated property in terms of numbers of hunters, acceptable levels of harvest, timing and distribution of hunting activities, and tools and mechanisms utilized for the activity.

In conclusion, IUCN considers that the integrity of the nominated extension meets the requirements of the Operational Guidelines, but the protection and management requirements of the Operational Guidelines are not met.

5. ADDITIONAL COMMENTS

5.1 Consideration in relation to serial properties with Central Sikhote-Alin

a) What is the justification for the serial approach?
The nominated property represents an extension of the existing serial property of the Central Sikhote-Alin World Heritage site which currently consists of two components. The serial approach is already accepted by the current listing, and the previous decision that encouraged the further extension. The proposed extension is a significant and very large complementary component which would strengthen the conservation priorities of the wider landscape in the northern and western regions of the Sikhote-Alin Mountains. It is strongly argued that the biodiversity of the western slopes is more diverse and intact that the eastern ones, making a clear case for the added value of the new component proposed.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the Operational Guidelines?
The nominated extension is part of the same forest landscape as the inscribed property, and there are undoubtedly ecological linkages between these sites. Both the existing property and the proposed extension contribute to the maintenance of the significant wild population of the Amur Tiger. However, there appears to be no detailed analysis of the nature of threats to the linkages between the extension and the existing site, let alone possible conservation responses. Buffer zones, corridors, and land and resource use planning need to be in place to inform the overall planning of all components using a wider landscape approach, as also noted above.

Udege Legend National Park serves as an additional stepping stone between the existing property and the nominated extension. It could be argued that potential inclusion of Udege Legend National Park as another possible future extension deserves to be examined. In this regard there appears to be the potential for other areas to be added to the series as further extensions in the future.

c) Is there an effective overall management framework for all the component parts of the nominated property?
The nomination file does not provide a specific proposal for an integrated approach to the planning, management, and monitoring of the nominated property in conjunction with the two components of the existing property. In fact, there are indications that the existing serial property suffers from a lack of coherent management, attributed to the insufficient staffing and funding. An overall management framework is lacking, and needs to be established in order to comply with World Heritage expectations, taking account of the analysis in previous sections of this report.

6. APPLICATION OF CRITERIA

Bikin River Valley has been nominated under natural criterion (x). If eventually inscribed, the below assessment would need to be integrated with a new Statement of OUV for the extended property as a whole.

Criterion (x): Biodiversity and threatened species
The nominated extension holds globally significant biodiversity values. The vegetation of the Bikin River basin belongs to two botanical-geographical regions: the South-Okhotsk dark coniferous forests and the East-Asian coniferous broadleaf forests. There is a well-developed altitudinal zoning of the vegetative cover within the property, with a mountain tundra belt, a forest belt of dwarf Siberian Pines, a forest belt of Erman's Birch, a fir-spruce forest belt, a spruce-pine forest belt, and a pine-broadleaf forest belt.

The fauna of the nominated extension combines species from the taiga, found among the Okhotsk-Kamchatka flora, with representatives of southern Manchurian species. It comprises 52 mammal, 241 bird, 7 amphibian, 10 reptile and 48 inland water fish species. It hosts a number of notable and charismatic mammal species, including the Amur Tiger, Elk (*Alces Alces* - LC), Siberian Musk Deer, Wild Boar (*Sus scrofa* - LC), Roedeer (*Capreolus capreolus* - LC), Himalayan Black Bear and Brown Bear (*Ursus arctos* - LC), Lynx (*Lynx lynx* - LC), Wolverine (*Gulo gulo* - LC), Sable (*Martes zibellina* - LC), American Mink, Otter (*Lutra lutra* - NT) and Badger (*Meles meles* - LC).

In addition, the national park has a very uncommon bird species composition and ecologic structure, with 241 bird species, belonging to 17 families, including 171 nesting species. It includes notable nesting areas of the Scaly-sided Merganser and Blakiston's Fish-owl, as well as other rare bird species found in flood plain forests. A range of endemic reptile species can also be found in the nominated property, however, none of these species are classified as globally threatened, but are either considered of Least Concern or have not yet been assessed on the IUCN Red List (2017).

The area is large and substantially wild, and with a high degree of natural integrity. Nevertheless, assuring the conservation of its values relies not only on the management of the area, but also the maintaining and strengthening of meaningful connectivity with the existing components of the World Heritage property, and other important neighbouring protected areas, and effective buffer zone arrangements for the proposed extension.

IUCN considers that the nominated property 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/18/42.COM/8B and WHC/18/42.COM/INF.8B2;

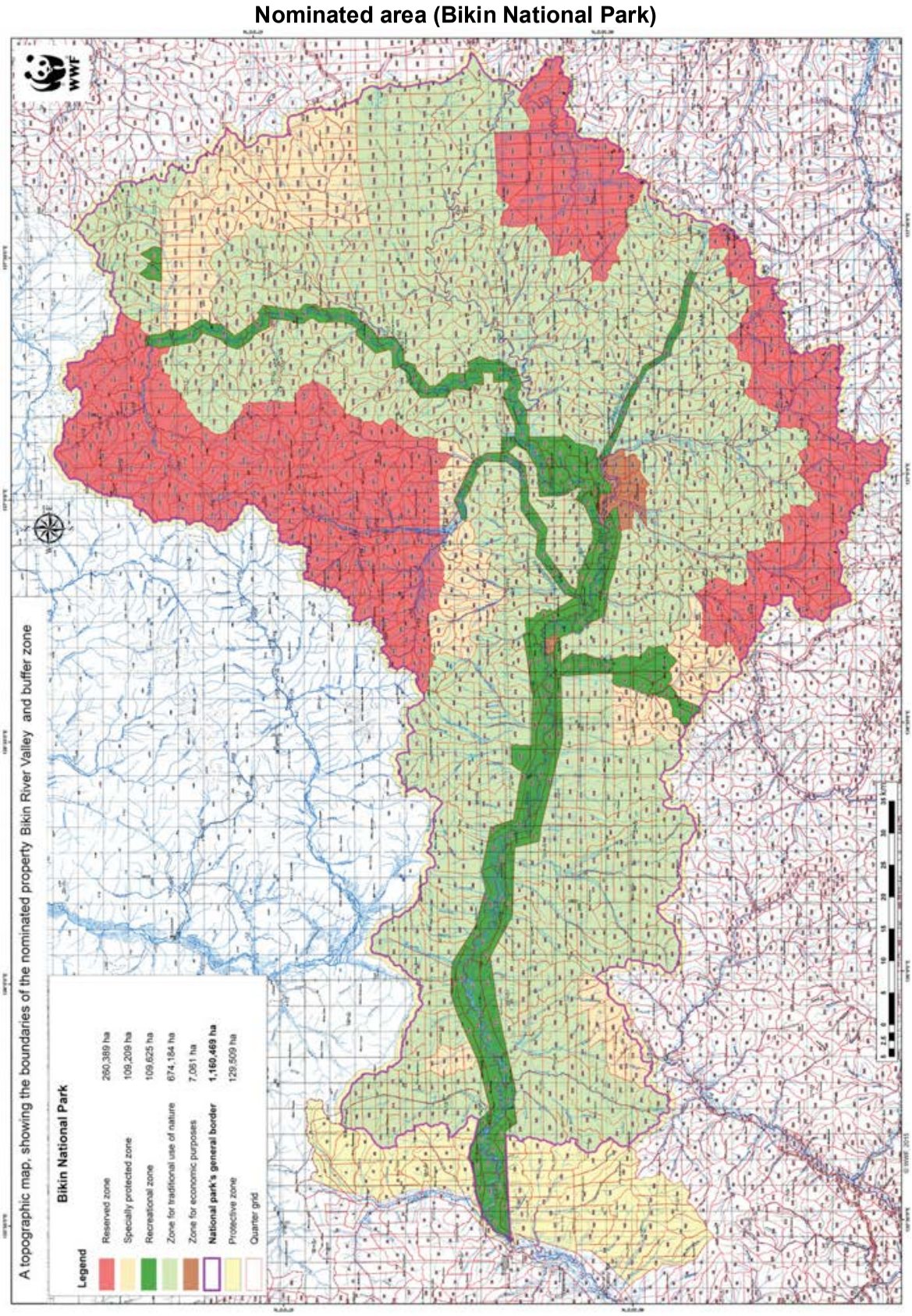
2. Refers **Bikin River Valley (Russian Federation),** proposed extension to Central Sikhote-Alin, back to the State Party, noting the strong potential for the nominated extension to meet criterion (x), to allow the State Party, to:

a) Complete the process of configuration and designation of the nominated property's buffer zone in conformity with Clause 10 of Article 2 of Russian Federal Law and consistent with the requirements of Paragraph 104 of the Operational Guidelines, with the aim of providing the necessary protective measures to safeguard the property against current and foreseen anthropogenic impacts;
b) Finalize the preparation of the Integrated Management Plan for the nominated extension, to provide a single and cohesive framework for the management of Bikin National Park and the existing World Heritage property, Central Sikhote-Alin, as a whole.

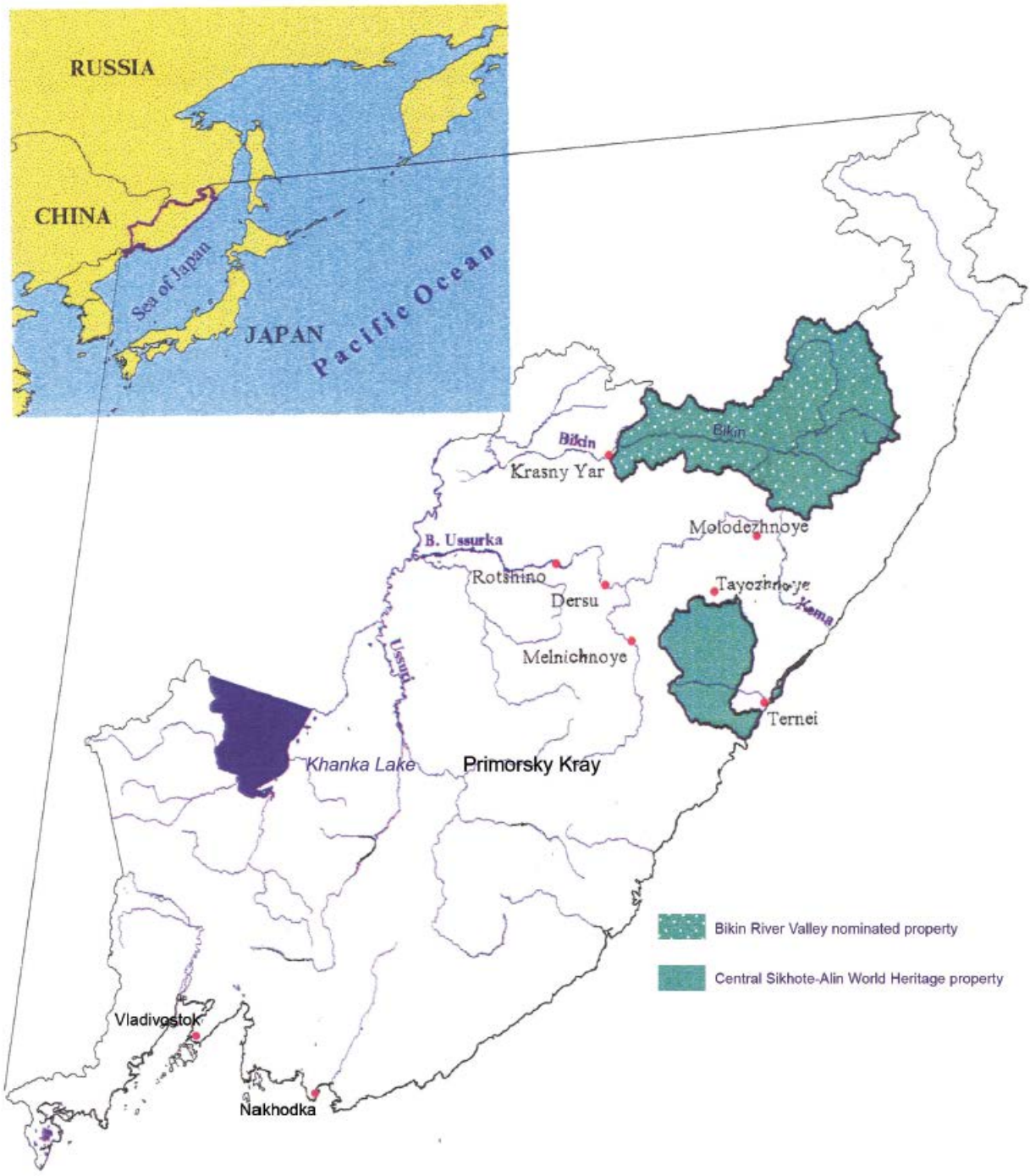
3. Commends and encourages the continuation of the State Party's efforts to strengthen the involvement of local indigenous people in governance, planning and management of the nominated extension through, *inter alia,* the establishment of the Council of Indigenous Minority Groups, and to build on the achievements of the Consultative Working Group.

4. Further encourages the State Party to develop and adopt a long-term vision in order to ensure connectivity of Amur Tiger habitat at the landscape level, through a range of strategies, including building enhanced connectivity with other protected areas, and investigating conservation connectivity strategies outside the formal protected area system. The State Party may also wish to consider the possibility of nominating further such areas as extensions to the nominated property in the future.

Map 1: Nominated property and buffer zone



Map 2: Proposed extension and current World Heritage Site



B. MIXED PROPERTIES

B1. NEW NOMINATIONS OF MIXED PROPERTIES

EUROPE / NORTH AMERICA

PIMACHIOWIN AKI

CANADA

Boreal forest and waterways © IUCN / Bastian Bertzky

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

PIMACHIOWIN AKI (CANADA) – ID N° 1415 Rev

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

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

Background note: Pimachiowin Aki was nominated as a mixed site under criteria (v) and (ix) in 2012. The ICOMOS and IUCN evaluations considered that Outstanding Universal Value (OUV) had not been demonstrated and the World Heritage Committee deferred the nomination in 2013 to allow the State Party to address issues concerning boundaries and the conceptual framing of the property's OUV (Decision 37 COM 8B.19). A joint ICOMOS and IUCN advisory mission to the property took place in October 2013 following the Committee's recommendation. With respect to natural heritage, the mission concluded that criterion (ix) was the correct natural criterion to be considered for the property. The property was renominated in 2015 under natural criterion (ix), however, with changed cultural criteria (iii and vi). Both Advisory Bodies recommended in 2016 to inscribe to property. The State Party, however, advised of concerns regarding governance and relationships within the Pimachiowin Aki Corporation. The Committee in its Decision 40 COM 8B.18 referred the nomination back to resolve these issues. Subsequently the State Party submitted a new full nomination for Pimachiowin Aki which is the subject of this evaluation.

This property has been the subject of two previous evaluations by IUCN which have comprehensively documented the case for OUV. The Committee's attention is thus drawn to IUCN's 2013 and 2016 evaluations (Document WHC-13/37.COM/INF.8B2 and WHC/16/40.COM/INF.8B2) in order to avoid repeating information.

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1. DOCUMENTATION

a) Date nomination received by IUCN: Original nomination received on 25 March 2012.

b) Additional information officially requested from and provided by the State Party: The State Party's supplementary information subsequent to Decision 37 COM 8B.19 was received on 16 March 2015 and additional information was submitted following Decision 40 COM 8B.18 in March 2017. Both Advisory Bodies sent a joint progress letter to the State Party on 22 January 2018 requesting clarification of several issues including development pressure on the nominated property; governance arrangements and opportunities for future extension of the property. The response was received on 28 February 2018.

c) Additional literature consulted: An extensive list of references was reviewed in the original nomination, and in the earlier IUCN evaluation reports. Additional references used in this evaluation included: Carlson, M., Wells, J., and Jacobson, M. (2015). *Balancing the Relationship between Protection and Sustainable Management in Canada's Boreal Forest.* Conservat Soc 13:13-22. Nickerson, M. (2017). *Characteristics of a Nation-to-Nation Relationship*. Discussion Paper. Institute on Governance. Ottawa, Canada. Pickell P.D., Coops, N.C., Gergel, S.E., Andison, D.W., and Marshall, P.L. (2016). *Evolution of Canada's Boreal Forest Spatial Patterns as seen from Space.* PLOS ONE 11(7): e0157736. https://doi.org/10.1371/journal.pone.0157736.
Statistics Canada. (2017). *Census Profile*. 2016 Census. Statistics Canada Catalogue no. 98- 316-X2016001. Ottawa. Released August 2, 2017. http://www12.statcan.gc.ca/censusrecensement/ 2016/dp-pd/prof/index.cfm?Lang=E (accessed September 9, 2017). Wells, Jeff. (2016). *In Canada's Boreal Forest, 'The Land That Gives Life' Inspires a Push for Protection*. National Geographic Water Currents.

d) Consultations: Previous evaluations have taken into consideration 9 desk reviews including a multi-expert collated review. Extensive consultation with a wide range of stakeholders has also taken place during past evaluations and site visits in 2012, 2013 and 2015. The mission detailed below also met Pimachiowin Aki Corporation Board members and partners, technical consultants, and Parks Canada representatives.

e) Field Visit: Original field mission undertaken by David Mihalic (IUCN) and Maunu Häyrynen (ICOMOS), 25 August - 1 September 2012. The field mission following re-nomination was undertaken by Bastian Bertzky (IUCN) and Gregory de Vries (ICOMOS), 24-31 August, 2015. No further field mission was considered necessary, however, a meeting with the State Party, nomination proponents and other stakeholders was organized in Winnipeg on 6-7 September 2017 attended by Brent Mitchell (IUCN) and Gregory de Vries (ICOMOS).

f) Date of IUCN approval of this report: April 2018

2. SUMMARY OF NATURAL VALUES

The property as now nominated encompasses some 2,904,000 ha in the Canadian Boreal Shield and includes the ancestral lands of four First Nations (Poplar River, Pauingassi, Bloodvein River, and Little Grand Rapids) plus three provincial protected areas, namely Woodland Caribou and Atikaki Provincial Parks along with Eagle-Snowshoe Conservation Reserve. A buffer zone of 3,592,000 ha has been defined effectively surrounding the nominated area. Changes to the property's boundaries have reduced the originally nominated area by 436,000 ha (13%) and the buffer zone by 448,000 ha (12%).

The natural values of the nominated property have been well described in previous evaluations and this description is essentially unchanged notwithstanding the reduced size of the nominated area. The property continues to be of a very large scale and supports four large area ecosystems: needleleaf forest, wetland, rockland, and mixed wetland-rockland. Some larger blocks of the property have been excised along with narrow areas which previously comprised the linear waterway features to the east. As a result the area of rockland ecosystem has been reduced but large areas of this ecosystem type remain within the nominated area. Needleleaf forest has been reduced to 10% below the proponent's self-imposed threshold of 300,000 ha. It is noted, however, that other assessments typically use a threshold of 200,000 ha and some of this now-excluded area remains protected within the Whitefeather Dedicated Protected Area, directly adjacent but no longer within the nomination area. In IUCN's view, the revised nominated property continues to protect significant areas of needleleaf forest.

The nominated property continues to support a very large, intact landscape with diverse ecosystems, habitats and hydrological dynamics. Pimachiowin Aki includes extensive lake systems and freshwater wetlands and a myriad of waterways that are also central to the patterns of traditional human use practices in the property. If inscribed, Pimachiowin Aki would become one of the 20 largest World Heritage sites by area.

The landscape reflects a 6,000 year history of the relationship of people with the land. As was noted in IUCN's previous evaluations, the Anishinaabe First Nations continue a tradition of living in, using and maintaining the landscape, and the nature conservation values of Pimachiowin Aki are shaped by this long history of interaction. For example, the use of fire to open the forest canopy and favour certain natural resources, the manipulation of waterway channels and the effect of human fishing, hunting and gathering practices on the trophic dynamics of the ecosystem have all influenced the nominated property's natural systems and processes. The Anishinaabe First Nations consider their culture to be inseparable from nature and the land: a cultural outlook that has shaped their belief systems.

IUCN concludes that, despite the reduction in area in relation to the earlier nomination, the property remains a very large area and continues to support all attributes of the proposed OUV under criterion (ix).

3. COMPARISONS WITH OTHER AREAS

IUCN's 2016 evaluation concluded very positively on the quality and rigour of the global comparative analysis provided in the 2015 nomination. This analysis was technically underpinned by the original analysis of 2013 but was further strengthened to support the case for the nominated property to meet criterion (ix). The same analysis was adapted in relatively minor ways for the nomination currently under consideration.

In IUCN's view the reduced area of the property by some 13% has not materially affected the conclusion of 2016 concerning its comparative value within the boreal shield. Pimachiowin Aki continues to be the most complete and largest example of the North American boreal shield, including its characteristic biodiversity and ecological processes. This is a large forested area with remarkable ecological integrity, and, importantly, no history of industrial development, including dams or diversions. This is increasingly rare globally, including in the southern boreal. The nominated property boasts its full faunal and floral biodiversity, including species that are strong indicators of primary forest health, such as Woodland Caribou (*Rangifer tarandus* - VU[1]), and is also large enough to maintain a full range of ecological processes, for example functional trophic dynamics, evolutionary processes, nutrient flows, hydrological and fire regimes. It is also worth reiterating that as of 2016, all expert reviewers expressed positive support for the nominated property as a World Heritage inscription.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

IUCN recalls its 2013 evaluation concluded that the protection status of Pimachiowin Aki as nominated then met the requirements of the Operational Guidelines and this was also the conclusion of the 2016 evaluation.

In law, all of the nominated area is "owned" by the Crown, that is, the State Party of Canada. Parentheses are used here because the First Nations posit that they have the right to make decisions on land use, and do not consider the land owned by anyone (as the nomination dossier notes in Anishinaabemowin [the Ojibwe language], there is no word for ownership.) Provincial governments increasingly defer to local, customary authorities on questions of land use. The exceptions to this tenure are the three provincial

[1] These codes reflect the conservation status of each species as recorded in the *IUCN Red List of Threatened Species* at the time of the evaluation; for more information please visit http://www.iucnredlist.org

protected areas, Atikaki Provincial Park, Woodland Caribou Provincial Park, and Eagle-Snowshoe Conservation Reserve.

As the State Party clarified during the 2016 evaluation, "jurisdiction over public lands is in principle shared between the federal government, the provincial governments of Ontario and Manitoba and the [four] First Nations of the Accord. Aboriginal and treaty rights are protected under section 35(1) of Canada's Constitution Act, 1982. Treaty rights of the Pimachiowin Aki First Nations are set out in Treaty 5 (1875). Federal or provincial legislation that affects the exercise of Aboriginal or Treaty rights will be valid only if it meets the test established by the Courts for justifying an interference with a right recognized and affirmed under s. 35(1)." Surrounding areas (buffer zones) are also Crown lands managed by First Nations with similar relationships to the provinces and provide additional protection with complementary governance and management arrangements.

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

4.2 Boundaries

IUCN, in its 2016 evaluation, found that the boundaries of the nominated property, as configured at that time, met the requirements of the Operational Guidelines. Some concerns, at that time, related to the high boundary to surface area ratio resulting from long linear boundaries in the eastern part of the earlier nomination that followed the watercourses. Such a design is typically viewed as problematic for nature conservation areas due to the fact that long linear boundaries can expose a protected area to more interface pressures and are traditionally more challenging to manage. The amended boundaries largely remove this concern. Furthermore, the State Party in its supplementary information has provided additional clarifications confirming that there is little concern regarding development pressure in areas that were previously part of the nomination and now outside the nominated area. IUCN notes that forests adjacent to the Whitefeather Dedicated Protected Areas (and in the proposed buffer zone) are identified for forest management activities, including planned harvest operations, road construction, and silviculture, under the Whitefeather Forest Management Plan (2012-2022). The Whitefeather Plan is held up as a model by the Province of Ontario. It will be important that the strong stewardship approach continues to prevail in these areas, thus ensuring no adverse impacts on the nominated property's values.

Whilst the nominated property's buffer zone has been reduced in area relative to that originally nominated, it continues to afford substantial additional protection against external influences and establishes excellent connectivity across what is the largest and most complete mosaic of protected areas in the North American boreal shield. Population density in the buffer zone is low, at 0.23 people / km^2, similar to that within the nominated area (0.21 people / km^2).

The State Party in supplementary information has indicated an openness to consider further expansion of the nominated property. The Pimachiowin Aki Corporation has received and welcomes the support and interest shown by neighbouring First Nations toward the nomination. The Corporation's by-law also enables expansion of the membership consistent with a vision to develop a network of linked protected areas.

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

4.3 Management

IUCN in its 2016 evaluation concluded that the property as nominated at that time met the management requirements of the Operational Guidelines. Essentially the same management systems prevail for Pimachiowin Aki as renominated. This includes a World Heritage-tailored management plan for the nominated property, adequate staffing, and access to expertise and financial resources. All of the four First Nations communities have developed land management plans for their lands. Provincial protected areas also have individual management plans in place. The management plans are legally binding and all land and resource use decisions must be consistent with the plans.

A key change relates to the governance arrangements for the nominated property, wherein the composition of the Pimachiowin Aki Corporation now comprises the four Anishinaabe First Nations of Bloodvein River, Little Grand Rapids, Pauingassi, and Poplar River, and the governments of Manitoba and Ontario. The governance arrangements for the nominated property are consensual and highly participatory, and represent a participatory governance structure that is considered exemplary. IUCN is of the view that these remain strong and appropriate governance arrangements to protect Pimachiowin Aki. The State Party in its supplementary information has noted the multiple avenues for interested other First Nations to engage in the governance of the property and its buffer zone. The State Party further affirmed its openness to engage with other interested parties. This is fully consistent with the Pimachiowin Aki Corporation's Strategic Plan and goals which include effective outreach with neighbouring communities; support and advocacy for land management planning and land use decisions consistent with the proposed OUV; partnerships that achieve mutual interests and benefits, and; openness to new members.

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

4.4 Community

IUCN in its previous evaluation noted the characteristics of this mixed nomination which result from traditional use patterns of fishing, gathering, hunting and trapping and veneration of specific sites

by the Anishinaabe First Nations. The nominated property is a vast area with, according to the nomination, a resident population of less than 6,000 people. Yet the landscape as a whole exhibits the product of millennia of adaptation by people to the dynamic ecological processes of the boreal forest. Special mention was also made concerning the initiation of this nomination by First Nations wishing to protect through the World Heritage Convention their cultural values and traditions, together with their ancestral homelands.

Crucial to the future is the social cohesion that underpins customary First Nations management of this vast landscape. The integrity of this site has been dependent on the management of First Nations people for millennia, and that management has proven resilient despite tremendous challenges. The future of the site is thus entwined with ensuring broader social issues are addressed in a holistic manner.

4.5 Threats

IUCN previously evaluated the overall threats to this property noting it is highly intact and largely free from the adverse effects of past (and present) development and neglect. It is considered one of the last remaining large ecologically intact portions of the southern boreal forest, which has otherwise been heavily fragmented by industrial forestry and other types of development.

IUCN's 2016 evaluation reported a new all-season East Side Road was under construction in Manitoba on the western side of the property. The road will, for the first time, provide much needed year-round road access to the communities of the Bloodvein, Berens River, Poplar River, Pauingassi and Little Grand Rapids First Nations. Over time it is proposed to largely replace the existing winter road network that dissects the property in some areas and to reduce the overall road length inside the property. The First Nations / Provincial Government structure has reportedly been effective in minimizing environmental impacts from construction of the all-weather road, with many changes reportedly effected through community consultation. This same governance system is now proposing a linear wildlife refuge along the road corridor to address incursions for moose hunting. Reportedly, the Province has signalled willingness to take this step, based on details to be proposed by First Nations.

The resubmitted nomination referenced the issue of hydro-electric transmission lines noting that in the event of future demand and/or to strengthen supply reliability there may be the possibility of transmission lines needing to be developed within the nominated area. Despite the environmental and consultative safeguards proposed, both Advisory Bodies questioned this as a potential threat to the property. The State Party has provided additional assurances that there is no plan to re-route high voltage power lines to pass within the nominated area following a review of previous decisions and a decision to construct lines 250 kms to the west of the property. Moreover there is no expectation of future high voltage transmission line development. Furthermore, hydroelectric development (i.e. generation, transmission, water containment and control) is prohibited by law in the nominated area.

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

5. ADDITIONAL COMMENTS

IUCN has previously commended how this nomination has been conceived and how that concept has evolved through the processes of the World Heritage Committee and dialogue among the State Party, nomination proponents and the Advisory Bodies. The nomination is impressive, well-written and is an exceptional and compelling document, which in IUCN's view presents an excellent model for addressing future nominations that seek to capture the indissoluble links between nature and culture, and in particular between cultural integrity and ecological integrity in large landscapes. Subject to agreement, IUCN is committed to working with all concerned to further this dialogue, and, if inscribed, to share the experiences of practical, integrated mixed World Heritage site management more widely.

6. APPLICATION OF CRITERIA

Pimachiowin Aki has been nominated under natural criteria (ix), as well as under cultural criteria (iii) and (vi) which will be evaluated by ICOMOS.

Criterion (ix): Ecosystems/communities and ecological/biological processes

Pimachiowin Aki is the most complete and largest example of the North American boreal shield, including its characteristic biodiversity and ecological processes. Pimachiowin Aki contains an exceptional diversity of terrestrial and freshwater ecosystems and fully supports wildfire, nutrient flow, species movements, and predator-prey relationships, which are essential ecological processes in the boreal forest. Pimachiowin Aki's remarkable size, intactness, and ecosystem diversity support characteristic boreal species such as Woodland Caribou (*Rangifer tarandus* - VU), Moose (*Alces alces* - LC), Wolf (*Canis lupus* - LC), Wolverine (*Gulo gulo* - LC), Lake Sturgeon (*Acipenser fulvescens* - LC), Leopard Frog (*Lithobates pipiens* - LC), Loon (*Gavia immer* - LC) and Canada Warbler (*Cardellina canadensis* - LC). Notable predator-prey relationships are sustained among species such as Wolf and Moose and Woodland Caribou, and Lynx (*Lynx canadensis* - LC) and Snowshoe Hare (*Lepus americanus* - LC). Traditional use by Anishinaabeg, including sustainable fishing, hunting and trapping, is also an integral part of the boreal ecosystems in Pimachiowin Aki.

IUCN considers that the nominated property meets this criterion.

7. RECOMMENDATIONS

IUCN recommends that the World Heritage Committee adopts the following draft decision, noting that this will be harmonised as appropriate with the recommendations of ICOMOS regarding their evaluation of this mixed site nomination under the cultural criteria and included in the working document WHC/18/42.COM/8B:

1. Having examined documents WHC-13/37.COM/8B, WHC/16/40.COM/8B, WHC/18/42.COM/8B and WHC/18/42.COM/INF.8B2;

2. Recalling decisions WHC-13/37.COM/8B and WHC/16/40.COM/8B;

3. Inscribes **Pimachiowin Aki (Canada)** on the World Heritage List under natural criterion (ix);

4. Adopts the following Statement of Outstanding Universal Value:

Brief synthesis
Pimachiowin Aki (the Land that Gives Life) is a 2,904,000-hectare cultural landscape of Anishinaabeg (Ojibwe people). Through the cultural tradition of Ji-ganawendamang Gidakiiminaan (Keeping the Land), Anishinaabeg have for millennia lived intimately with this special place in the heart of the North American boreal shield. Pimachiowin Aki is a vast area of healthy boreal forest, wetlands, lakes, and free-flowing rivers. Waterways provide ecological connectivity across the entire landscape. Wildfire, nutrient flow, species movements, and predator-prey relationships are key, naturally functioning ecological processes that maintain an impressive mosaic of ecosystems. These ecosystems support an outstanding community of boreal plants and animals, including iconic species such as Woodland Caribou, Moose, Wolf, Wolverine, and Loon.

Criteria
Criterion (ix)
Pimachiowin Aki is the most complete and largest example of the North American boreal shield, including its characteristic biodiversity and ecological processes. Pimachiowin Aki contains an exceptional diversity of terrestrial and freshwater ecosystems and fully supports wildfire, nutrient flow, species movements, and predator-prey relationships, which are essential ecological processes in the boreal forest. Pimachiowin Aki's remarkable size, intactness, and ecosystem diversity support characteristic boreal species such as Woodland Caribou, Moose, Wolf, Wolverine, Lake Sturgeon, Leopard Frog, Loon and Canada Warbler. Notable predator-prey relationships are sustained among species such as Wolf and Moose and Woodland Caribou, and Lynx and Snowshoe Hare. Traditional use by Anishinaabeg, including sustainable fishing, hunting and trapping, is also an integral part of the boreal ecosystems in Pimachiowin Aki.

Integrity
Pimachiowin Aki contains all the elements necessary to ensure continuity of the key ecological processes of the boreal shield. The robust combination of First Nation and provincial protected areas forms the largest network of contiguous protected areas in the North American boreal shield. The vast size of the property provides for ecological resilience, especially in the context of climate change, and extensive buffer zones further contribute to integrity. The natural values of Pimachiowin Aki are remarkably free from the adverse effects of development and neglect. There is no commercial forestry, mining, or hydroelectric development permitted in the property, and waterways are free of dams and diversions.

Pimachiowin Aki exemplifies the indissoluble bonds between culture and nature. It is therefore vital that the integrity of customary governance and oral traditions be maintained in order to ensure continuity of the cultural tradition across generations and a continuation of the current high levels of stewardship which are evident within the property.

With the free engagement and willing agreement of neigbouring First Nations, ecological integrity could be further enhanced by progressive addition of areas of high conservation value adjacent to the inscribed property.

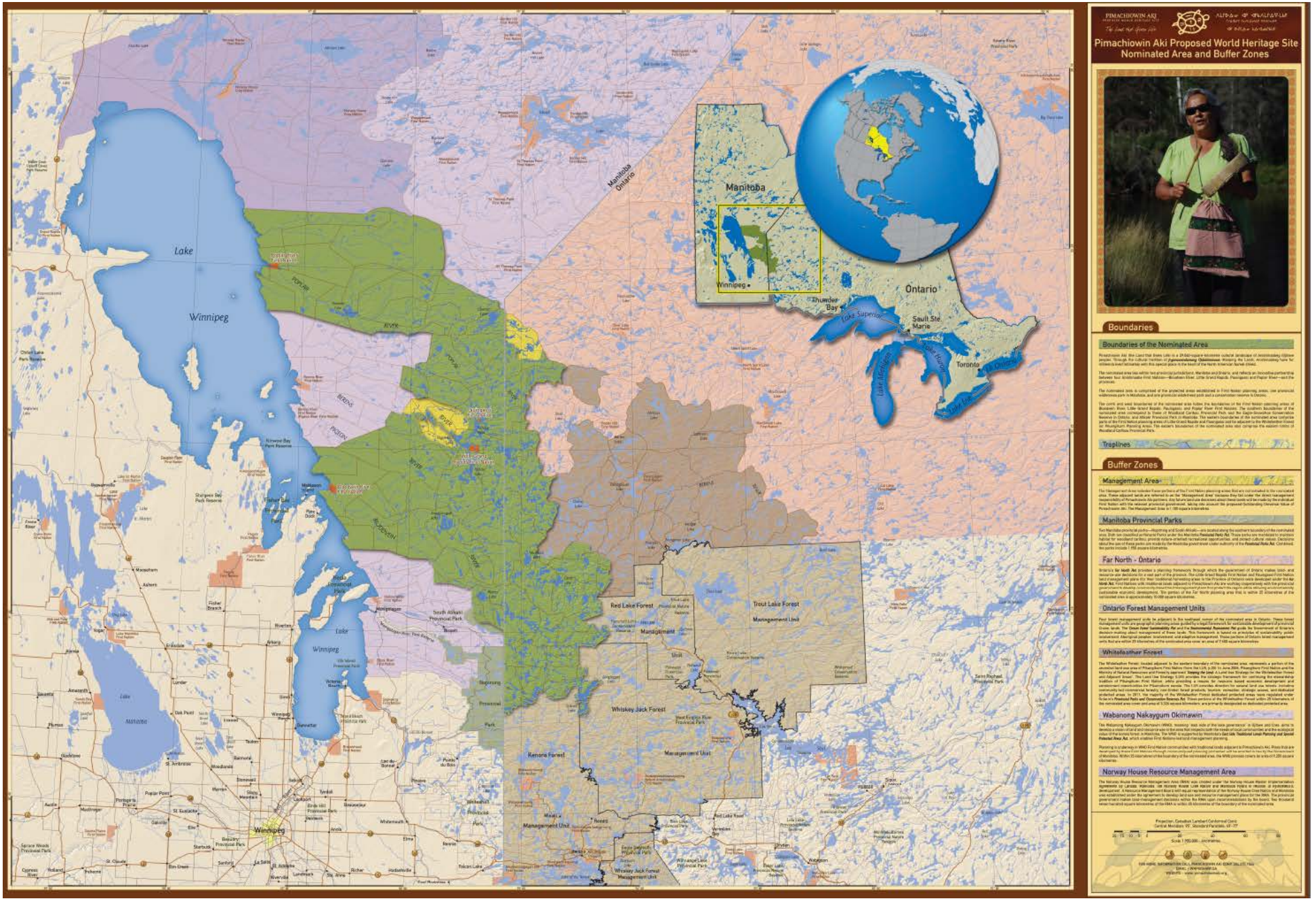
Protection and Management requirements
First Nations have played the leading role in defining the approach to protection and management of Pimachiowin Aki. Protection and management of the property are achieved through Anishinaabe customary governance grounded in Ji-ganawendamang Gidakiiminaan, contemporary provincial government law and policy, and cooperation among the four First Nations and two provincial government partners. Through an accord signed by the four nominating First Nations, Anishinaabeg of Pimachiowin Aki affirmed a sacred trust to care for the land for future generations. A memorandum of agreement between the provincial governments provides assurances about protection and management of the property. The Pimachiowin Aki partners share a commitment to work together to safeguard the Outstanding Universal Value of Pimachiowin Aki for present and future generations.

First Nations and provincial partners have created the Pimachiowin Aki Corporation and developed a consensual, participatory governance structure, financial capacity, and management framework for the property. The Pimachiowin Aki Corporation acts as a coordinating management body and enables the partners to work in an integrated manner across the property to ensure the protection and conservation of all natural values. The management framework is designed to meet potential challenges in the protection and conservation of the property, such as monitoring and mitigating the potential impacts of the construction of an all-season road [East Side Road] over the next 20 to 40 years. Climate change is also a challenge that requires adaptive management. A conservation trust fund has been set up to secure long-term sustainable financing for the management of the property.

5. Requests the State Party, through collaboration with the agreed governance body for the property, and with the consent of the First Nations to:

a) Encourage neighbouring First Nations to freely partner with the Pimachiowin Aki Corporation, and together with provincial authorities consider the possibility of further extensions of the property over time, in order to further improve the ecological connectivity and integrity of the property;
b) Ensure the continued protection of the property, which is founded in an enduring tradition of First Nation stewardship, including protection from future developments associated with hydro-electric power;
c) Ensure that the construction of the new all-season road does not have adverse effects on the property, notably by carrying out full environmental impact assessments at each phase of the road construction and through effective monitoring of any ongoing impacts.

6. Expresses its deep appreciation for the combined efforts of the First Nations, working with provincial governments and the State Party, and for the joint dialogue undertaken with IUCN and ICOMOS, in deepening the understanding of nature-culture connections in the context of the World Heritage Convention, and for presenting a revised nomination which is a landmark for properties nominated to the World Heritage List through the commitment of indigenous peoples.



Map 1: Nominated property and buffer zone

LATIN AMERICA / CARIBBEAN

CHIRIBIQUETE NATIONAL PARK – “THE MALOCA OF THE JAGUAR”

COLOMBIA

Tepuis and landforms of Chiribiquete National Park © IUCN / Charles Besancon

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

CHIRIBIQUETE NATIONAL PARK – "THE MALOCA OF THE JAGUAR" (COLOMBIA) – ID N° 1174

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To inscribe the property under natural criteria.

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

Background note: This site was previously nominated in 2004, however, at that time a field mission to the nominated property was not possible due to security concerns. IUCN could not participate in a second mission proposed by the State Party in April 2005. However, this mission again did not visit the Park due to security concerns, but only carried out an overflight by helicopter. In 2005, at the 29th session of the Committee, the Republic of Colombia requested that their nomination of Serranía de Chiribiquete Natural National Park be withdrawn (Decision 29 COM 8B.3).

The property was nominated in 2004 under all four natural criteria which at the time were (i) (now viii); (ii) (now ix); (iii) (now vii) and (iv) (now x). In its 2005 evaluation report, IUCN concluded that the property may have the potential to meet criterion (ii) (current criterion ix) but not the other criteria. However, in the opinion of the IUCN World Heritage Panel, this recommendation was influenced by the lack of basic data and information due to the remoteness of the site and the fact that security concerns jeopardized the implementation of any research programme. Whilst it continues to be an issue, accessibility has improved and with it the level of information over the last 18 years. It is important to note that the new nomination under consideration is 2.2 times bigger than the site nominated in 2004 and includes an extensive buffer zone to enhance protection. The 2004 nomination did not propose any buffer zone.

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1. DOCUMENTATION

a) Date nomination received by IUCN: March 2017

b) Additional information officially requested from and provided by the State Party: Following the IUCN World Heritage Panel a joint progress report was sent by IUCN and ICOMOS to the State Party on 20 December 2017. This letter advised on the status of the evaluation process and sought responses/clarifications on a range of issues including involvement of local communities and why a formal agreement was not reached with all of the 21 indigenous reserves in the buffer zone; security measures for the nominated area provided by the army; development of a tourism strategy, and the level of funding from the national budget. A response was received by the State Party on 28 February 2018.

c) Additional literature consulted: Various sources including: Bernal, R., Gradstein, S. & Celis, M. 2015. Catálogo de plantas y líquenes de Colombia. Bogotá, Colombia. Instituto de Ciencias Naturales-Universidad Nacional de Colombia. Consultado 10 Jun. 2015. Berry, P. E. & Riina, R. and the biogeographic complexity of the Guiana Shield. Plant Diversity and Complexity Patterns: Local, Regional and Global Dimensions: Proceedings of an International Symposium Held at the Royal Danish Academy of Sciences and Letters in Copenhagen, Denmark, 25-28 May, 2003, 2005. Kgl. Danske Videnskabernes Selskab, 145. BirdLife International. Endemic Bird Area Site Sheet: Sierra de Chiribiquete and Important Bird Areas factsheet: Parque Nacional Natural Chiribiquete. Bridges, E. M. 1990. *World geomorphology*, Cambridge University Press. Cortés, R. & Franco, P. 1997. *Análisis panbiogeográfico de la flora de Chiribiquete*, Colombia. Caldasia, 19, 465-478. Eken, G., Bennun, L., Brooks, T. M., Darwall, W., Fishpool, L. D., Foster, M., Knox, D., Langhammer, P., Matiku, P. & Radford, E. 2004. *Key biodiversity areas as site conservation targets*. AIBS Bulletin, 54, 1110-1118. Faith, D. P. 1992. *Conservation evaluation and phylogenetic diversity*. Biological conservation, 61, 1-10. Hammond, D. S. 2005. *Tropical forests of the Guiana Shield: ancient forests in a modern world, CABI*. KBA partnership. 2017. KBA Site Sheet for Parque Nacional Natural Chiribiquete. Olson, D. M. & Dinerstein, E. 2002. *The Global 200: Priority ecoregions for global conservation.* Annals of the Missouri Botanical garden, 199-224. Rodriguez, C. & Castano Uribe, C. October 10, 2017 2017. *RE: Meeting at Tropenbos International office regarding Amazonian shamanic thought*. Stattersfield, A. J., Crosby, M. J., Long, A. J. & Wege, D. C. 2005. Endemic bird areas of the world: priorities for biodiversity conservation. VARGAS, G. October 9, 2017 2017a. *RE: Presentation on geomorphology at Technical Meeting Regarding the Nomination*. Vargas, G. 2017b. Report to support Chiribiquete nomination to the World Heritage List: Geomorphology of the Parque Nacional Natural Serrania de Chiribiquete. Universidad Nacional de Colombia. Parque Nacional de Chiribiquete se ampliará en 1 millón 500 mil hectáreas. http://es.presidencia.gov.co/noticia/180221-Parque-Nacional-de-Chiribiquete-se-ampliara-en-1-millon-500-mil-hectareas (Accessed 17 April 2018).

d) Consultations: 16 desk reviews received. The mission met with a wide range of stakeholders including representatives from the Ministries of Foreign Affairs, Environment, Sustainable Development and Culture and the Ministry of Defence. There were meetings with technical staff of the same ministries and with scientific leaders from universities and NGOs that contributed to the nomination dossier. The mission also met with representatives of local communities including chiefs and presidents of indigenous reserves. Many national park staff from the region and from Chiribiquete National Park were also consulted.

e) Field Visit: Charles Besancon (IUCN) and Maria Ifigenia Quintanilla Jimenez (ICOMOS), October 9 - 15, 2017.

f) Date of IUCN approval of this report: April 2018

2. SUMMARY OF NATURAL VALUES

The nominated property has the full title Chiribiquete National Park - "The Maloca of the Jaguar", hereinafter abbreviated to CNP. Following its extension in 2013, Serrania de Chiribiquete National Natural Park, as it is formally known, is the largest national park in Colombia. The nominated property is very large by global standards at 2,782,354 ha and fully overlaps with the gazetted national park. CNP is located in the central Colombian Amazon, bordering with the Tunia River and the Macarena Mountain Range in the north, with the Apaporis River in the east, with the drainage divide of the basins of the rivers Luisa and Cuemaní in the south, and with the basins of the Tajisa and Yarí Rivers in the west. It is situated on the western side of the Guiana Shield, east of the Andes Eastern Range, north of the Amazon plains, to the west of the Upper Río Negro region and south of the Orinoquia grassland savannah.

The protection of CNP is reinforced by the establishment of an extensive buffer zone of 3,989,683 ha which is made up entirely of Indigenous Reserves and the Amazon Forest Reserve. The Forest Reserve is classified by the Ministry of Environment and Development in a category for such reserves with the greatest restrictions for use, where extractive activities are not permitted. Buffer zone management is aimed at mitigating and preventing disturbances in the protected area; rectifying any alterations which may present themselves due to the pressures exerted in the area; harmonising the occupation and transformation of the territory with the conservation goals of the protected area; and promoting the safeguarding of associated cultural and natural elements. The buffer zone also contains extensive areas of forest that facilitates the ecological connectivity of CNP to the overall region where it is located.

The nominated property is located at the western-most edge of the Guiana Shield and contains one of only 3 uplifted areas of the Shield called the Chiribiquete Plateau. The presence of tepuis is one of the most impressive defining features of CNP. Tepuis are table-top mountains, found only in the Guiana Shield, that are notable for their striking relief and high levels of endemism. The tepuis found in CNP, whilst smaller when compared to others in the Guiana Shield, result nonetheless in dramatic scenery that is reinforced by their remoteness and inaccessibility. A particularly significant value of the property is its high degree of naturalness which makes it one of the most important wilderness areas in the world.

CNP represents a complex mosaic of tepuis, Guyanese and Amazon landscapes thus it is home to the great biodiversity of four converging biogeographic regions: Orinoquia, Guyana, Amazonia, and North Andes. This connection with different biogeographic regions is also fundamental for processes of hybridization, speciation and endemism, constituting a unique feature with respect to the rest of the tepuis in South America and the Guiana Shield.

The fauna of CNP is particularly rich in terms of mammals with 82 species grouped into 9 orders, 17 families, and 63 genres. The area is considered a key site for the conservation of healthy populations of charismatic and endangered species, including the Jaguar (*Panthera onca* - NT[1]), the Pink Dolphin (*Inia geoffrensis* - DD), the Lowland Tapir (*Tapirus terrestris* - CR), the Macaw (*Ara macao* - LC) and the Giant Anteater (*Myrmecophaga tridactyla* - VU). The area is of great importance for the stability of South America's jaguar population, whose presence is very important for the indigenous communities, which consider the Park "The Great Maloca of the Jaguar". A "maloca" is an ancestral long house used by the natives of the Amazon, notably in Colombia and Brazil. Each community has a maloca with its own unique characteristics; thus this notion from indigenous peoples clearly reflects the importance of CNP for the survival of this species. CNP is also home to many other iconic species including Puma (*Puma concolor* - LC), Lowland Tapir, Giant Otter (*Pteronura brasiliensis* - EN), Howler Monkey (*Alouatta seniculus* – LC) and Brown Woolly Monkey (*Lagothrix lagotricha* - VU). A high level of endemism occurs in the property and the number of endemic species is likely to rise substantially once new research programmes are undertaken.

The flora of CNP is of exceptional biological wealth, housing 1,801 species of vascular plants. CNP contains approximately 7.3% of the vascular plants in Colombia and 57% of the vascular plants present in the country's Guyana region. The flora found in CNP is biogeographically unique given that it presents a combination of elements converging from different natural source regions. Almost a quarter of the vascular plants present in Chiribiquete can also be found in the Orinoco and Andean regions, while close to 70% are also present in Amazonia, and almost half in the Colombian Guyana region.

[1] These codes reflect the conservation status of each species as recorded in the *IUCN Red List of Threatened Species* at the time of the evaluation; for more information please visit http://www.iucnredlist.org

The global significance of the property to biodiversity conservation is reflected by the fact that it is considered a Centre of Plant Diversity, an Important Bird Area, an Endemic Bird Area, a Key Biodiversity Area and it is the only site protecting one of the terrestrial ecoregions of flooded forests called "Purus Varze", considered Critical/Endangered by WWF International. The biodiversity values of the property are inextricably linked to its significant cultural and archaeological values that are strongly associated with the beliefs and spiritual values of the indigenous peoples living in the property.

CNP is part of the macro Amazon basin, bathed by clear water rivers that spring from the Andes mountain range and the black water rivers, which derive from the Amazon plains. The area's hydrology is made up of numerous streams, torrents, deltas, brooks, and lagoon complexes. The rivers play a key role when it comes to understanding the area's biogeographic, ecosystemic and sociocultural features given that they are natural borders for the distribution of species whilst providing ecological connectivity with the overall region. At the same time, they are the means of communication through which humans have reached these areas, constituting an important reference point for the indigenous populations and local communities that have settled here. These waterways also influence the patterns of species dispersal.

Indigenous peoples have a long association with the nominated property. The nomination dossier acknowledges there are people living within the nominated area but the exact population is unknown due to the area's remoteness and recent government policy that points to safeguarding communities from direct contact with people from mainstream society. The population in the buffer zone is estimated at 3,485.

3. COMPARISONS WITH OTHER AREAS

CNP is nominated as a mixed property under cultural criterion (iii) to be evaluated by ICOMOS and under natural criteria (viii), (ix) and (x) evaluated by IUCN. The nomination dossier compares CNP with other similar World Heritage properties in the Neotropical realm; however the comparative analysis could have been enhanced through a more complete global assessment.

The main argument proposed by the State Party to justify the application of criterion (viii) is based on its tectonic geological origin from a basement modelled by faults and that was further eroded by water and the prevailing winds. The State Party emphasizes the critical role that the nominated property has as an area of water recharge in the Amazon basin. The comparative analysis made by the State Party and included in the nomination is very weak and tends to use some arguments of the biodiversity of the site to justify the uniqueness of the nominated property in terms of criterion (viii). Furthermore, it is recognized in the comparative analysis that there are similar geological formations in the Guiana Shield in Venezuela and Brazil. In terms of geomorphological features the comparative analysis indicates that tepuis in Canaima (the Auyan-Tepui) and in Roraima (Sierra the Pacaraima) are higher than those occurring in CNP. Another argument used by the State Party is that the degradation from erosional forces of wind and water has produced a great deal more landforms than are found in other tepuis regions. However the same erosional processes occur in other areas where tepuis are present; thus this argument is neither logical nor well-articulated in the nomination.

When evaluating the 2004 nomination, IUCN noted that the general sedimentological characteristics and geomorphological expressions present in the nominated property were similar to those reported for extensive zones of the Guiana Shield. In the 2004 nomination, the argument used to justify criterion (viii), similar to the one used in the current nomination, was that the specific geomorphological manifestations in the nominated property were different due to the specific combination of rocks of different origin and hardness in each case. However IUCN considered at that time that this was too narrow an approach to differentiate the nominated property as the resulting geoforms in other similar sites in the region were very similar. The 2004 nomination as well as the current nomination emphasize that the nominated property is distinctive in relation to the altitudinal range of its relief with its highest point over 1000m. However the Central Suriname Nature Reserve reaches 1230m in its southern portion and the highest tepui in Canaima reaches 2810m. Also, Mount Roraima National Park in Brazil reaches 2875m.

The geology of the nominated property is similar to that of Canaima, characterized by Precambrian rocks that are around 1700 million years old and both contain a significant proportion of sandstone and granite that have been eroded over 600 million years. However the resulting relief in Canaima is much more dramatic and reaches, as noted above, a higher altitudinal range than in the nominated property. In addition, Canaima represents the best-documented and most spectacular cavernous sandstone region in the world, including the presence of 10 of the 12 deepest caves.

Wulingyuan Scenic & Historic Interest Area and Three Parallel Rivers Protected Areas, both in China, also contain spectacular karstic and pseudo-karstic sandstone features. Purnululu National Park in Australia was inscribed on the World Heritage List in 2003 for its outstanding geological values and the uniqueness of its cone karst in sandstone as well as karstic and pseudo-karstic sandstone features. Sandstone landscapes with towerlike formations and caves are also found in the tablelands of the Central African Republic; the Tibesti region of Chad; and in the southern part of Nigeria.

Overall IUCN concludes that the assessment made concerning criterion (viii) at the time of the 2004 nomination is still valid for this new nomination.

In terms of criterion (ix) CNP is found in a singular biogeographical space where evolutionary processes have shaped the floral and faunal diversity. It presents a mosaic of mainly Guyanese and Amazonian landscapes that provide a great variety of unique habitats. The nominated property is located in the Amazonian Udvardy province, which contains only one existing World Heritage site: Central Amazon Conservation Complex, in Brazil, inscribed under biodiversity criteria. CNP is found within the Neotropic - Tropical and Subtropical Moist Broadleaf Forests biome, which is already very well represented on the World Heritage List, with 28 sites, most of them inscribed under biodiversity criteria. There are also 42 Tentative Listed sites in this biome/realm. However CNP is located in the Caquetá moist forests (88.4%) and Purus varzeá (11.6%) ecoregions, in which there are currently no existing World Heritage property or any site on Tentative Lists.

The property, due to its unique location in the middle of two Pleistocene refuges (Napo and Imeri) and its function as a corridor between three biogeographic provinces (Orinoquia, Guyana, and Amazonia), hosts unique species with distinctive adaptations that are thought to have resulted from its geographical isolation. It is located in the Chiribiquete-Araracuara-Cahuinari Region Centre for Plant Diversity and has been identified as a gap. The property overlaps entirely with Serrania de Chiribiquete (Chiribiquete Mountain Range), which is listed amongst the most irreplaceable protected areas in the world for the conservation of mammal, bird and amphibian species. The property is located in a unique biogeographical context where evolutionary processes have shaped the high floral and faunal diversity. It presents a mosaic of mainly Guyanese and Amazonian landscapes that provide a great variety of unique habitats that are critical for the survival of the property's characteristic plants and animals.

Finally, regarding criterion (x), the location of CNP at four converging biogeographic regions (Orinoquia, Guyana, Amazonia, and North Andes) has led to important processes of hybridization, speciation and endemism. The Caquetá moist forests that cover most of CNP have a high level of floral and faunal diversity, being situated in a transitional area between these floristic provinces of the Amazon Basin forests and the Guyana region. The Purus varzeá ecoregion comprises the flooded river basins of the Amazon and hosts very high avifauna diversity, with over 630 species recorded.

CNP is home to 2,939 species including 1,801 species of vascular plants from which 42 are endemic to the Amazon, including 16 which are only found inside CNP, according to the nomination file. This represents over a fifth of the endemic species recorded for the Colombian Amazon. In particular, the tepuis mountain range is reported to host two endemic families of plants: Tepuianthaceae and Euphroniaceae. These already impressive levels of endemism are likely to increase as more complete surveys are underway.

CNP contains 82 species of mammals (including 58 bat species and a bat species new to science) 60 species of reptiles, 57 species of amphibians, 492 species and subspecies of birds (including a new endemic species, the Chiribiquete Emerald Hummingbird, *Chlorostilbon olivaresi* - LC), 238 fish species and 209 species of butterflies (including to date at least six potentially new species). As with plants, the number of species, including of endemic species of fauna (21 endemics reported) would most certainly rise as more scientific expeditions are undertaken in the future.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nominated property is owned and managed by the Ministry of the Environment through the Unidad Administrativa Especial del Sistema de Parques Nacionales (UAESPNN). Law No. 0045 established the property as a National Park of 1,298,955 ha in 1989 and Resolution No. 1038 of August 2013 expanded the park by 1,483,399 ha, more than doubling the total surface area to its present size of 2,782,354 ha. At the institutional level, the Territorial Directorate of Amazonía Orinoquía is responsible for on-ground management of the park.

The buffer zone of the Park is made up entirely by Indigenous Reserves and the Amazon Forest Reserve. This particular Forest Reserve is classified by the Ministry of Environment and Sustainable Development into the strictest category possible for Forest Reserves, which does not allow the development of extractive activities of any kind. Protection and management of the buffer zone is aimed at mitigating and preventing disturbances in the protected area; rectifying any alterations which may present themselves due to the pressures exerted in the area; harmonizing the occupation and transformation of the territory with the conservation goals of the protected area; and promoting the safeguarding of associated cultural and natural elements.

There is a very strong and effective institutional and legal framework for the protection and management of protected areas in Colombia, which is recognized as one of the best in Latin America. This framework ensures the protection of CNP which is now enhanced by the peace process implemented in the country and that led to the cessation of armed conflict in this area. It is also important to stress that the inaccessibility of CNP adds a significant layer of protection.

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

4.2 Boundaries

The nominated property is exceptionally large and adequately provides refuge for many species and habitats. The boundaries of the property have been drawn to include the vast majority of the tepuis and

other significant landforms. The national park was expanded in 2013 to include areas to the north that provide additional ecological connectivity with the Andes and to the east with the Orinoco. The extension was also designed to better protect species and ecosystems that are important for the livelihoods of the voluntarily isolated and uncontacted indigenous tribes living in the property. Overall the existing boundaries ensure a self-contained system that ensures the ecological functioning of CNP. The extensive buffer zone surrounding the property provides an additional layer of protection whilst substantially contributing to ecological connectivity. The boundaries of the property are not marked in the field and this would not be feasible given the dense rainforest that exists along the entire boundary. However, several major rivers and streams form a natural boundary in the north, west and east, allowing for easier identification of the boundaries in the field. These rivers and streams facilitate access to the property for patrolling, management and research activities.

The buffer zone includes 22 indigenous reserves that are under traditional ownership. Under Colombian law, these areas are considered indefeasible, untouchable, inalienable collective territories with territorial autonomy. One of the objectives of the indigenous reserves is to contribute to the protection of CNP. As most threats are occurring in the buffer zone, the State Party has developed, and is actively implementing, a number of programmes and projects aiming to support economic options to enhance indigenous livelihoods whilst avoiding activities that may threaten the conservation of CNP. Most of these projects are supported by financial contributions from the government, complemented by financial resources provided by international donors and development agencies.

The State Party in supplementary information clarified that the reason why agreement was not possible to be reached with two of the indigenous reserves prior to nomination related to unclear boundaries. It has been confirmed that consultation and engagement on the World Heritage nomination has conformed to all national laws and established international norms which have been strongly adopted by Colombia.

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

4.3 Management

The conservation of the property is guided by the "2016-2020 Management Plan for the National Natural Park of Serranía de Chiribiquete" which includes provisions on management activities required for the different land use zones as well as expected biodiversity conservation outputs derived from these actions. The zones in the park are enabled through Decree 622 of 1977 that establishes 6 distinct zones for all Natural National Parks. The management plan prescribes activities that should be implemented in the buffer zone to mitigate threats to the property. Activities to protect the voluntarily isolated indigenous people in the buffer zone and inside the park are also described.

The management plan includes sections describing the issues, land use zones and management prescriptions and a strategic plan for the years 2015-2019 that includes specific actions and outputs. Most of the actions described in the management plan pertain to activities in the buffer zone, as there is no planned tourism inside the park. In 2015 CNP was subject to a management effectiveness assessment and recommendations proposed by this exercise have been considered to enhance park and buffer zone management.

Overall, the management of the property is well-organized with good capacity for planning and operations. Patrolling and protection activities are also actively supported by the army which has played a key role for many years in assisting with the location and eradication of illegal coca plantations inside the property and in the buffer zone. Efforts should be directed at maintaining the good cooperation established with the army or anticipating the need to replicate this level of protection through other means, should the military presence change.

The funding supporting the management of the property results from a combination of financial and human resources provided by the State Party and also supported by international projects, thus the current level of financial resources is considered sufficient to implement key provisions of the management plan related to nature conservation, and should be maintained. However, available financial and human resources dedicated to management activities and for the development of infrastructure and the acquisition of equipment for patrolling and other management actions should be increased in the near future, particularly to address new management challenges, for example linked to tourism development, that may arise should the property be inscribed on the World Heritage List.

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

4.4 Community

The Constitution of Colombia (Arts. 7, 287, and 330) recognizes "the need to protect cultural and ethnic integrity of local communities through democratic dialogues that guarantee real, effective, and opportune participation of ethnical groups in the decision-making processes of projects, works, or activities that concern them and in particular the rights to self-determination and to have both territorial and cultural integrity". In this context, the National Parks Authority has an effective regulatory mechanism to ensure consultation and participatory processes to involve local communities and indigenous peoples in planning and decision-making processes that may affect them. This mechanism has been applied to ensure the consultation required for any expansion of the national park as well as the development and implementation

of its management plan. One of the results of this consultation is the fact that traditional resource use such as fishing, collecting plants for sacred and medicinal purposes, hunting, development of small agricultural plots and hunting are all allowed and recognized under the management plan for the park. Provisions for conflict resolution are also included in the management plan.

Voluntarily isolated and uncontacted indigenous peoples that live inside the nominate property have also guaranteed rights through Decree-Law 4633 of 2011, in its articles 17 and 18, that deal with the issue of indigenous communities which have had no contact or that are in voluntary isolation or that are in the process of initial contact. Through this law the State Party must guarantee the rights of these communities "...to remain in said condition and to live freely, according to their cultures in their ancestral lands".

4.5 Threats

The property is remarkably well-preserved and is in excellent condition. There are two main types of threats to the property; those related to the culture, rights and livelihoods of the voluntarily isolated indigenous peoples and those that could impact on the natural values of CNP.

Tourism and scientific expeditions are potential threats to the voluntarily isolated indigenous peoples. Any contact of any kind to these people will represent a violation of their rights and can have a long-lasting effect in terms of the loss of culture and the transmission of pathogens; unfortunately on the latter there are many examples of indigenous peoples that have almost disappeared due to the impacts of diseases for which their immune system was not prepared.

While there are no direct threats to the nominated property itself, there are considerable threats to the buffer zone as agriculture and road building move closer to the buffer zone boundary. These threats could be further exacerbated by the fact that many local people that used to live in this area but abandoned it due to security problems may soon return encouraged by the peace agreement. The management plan for the property focuses on mitigating these threats in the buffer zone. In addition a number of international projects are under implementation in the buffer zone, including a REDD+ project, the Amazon Vision programme and a sustainable landscape management project on local governance; both funded by several donors. These projects may help to address some of the key threats to the nominated property, which include deforestation, unregulated tourism and illegal mining and agriculture. Whilst these threats exist and have potential to increase, they are currently being monitored. Ongoing vigilance and intervention will be needed to ensure they do not escalate.

A significant potential threat to CNP and its buffer zone is the potential rises of new narcotics trafficking groups that are likely to keep operating in the property. While many of these groups will eventually become resettled into the Colombian society, some will still be tempted by the allure to grow coca, develop illegal drugs and distribute them. Whereas in the past, when there was a great deal of conflict and the military, police and park authorities were actively pursuing the control of these activities, narco-traffickers could now be encouraged to increase their activities. It would be desirable to maintain the presence of the military to support the protection of the nominated property.

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

5. ADDITIONAL COMMENTS

5.1 Potential for future extensions

As has been noted, CNP is an extremely large terrestrial nomination by any standards and certainly provides adequate refuge for the many species and habitats present there. The extension of CNP approved in 2013 further extended the boundaries of the park to the north to contain more of the habitat that could provide additional connectivity with the Andes and to the east to provide additional connectivity with the Orinoco. During the evaluation process, IUCN received information about a further extension of CNP of around 1.5 million ha, however IUCN has not received any map and supporting documentation from the State Party on this new extension. This is another very significant area of protection which is understood to be contiguous with the nominated property and would thus offer potential scope for the State Party to consider a future extension to CNP, should the property be inscribed.

6. APPLICATION OF CRITERIA

Chiribiquete National Park – "The Maloca of the Jaguar" has been nominated under natural criteria (viii), (ix) and (x), as well as under cultural criteria (iii) which will be evaluated by ICOMOS.

Criterion (viii): Earth's history and geological features

The case made in the nomination for justifying the application of this criterion is based on the argument that CNP has a noteworthy geological history given its tectonic origin from a basement modelled by faults, and its own lithology characterized by a basement of the Precambrian rocks and the superimposition of Palaeozoic sedimentary rocks. The erosion of these rocks combined with other structural processes have resulted in a great diversity of landforms including arches, labyrinths, caverns, structural cracks more than 10 meters thick, and residual tepuis. However the geology and geomorphological processes occurring in CNP are similar to that existing in the whole Guiana Shield and in other locations, such as in Canaima National Park, where the geomorphological processes have resulted in a higher diversity and more

spectacular landforms. CNP is thus considered to be of national significance in the context of the Guiana Shield.

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

Criterion (ix): Ecosystems/communities and ecological/biological processes
The nominated property, due to its unique location in the middle of two Pleistocene refuges (Napo and Imeri) and its function as a corridor between three biogeographic provinces (Orinoquia, Guyana, and Amazonia), hosts unique species with distinctive adaptations that are thought to have resulted from its geographical isolation. It is located in the Chiribiquete-Araracuara-Cahuinari Region Centre for Plant Diversity and has been identified as a gap. The property overlaps entirely with Serrania de Chiribiquete, which is listed amongst the most irreplaceable protected areas in the world for the conservation of mammal, bird and amphibian species. The nominated property is located in a unique biogeographical context where evolutionary processes have shaped the high floral and faunal diversity. It presents a mosaic of mainly Guyanese and Amazonian landscapes that provide a great variety of unique habitats that are critical for the survival of the property's characteristic plants and animals.

IUCN considers that the nominated property meets this criterion.

Criterion (x): Biodiversity and threatened species
Despite the fact that limited scientific research has been undertaken in the nominated property, data available shows that 2,939 species have been recorded. These include 1,801 species of vascular plants, 82 species of mammals (including 58 bat species and a bat species new to science as well as a number of globally threatened species such as the Giant Otter, Giant Anteater, Lowland Tapir, Common Woolly Monkey and Jaguar, 60 species of reptiles, 57 species of amphibians, 492 species and subspecies of birds (including a new endemic species, the Chiribiquete Emerald Hummingbird), 238 fish species and 209 species of butterflies (including to date at least 6 potentially new species). The number of species, including of endemic species (21 endemics reported) would most certainly rise as more scientific expeditions are undertaken in the future.

IUCN considers that the nominated property 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/18/42.COM/8B and WHC/18/42.COM/INF.8B2;

2. Recalling decision 29 COM 8B.3;

3. Inscribes **Chiribiquete National Park – "The Maloca of the Jaguar" (Colombia)** on the World Heritage List under natural criteria (ix) and (x);

4. Adopts the following Statement of Outstanding Universal Value:

Brief synthesis
Chiribiquete National Park – "The Maloca of the Jaguar" (CNP) is in the Amazon rainforest in South central Colombia. Following its extension in 2013, the park is now the largest national park in Colombia at 2,782,354 ha and is very large by global standards for protected areas. It is located at the western-most edge of the Guiana Shield and contains one of only 3 uplifted areas of the Shield called the Chiribiquete Plateau. One of the most impressive defining features of Chiribiquete is the presence of many tepuis which are table-top mountains, found only in the Guiana Shield, notable for their high levels of endemism. The tepuis found in CNP, whilst smaller when compared to others in the Guiana Shield, result nonetheless in dramatic scenery that is reinforced by their remoteness and inaccessibility. A particularly significant value of the property is its high degree of naturalness which makes it one of the most important wilderness areas in the world.

CNP is home to many iconic species including Jaguar, Puma, Lowland Tapir, Giant Otter, Howler Monkey, Brown Woolly Monkey. A high level of endemism occurs in the property and the number of endemic species is likely to rise substantially once new research programmes are implemented.

The global significance of the property to biodiversity conservation is reflected by the fact that it is considered a Centre of Plant Diversity, an Important Bird Area, an Endemic Bird Area, a Key Biodiversity Area and it is the only site protecting one of the terrestrial ecoregions of flooded forests called "Purus Varze", considered Critical/Endangered by WWF International. The biodiversity values of the property are inextricably linked to its significant cultural and archeological values that are strongly associated to the beliefs and spiritual values of the indigenous peoples living in the property.

Criteria
Criterion (ix)
The property, due to its unique location in the middle of two Pleistocene refuges (Napo and Imeri) and its function as a corridor between three biogeographic provinces (Orinoquia, Guyana, and Amazonia), hosts unique species with distinctive adaptations that are thought to have resulted from its geographical isolation. It is located in the Chiribiquete-Araracuara-Cahuinari Region Centre for Plant Diversity and has been identified as a gap. The property overlaps entirely with Serrania de Chiribiquete, which is listed amongst the most irreplaceable protected areas in the world for the conservation of mammal, bird and amphibian species. The property is located in a unique biogeographical context where evolutionary processes

have shaped the high floral and faunal diversity. It presents a mosaic of mainly Guyanese and Amazonian landscapes that provide a great variety of unique habitats that are critical for the survival of the property's characteristic plants and animals.

Criterion (x)
Despite the fact that limited scientific research has been undertaken in the property, data available shows that 2,939 species have been recorded. These include 1,801 species of vascular plants, 82 species of mammals (including 58 bat species and a bat species new to science as well as a number of globally threatened species such as the Giant Otter, Giant Anteater, Lowland Tapir, Common Woolly Monkey and Jaguar, 60 species of reptiles, 57 species of amphibians, 492 species and subspecies of birds (including a new endemic species, the Chiribiquete Emerald Hummingbird), 238 fish species and 209 species of butterflies (including to date at least 6 potentially new species). The number of species, including of endemic species (21 endemics reported) would most certainly rise as more scientific expeditions are undertaken in the future.

Integrity
The property overlaps with Serrania de Chiribiquete Natural National Park, which includes 13 geomorphologically distinct types of tepuis as well as arches, labyrinths, caverns and structural cracks more than 10 meters wide, all of which contribute to the biodiversity richness of the property. All of these landform features are intact as well as the surrounding forests and river systems.

The property is exceptionally large and adequately provides refuge for the many species and habits present. The boundaries of the property have been drawn to include the vast majority of the tepuis and other significant landforms. The national park was expanded in 2013 to include areas to the north that provide additional connectivity with the Andes and to the east providing additional connectivity with the Orinoco. The extension was also designed to better protect species and ecosystems that are important to the voluntarily isolated and uncontacted indigenous tribes living in the property. The boundaries of the property are not marked in the field and this would not be feasible given the dense rainforest that exists along the entire boundary. However, several major rivers and streams form a natural boundary in the north, west and east, allowing for easier identification of the boundaries in the field.

The property is remarkably well-preserved and is in excellent condition. There are two main threats: those related to ensuring respect of rights for the uncontacted tribes living in voluntary isolation, and those related to the loss of habitats, biodiversity and connectivity. Tourism and scientific expeditions are a potential threat to the rights to self-determination, territory and culture of the uncontacted tribes. Any contact of any kind to these people can have a long-lasting effect in terms of the loss of culture and the transmission of pathogens to which they may not have immunity. Threats potentially affecting the natural values of the property are habitat loss due to agricultural encroachment; however these threats are mainly affecting the buffer zone and are subject to active management programmes. A temporary suspension of mining licenses in the buffer zone has been issued and should be maintained in the long-term to avoid this indirect threat. Small areas within the property have been occasionally used for illegal coca farming but they have been fully eradicated. At present, there is no tourism allowed inside the property and it is important to strictly control any tourism access.

Protection and management requirements
The property is managed by the Ministry of the Environment through the Unidad Administrativa Especial del Sistema de Parques Nacionales (UAESPNN) which has a solid reputation as an effective conservation agency. At the institutional level, the Territorial Directorate of Amazonía Orinoquía is responsible for on-ground management of the park.

The conservation of the property is guided by the "2016-2020 Management Plan for the National Natural Park of Serranía de Chiribiquete" which includes provisions on management activities required for the different land use zones as well as expected biodiversity conservation outputs derived from these actions. The zones in the park are enabled through Decree 622 of 1977 that establishes 6 distinct zones for all Natural National Parks. The management plan prescribes activities that should be implemented in the buffer zone to mitigate threats to the property. Activities to protect the voluntarily isolated indigenous people in the buffer zone and inside the park are also described.

The very large buffer zone is comprised of indigenous reserves and the Amazon Forest Reserve. All areas within the buffer zone have laws and policies that prevent extractive industries of any kind. While there are no direct threats to the nominated property itself, there are considerable threats to the buffer zone as agriculture and road building move closer to the buffer zone boundary.

Overall, the management of the property is well-organized with good capacity for planning and operations. Patrolling and protection activities are actively supported by the army that has played a key role for many years in assisting with the location and eradication of illegal coca plantations inside the property and in the buffer zone. Efforts should be directed at maintaining the good cooperation established with the army or anticipating the need to replicate this level of protection through other means should the military presence change. Funding to support the management of the property results from a combination of financial and human resources provided by the State Party and also supported by international projects, thus the current level of financial resources is considered sufficient to implement key provisions of the management plan related to nature conservation, and should be maintained. However, available financial and human resources dedicated to management activities and for the development of

infrastructure and the acquisition of equipment for patrolling and other management actions should be increased following inscription. New challenges, for example linked to tourism development, may arise from the inscription of the property which will require continued attention and further investment.

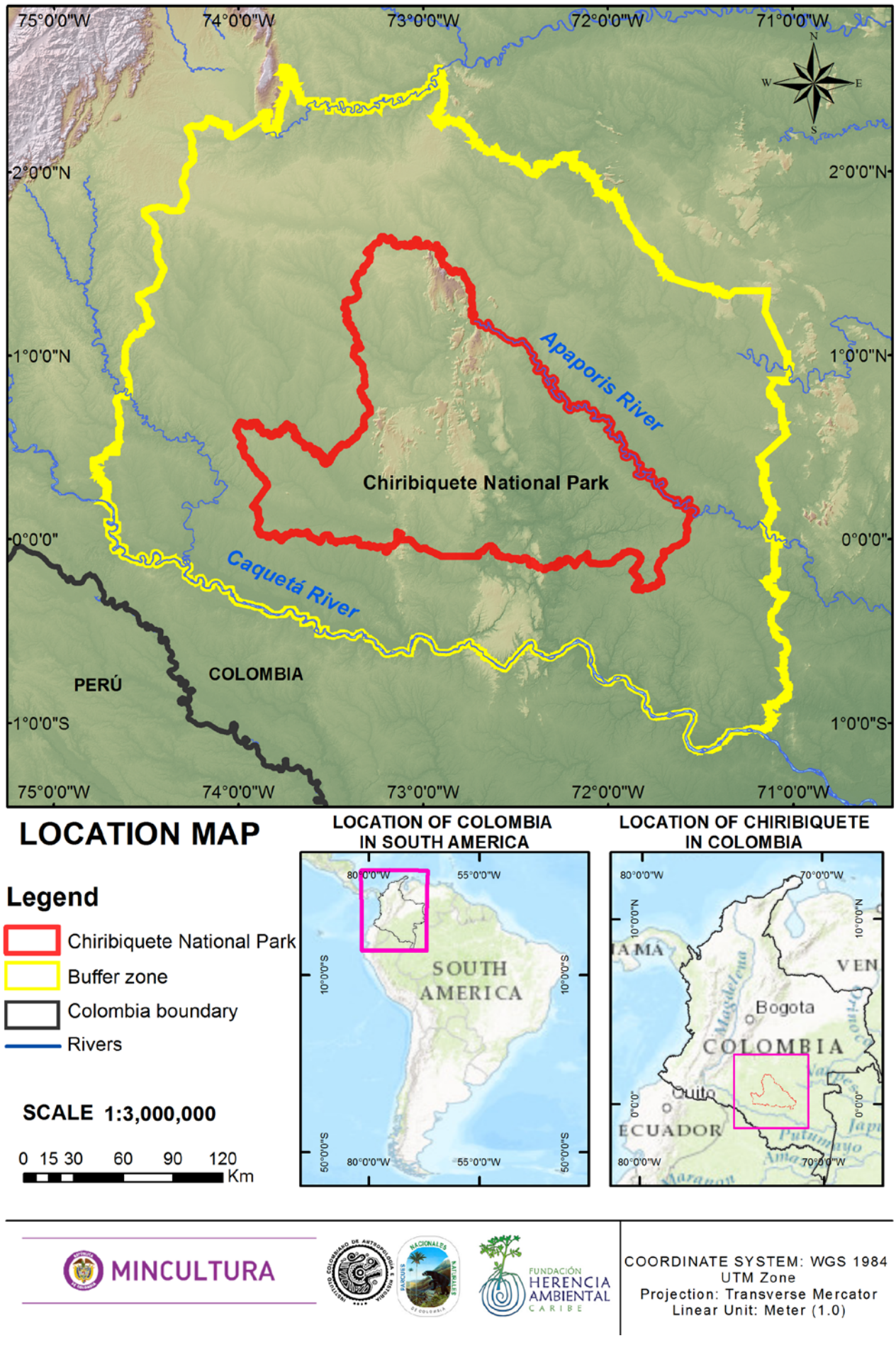
5. Commends the State Party for its commitment towards the conservation of this property and for its efforts in revising earlier proposals to submit a more comprehensive and compelling nomination.

6. Requests the State Party to:

a) Increase the financial support required for the effective management of the property;
b) Maintain and enhance existing regulations and management activities to control agriculture development, deforestation and road constructions in the buffer zone that could, if not properly managed, result in serious threats to the integrity of the property.

7. Welcomes the support provided by donors and international development agencies to the protection and management of the property and encourages them to maintain and if feasible strengthen this support to contribute to the effective management and governance of this property.

Map 1: Nominated property and buffer zone



C. CULTURAL PROPERTIES

C1. NEW NOMINATIONS OF CULTURAL PROPERTIES

ARAB STATES

AL-AHSA OASIS, AN EVOLVING CULTURAL LANDSCAPE

SAUDI ARABIA

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

AL-AHSA OASIS, AN EVOLVING CULTURAL LANDSCAPE (SAUDI ARABIA)

IUCN considered this cultural landscape based on a desk review of the nomination and the comments of two external desk reviewers to provide inputs to ICOMOS on the natural components of this property. These reviews were also shared directly with ICOMOS in order to contribute to their detailed reflections on this nomination. The evaluation of the nomination for the World Heritage Committee will be finalised by ICOMOS.

The property is nominated under criteria (iii), (iv) and (v) and is made of twelve separate components covering a total area of 8,544 hectares with a buffer zone made of seven separate zones covering a total area of 21,556 hectares. The total area of the national serial site is 30,100 ha.

The Oasis is definitely a place of long established interaction between people and nature. The origin of the oasis is based on the human attempt to utilize the abundance of water to transform natural landscapes into liveable areas using primarily agriculture as a source of living and settlement in a very harsh desert environment.

The oasis as a cultural landscape cannot be separated from its natural ecosystems, biodiversity and wildlife associated with the wetland ecosystems themselves as well as the surrounding desert ecosystems.

Available studies suggest that the natural environment within and surrounding the oasis components especially the ones with a more natural state (e.g. Al Asfar Lake) is of significant importance to biodiversity, wildlife and local communities livelihoods. This is confirmed by the fact that Al-Hasa Lagoons is recorded in the Directory of Wetlands in the Middle East (Scott 1995). The lagoons have been also identified as an Important Bird Area by BirdLife International (BirdLife International 2017). Furthermore, the nomination dossier repeatedly mentions the importance of Al Ahsa ecosystems in the evolution of the Oasis. “River networks continue to flow underground and contribute, along with condensation, to the preservation of humidity in the sand creating a special ecology enabling specific life forms and adapted biodiversity to extreme situations” (nomination file p96). “Al-Ahsa, with its water availability, its geographical location and, above all, its varied environmental context (tree savannah, extreme desert, swamps and lagoons) was for three thousand years an ideal site for this pre-oasis culture. The great biodiversity, the presence of different ecotones, niches and micro specific environments, had a reflection of cultural diversity, such as the development of the different skills needed in each case” (nomination file p160).

IUCN desk reviews recommend promoting studies of the biodiversity associated with the oasis, a wetland with surrounding aeolian fields dunes and sabkha ecosystems. This would reveal the importance of the biodiversity living in the oasis itself and the environments surrounding it, and the role of local people which should be better known or better specified in order to better manage the natural components of their oasis. The desk reviews further highlight the strong human-nature interactions including the effects of anthropogenic impacts. In their view, if well managed, the biodiversity and local communities of the oasis can become very successful, from the point of view of nature conservation and sustainable local development.

IUCN notes the need for the management of the oasis to include a specific component of studying, understanding, monitoring and conserving the biodiversity of the oasis as an integral part of its heritage protection and sustainability. Focus should be given to the biodiversity within the oasis as well as surrounding it. Regular monitoring of the water quality in main water bodies of significance to waterfowl and other related biodiversity groups is also deemed important for the maintenance of natural habitats of the property. The above suggested measures need to take into account the past, current and foreseen impacts of climate change on key ecosystem services provided by the property.

IUCN further thinks that the role of local communities in understanding and conserving the natural environment through their long established traditional knowledge and experience including those related to traditional agricultural practices is incorporated into the oasis governance system as well as the site presentation, promotion and development strategies and plans.

EUROPE / NORTH AMERICA

TR’ONDËK-KLONDIKE

CANADA

Withdrawn

EUROPE / NORTH AMERICA

AASIVISSUIT – NIPISAT. INUIT HUNTING GROUND BETWEEN ICE AND SEA

DENMARK

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

AASIVISSUIT – NIPISAT. INUIT HUNTING GROUND BETWEEN ICE AND SEA (DENMARK)

IUCN considered this cultural landscape based on a desk review of the nomination and the comments of one external desk reviewer to provide inputs to ICOMOS on the natural components of this property. The external desk review was also shared directly with ICOMOS to contribute to their detailed reflections on this nomination. The evaluation of the nomination for the World Heritage Committee will be finalised by ICOMOS.

The nomination is for a Cultural Landscape spanning 417,800 ha, just north of the Arctic Circle at the centre of West Greenland, within the largest ice-free area in Greenland.

The nominated property overlaps with the Ramsar site Eqalummiut Nunaat and Nassuttuup Nunaa**.** The Ramsar site was designated based on the following Ramsar Criteria: (1) For the representative example of the many relevant wetlands in this inland area; (3) For the high waterbird diversity; (4) For the moulting and breeding of the White-fronted Goose; and (6) The second-most important area for Greenland White-fronted Goose (*Anser albifrons flavirostris*) with c. 6% of the world population of this endemic subspecies. The site is the most important spring staging area of this species. Several other species of waterbirds have also been recorded in this site. IUCN recommends that these Ramsar criteria be taken into account and intergraded into the overall management plan of the nominated property.

IUCN also note that one species of vascular plant – Greenland blue-eyed grass (*Sisyrinchium groenlandicum*) – is endemic and grows only east of Sisimiut and at Nuup Kangerlua (p 32 of the nomination dossier).

Among the threats to the nominated property are the sustainability of hunting, and the impacts of possible increase in tourism. It is apparent from the nomination consultation process that the locals readily welcome tourism and in fact, this may be one of the driving forces of the nomination. It is important for the management plan to strike a balance between hunting and tourism.

In conclusion, the State Party should be reminded to pay attention to the management of the Ramsar site and more specifically, include in the management plan the provision for the long term preservation of the ecological character of the Ramsar site and the wise use of its natural resources.

EUROPE / NORTH AMERICA

ROȘIA MONTANĂ MINING LANDSCAPE

ROMANIA

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

ROȘIA MONTANĂ MINING LANDSCAPE (ROMANIA)

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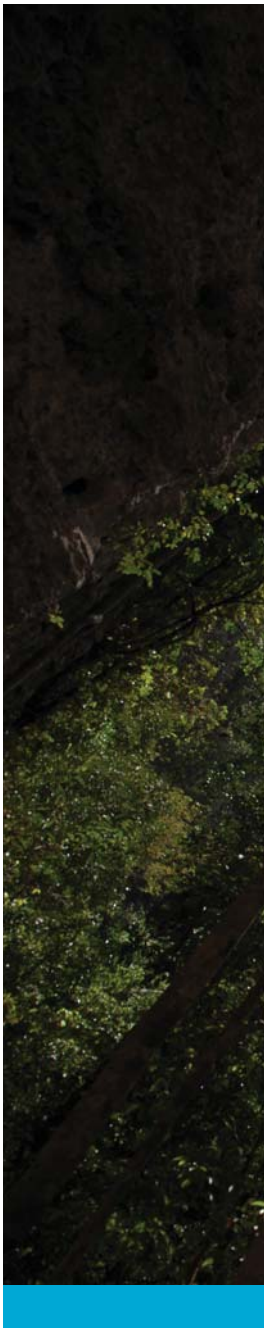
The nomination includes important natural value of wetland habitats formed around abandoned header-ponds. These host rare aquatic vegetation that flourishes in very acidic conditions. Other semi-natural habitats found in the nominated property include grasslands and mires - listed in Annex I of the European Commission Habitats Directive, with orchids and other plant species that are Red-listed as rare in Romania. Although most species listed in the nomination are of least concern according to the IUCN Red List, at least one, *Asplenium septentrionale*, is listed as vulnerable. The nomination has no information on the other nature values (e.g. bats) included in the nominated site, and thus it is recommended that ICOMOS should seek more information on those values, and their conservation status.

The nominated property overlaps with Piatra Corbului and Piatra Despicată, both IUCN Category III (Monument of Nature) Protected Areas.

The IUCN World Hertitage Panel made note this is a quarrying / mining heritage nomination, and questioned whether mining landscapes that have been highly modified by extractive industries are conceptually appropriate to consider within cultural landscapes under the Convention, as the interaction that took place between people and nature involves substantial and destructive alteration of the environment.



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