WHC/23/45.COM/INF.8B

IUCN World Heritage Evaluations 2022 and 2023

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

IUCN REPORT FOR THE WORLD HERITAGE COMMITTEE, EXT. 45TH SESSION, RIYADH, KINGDOM OF SAUDI ARABIA, 10-25 SEPT. 2023

United Nations Educational, Scientific and Cultural Organization
World Heritage Convention

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Oplurus cuvieri, Ankarafantsika National Park, Madagascar
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Preliminary remarks

The 45th session of the World Heritage Committee, initially scheduled to take place in 2022, was postponed to be held as the Extended 45th session of the World Heritage Committee. As the World Heritage Committee has to examine nominations of both the 2021/2022 and 2022/2023 cycles, this report consolidates both evaluation cycles into one document under the document code WHC/23/45.COM/INF.8B2 and is divided into two parts:

The first part (**Volume I**) contains IUCN's evaluation reports of the 2021/2022 cycle as completed in spring 2022 in conformity with the timelines set out in the *Operational Guidelines*. The reports in Volume I were thus finalised based on the statutory deadline of 28 February 2022 for information supplied by the State Party.

The second part (**Volume II**) contains IUCN's evaluation reports of the 2022/2023 cycle as completed in spring 2023 in conformity with the timelines set out in the *Operational Guidelines*. At the time of finalisation, the new dates of the Extended 45th Session of the World Heritage Committee had been announced. The reports in Volume II were finalised based on the statutory deadline of 28 February 2023 for information supplied by the State Party.

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

Preliminary remarks

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DISCLAIMER

The designation of geographical entities in this book, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of IUCN concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

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IUCN World Heritage Evaluations 2022

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

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Cover photo: *Oplurus cuvieri*, Ankarafantsika National Park, Madagascar
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EXECUTIVE SUMMARY TABLE OF IUCN EVALUATIONS TO THE WORLD HERITAGE COMMITTEE

State Party	Name of the property (ID number)	Note	OUTSTANDING UNIVERSAL VALUE											Further mission required	IUCN Recommendation
			Meets one or more natural criteria				Meets conditions of integrity				Meets protection and management requirements				
			Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	Integrity	Boundaries	Threats addressed	Justification of serial approach	Protection status	Management	Buffer zone / Protection in surrounding		
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		
Congo	Forest Massif of Odzala-Kokoua (692 Rev)		–	–	yes	yes	yes	yes	no	–	no	no	no	yes	D
Madagascar	Andrefana Dry Forests (494Bis)	extension	yes	–	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	I
Morocco	Area of the Ajgal Dragon Tree (1655)		–	–	no	no	no	no	no	–	no	no	no	no	N
Viet Nam	Ha Long Bay - Cat Ba Archipelago (672Ter)	Extension / re-nomination	part	part	no	part	no	no	no	–	no	no	no	yes	D
Azerbaijan / Iran (Islamic Republic of)	Hyrcanian Forests (1584Bis)	Extension / re-nomination	–	–	part	part	part	part	yes	yes	part	part	yes	no	I (for 2 cpts.)
France	Volcanoes and Forests of Mount Pelée and the *Pitons* of Northern Martinique (1657)		–	part	–	part	no	no	no	yes	no	no	no	yes	D

KEYS

yes	met
part	partially met
no	not met
–	not applicable
I	inscribe / approve
N	non inscribe / approve
R	refer
D	defer
cpts.	nominated component parts

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State Party	ID No.	Property	Page
Azerbaijan / Iran (Islamic Republic of)	1584Bis	Hyrcanian Forests	49
Congo	692Rev	Forest Massif of Odzala-Kokoua	3
France	1657	Volcanoes and Forests of Mount Pelée and the *Pitons* of Northern Martinique	65
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IUCN FIELD EVALUATORS

Site	Name
Hyrcanian Forests	Oliver Avramoski, Jan Woollhead
Forest Massif of Odzala-Kokoua	Hervé Lethier
Volcanoes and Forests of Mount Pelée and the *Pitons* of Northern Martinique	José Brilha, Wendy Strahm
Andrefana Dry Forests	Frank Hawkins
Area of the Ajgal Dragon Tree	Tarek Abulhawa, Clemens Küpper
Ha Long Bay - Cat Ba Archipelago	Ulrika Aberg

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, where available; 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 2022

1. INTRODUCTION

This technical evaluation report of natural and mixed properties nominated for inclusion on the World Heritage List has been conducted by IUCN (International Union for Conservation of Nature) through its World Heritage specialists within the newly established Heritage, Culture and Youth Team within IUCN's Centre of Society and Governance. The World Heritage staff members of this Team coordinate IUCN's input to the World Heritage Convention in close cooperation with the IUCN Protected and Conserved Areas Team (PCAT, formerly GPAP – the Global Protected Areas Programme) and other teams of IUCN both at headquarters and in the regions. The work is undertaken in close cooperation 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 diversity 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 is a network of 2500 protected area managers and specialists from 140 countries. In addition, the World Heritage Programme calls on relevant experts from IUCN's other five Commissions (Species Survival, Environmental Law, Education and Communication, Ecosystem Management, and Environmental, Economic and Social Policy); from international earth science unions, 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 final technical evaluation reports, which are presented in this document, 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 is regularly reported at the sessions of the World Heritage Committee under Item 9B, where IUCN and ICOMOS exchange and coordinate 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 to optimize dialogue opportunities with nominating States Parties.

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 nominated 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 50 external reviews in relation to the properties examined in 2021 / 2022.

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. IUCN endeavours, where possible, to ensure mission experts have knowledge and experience in the relevant region. Missions usually take place between July and October. In the case of mixed properties and certain cultural landscapes, missions are jointly implemented with ICOMOS. IUCN notes that mission deployment has been impacted by the COVID-19 pandemic and has exercised maximum flexibility in this regards whilst maintaining the high standards of the *Operational Guidelines*.

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 April / 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/January).** IUCN continues its practice of ongoing communication with the nominating State/s Party/ies following its Panel meeting. In line with Annex 6 of the *Operational Guidelines,* this communication comprises an interim report to the Parties on the status of the evaluation, sent by the end of January. If the Panel finds that 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 these letters at least one month before the requested deadline of 31st January; however, in the present cycle, the last letter was sent on 28 January 2022, due to the disruptions caused by Covid-19. 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 States Parties during the mission may provide valuable feedback, they do not substitute for the formal requests for supplementary information outlined above. 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 contrasts 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 (KBAs) (www.keybiodiversityareas.org), 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. IUCN in partnership with UN Environment WCMC continues to explore the use of new comparative analyses. The decisive principle is that World Heritage properties are only exceptional 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 the Rights of Indigenous Peoples in the context of the World Heritage Convention 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/library/resrec/search. 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 an expert advisor supporting the IUCN World Heritage Panel.

In 2013, IUCN updated its format for field evaluation reports to include specific questions on communities and to clarify a range of questions and expectations on feedback from evaluators to ensure consistency of reports from field missions. This material is all publicly available at the following web address: https://www.iucn.org/theme/world-heritage/our-work/advisor-world-heritage/nominations.

IUCN has also been actively supporting processes under the mandate of the Ad Hoc Working Group (Decision 44 COM 14) which seek to reform the nomination processes within the frame of the World Heritage Convention and *Operational Guidelines*. IUCN welcomes this constructive dialogue to evolve the working methods of the Convention and considers the work of the Ad Hoc Working Group provides a good model for possible continued dialogue towards effective new procedures for the evaluation process. IUCN has also actively contributed to the nomination reform process and the introduction of Preliminary Assessments.

IUCN notes that reform of the evaluation process is constrained fundamentally by the current calendar, and that many of the expectations 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*. Given the interlinkages between various processes, IUCN considers it essential that a fully integrated package of reforms is agreed as a central priority, and continued 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. Provisional recommendations are made at this December meeting of the Panel and reviewed at a second meeting or conference call the following March. 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, any supplementary information from States Parties, the UN Environment WCMC Comparative Analysis, comments from external reviewers and other material. This material is then used 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). The Panel 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 Head of the Heritage, Culture and Youth Team. 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. IUCN strives to ensure diversity within its Panel to reflect the necessary experience, skills and global perspectives to undertake its advisory work. The membership of the Panel comprises:

- The Director, Head of the Heritage, Culture and Youth Team (Chair – non-voting)
- Global Coordinator World Heritage, IUCN Heritage, Culture and Youth Team (Non-voting)
- At least one and a maximum of two staff of the IUCN Protected and Conserved Areas Team (PCAT)
- 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
- 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 / 2018 one position for a specialist in geological heritage, appointed by IUCN following consultation with the International Union of Geological Sciences (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.

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 (TOR) 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 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 meeting 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 protection, 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. In addition, 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 2021 / 2022

Nomination dossiers and minor boundary modifications examined by IUCN in the 2021 / 2022 cycle included:

- 6 natural property nominations (the evaluation of 2 mixed site nomination had to be postponed);
- 5 cultural landscape nominations; all 5 were commented on by IUCN based on internal and external desktop reviews (the evaluation of 1 cultural landscape nomination had to be postponed).

6. COLLABORATION WITH INTERNATIONAL EARTH SCIENCE UNIONS

IUCN implements its consideration of earth science values within the World Heritage Convention through a global thematic study on Geological Heritage published in 2005. In addition, collaboration agreements with 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 to IUCN in fulfilling its advisory role to the World Heritage Convention.

7. RECOMMENDATIONS TO THE WORLD HERITAGE COMMITTEE

In the 2021 / 2022 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 *Operational Guidelines*, and

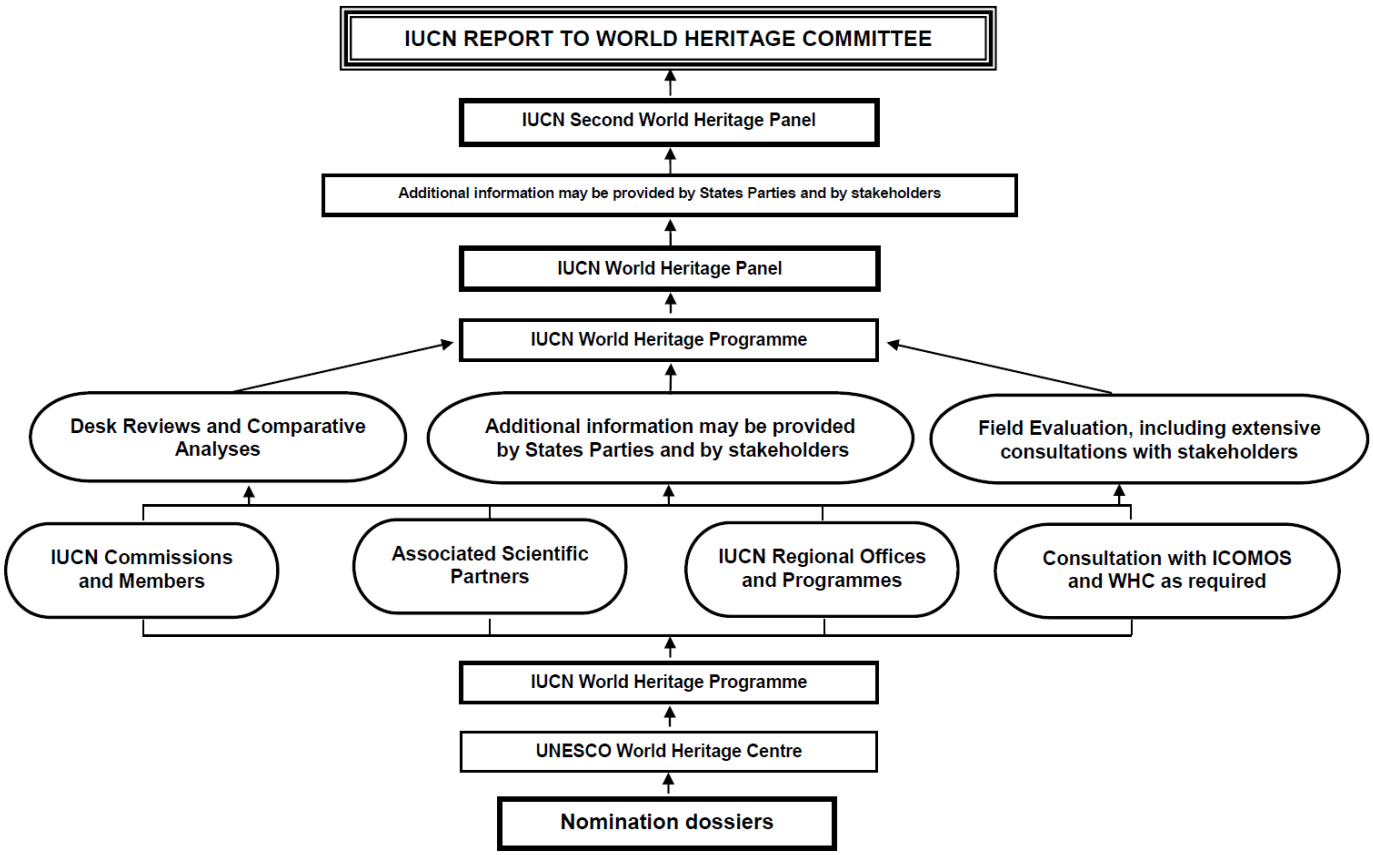
Decision 30 COM 13 of the World Heritage Committee (Vilnius, 2006), IUCN has not taken into consideration or included any information submitted by States Parties after 28 February 2021, as evidenced by the postmark. IUCN has previously noted a number of points for improvement in the evaluation process, and especially to clarify the timelines involved.

The finalisation of this IUCN evaluation report took place following the required calendar for evaluations, and was finalised on 27 April 2022. At the time of finalisation, the new dates of the 45th Session of the World Heritage Committee had not been announced, following its postponement communicated on 21 April 2022. The reports in this evaluation book shall be examined in the upcoming session of the Committee and were finalised based on the statutory deadline of 28 February 2022 for information supplied by the State Party, and thus all information that has been considered dates at the latest from the time of the second and final IUCN World Heritage Panel, held in March 2022.

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 as well as translators. 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

FOREST MASSIF OF ODZALA-KOKOUA

CONGO

Odzala-Kokuoa National Park, Congo © IUCN / Hervé Lethier

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

FOREST MASSIF OF ODZALA-KOKOUA (CONGO) – ID N° 692rev

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To defer the nomination under natural criteria (ix) and (x)

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

Background note: The Republic of Congo submitted a nomination of Odzala National Park, and two other adjacent areas, under criterion (x) in 1994. At the time the park was much smaller (126,000 ha), and with the two adjacent areas ("annexes") the nomination totalled 284,000 ha. At its 19th session in Berlin, Germany, the World Heritage Committee deferred the nomination, expressing concerns regarding the integrity of the annexes, and suggesting that further comparative analysis was necessary, particularly with respect to Ndoki National Park (Decision CONF 203 VIII.A.3) and its broader region. Odzala National Park was subsequently greatly expanded (to 1,179,376 ha), renamed to Odzala-Kokoua National Park, and re-added to Congo's Tentative List in 2008 under criteria (ix) and (x).

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1. DOCUMENTATION

a) Date nomination received by IUCN: February 2021

b) Additional information officially requested from and provided by the States Parties: Following the session of the IUCN World Heritage Panel, a progress report was sent to the State Party on 28 January 2022. This letter advised on the status of the evaluation process and requested supplementary information on a range of points including: (1) any mining concessions in the nominated property, the buffer zone, or outside the buffer zone but adjacent to the nominated property, and maps of any concessions; (2) a summary of national legislation on environmental impact assessment for mining projects, and available environmental impact assessments; (3) written confirmation of the State Party's commitment to cancel mining concessions in the nominated property and in areas excluded from the buffer zone, but adjacent to the nominated property; (4) the type and certification status of logging concessions in the buffer zone; (5) the State Party's willingness to require FSC certification for logging concessions in the buffer zone or outside of the buffer zone but adjacent to the nominated property; (6) information on the ATAMA plantation, and plans for addressing invasive Kudzu; (7) clarifications on local community participation in (a) the decision to nominate the property for World Heritage listing, (b) management of the nominated property; (8) the willingness of the State Party to strengthen participatory management and ensure free prior and informed consent for decisions that might impact their rights or well-being; (9) additional information on measures taken to promote inclusive sustainable development and poverty reduction; (10) the status of the management plan for the nominated property, and the timeline for its completion; (11) prospects for long-term funding; (12) the possibility of reintroducing lions to the nominated property; (13) the possibility of expanding the buffer zone in the future to include the two zones to the northwest of Mbomo and south of Epoma, adjacent to the nominated property. Responses to these requests are noted below.

The supplementary information was provided by the State Party on 28 February 2022. The State Party confirmed the existence of exploratory mining permits in the buffer zone, including a map showing that one mining permit overlaps with the nominated property. The State Party confirmed their commitment to convene an inter-ministerial committee to assess the modalities of this withdrawal in the buffer zone.

c) Additional literature consulted: Various sources, including: Bohm, T. (2015). *Population ecology, conservation status and genetics of the spotted hyena, in the Odzala-Kokoua National Park, Republic of Congo including an assessment of the status of spotted hyenas in Southeast Gabon*, Berlin, June 2015, 192 p.; Bohm , T. (2017). *Projet pose de colliers sur les éléphants, Parc National d'Odzala-Kokoua*, 2016 Rapport annuel, 31 p.; Bohm, T. and H. Hoffer (2018). Population numbers, density and activity patterns of servals in savannah patches of Odzala-Kokoua National Park, Republic of Congo, Final Report of the Field Research Survey. *African Journal of Ecology 56*, 10; Bohm et al. (2019). Enquête sur l'impact de l'extraction de l'or alluvial sur l'environnement dans la périphérie du PNOK, rapport APN, 8pp ;; Broadbent, E.A. et al. (2008). Forest fragmentation and edge effects from deforestation and selective logging in the Brazilian Amazon. *Biological Conservation* 141, pp.1745-1757; Chaplin-Kramer, R. et al (2015). Degradation in carbon stocks near tropical forest edges. *Nat. Commun.* 6, 10158 doi: 10.1038/ncomms10158; Gvozdik, V. et al. (2017). Herpetological survey in the northern Congo with special focus on distribution of crocodiles Report for

the Odzala-Kokoua National Park, 9 p.; Darcis, P. et al (2017). Stratégie de lutte anti-braconnage du parc national Odzla-Kokoua (PNOK) 2017-2019, 20 p. ; Gvozdik V. and A.G. Zassi-Boulou (2014). Sympatry of two species of dwarf crocodile (*Osteolaemus tetraspis* and *O. osborni*) in the Republic of the Congo confirmed by the multilocus genetic approach and morphology, p. 161. In: Hayward, M.W. and M. Somers (Eds.). *1st International Conference on Biodiversity in the Congo Basin. 6-10 June 2014, Kisangani, Democratic Republic of the Congo. Abstracts/Résumés.* Consortium Congo 2010 & Centre de Surveillance de la Biodiversité in Kisangani, 222 p. Oxford : Blackwell Publishing ; Jaeger, T. (2018). Parc national d'Odzala-Kokoua : Un future Site du Patrimoine Mondial ? Situation actuelle et prochaines étapes possibles/Une contribution à l'Initiative pour le Patrimoine Mondial d'Afrique Centrale (CAWHFI) en coopération avec le Ministère de l'Economie forestière, du développement durable et de l'environnement, 51 p. ; Hecketsweiler, P., Doumenge, Ch. and J. Mokoko Ikonga (2010). Le parc national d'Odzala, Congo, IUCN, Gland, Suisse et Cambridge, Royaume Uni. Xvi + 334 p; Henschel, P. (2009). The status and conservation of leopards and other large carnivores in the Congo Basin, and the potential role of reintroduction. In: *Reintroduction of Top-Order Predators*: 206–237; Kouka, L.A. (2006). Étude floristique des forêts du Parc national d'Odzala (Congo-Brazzaville), *Acta Botanica Gallica*, 153,1, 49-81; Kouka, L.A. (2013). Recherches sur la flore, la structure et la dynamique des forêts du Parc national d'Odzala (Congo-Brazzaville), *Acta botanica Gallica*, 149, 2, 225-235 ; Mbete, P. et al. (2010). Evaluation des quantités de gibier prélevées autour du Parc National d'Odzala-Kokoua et leurs impacts sur la dégradation de la biodiversité. Journal of Animal & Plant Sciences, 8, 3, 1061-1069; Sullivan, J.P. et al (2004). *A la découverte des poissons du parc national d'Odzala*. 18 p. ; UICN/PACO (2012). *Parcs et réserves du Congo : évaluation de l'efficacité de gestion des aires protégées*. Ouagadougou, BF: UICN/PACO, 144 p.; Tutin, C. et al. (2007). *Regional action plan for the conservation of chimpanzees and gorillas in western equatorial Africa*. Conservation international, Washington DC, USA, 41 p.

d) Consultations: 6 desk reviews received. The mission was able to meet with representatives from national, provincial and local authorities, including municipalities and civil society, and the national park service. The meetings also included local communities from the surrounding villages and hamlets and representatives of forest companies.

e) Field Visit: Hervé Lethier, 2 to 15 November 2021

f) Date of IUCN approval of this report: April 2022

2. SUMMARY OF NATURAL VALUES

The Forest Massif of Odzala-Kokoua ("Massif forestier d'Odzala-Kokoua" – MFOK) is found in the north of the Republic of Congo, in the departments of Sangha and Cuvette-Ouest, situated between the Batéké Plateau and the northern Congo forests, at the north-western limit of the Congo basin. The nominated property fully overlaps with Odzala Kokoua National Park (OKNP), designated in 1935 but now significantly expanded from 124,000 ha to 1,179,376 ha. MFOK also overlaps with the Ramsar site 'Odzala Kokoua', declared in 2012, which covers 1,300,000 ha and is also a Biosphere Reserve. The nominated property also includes a large buffer zone of 4,206,860 ha consisting of forestry concessions. The nominated property is densely wooded in the northwest, but more open towards the south and east. The south of the nominated property is characterized by extensive forest-savanna mosaic, including gallery forests and dry and swamp savannas.

With respect to criterion (ix), MFOK represents an excellent example, at an exceptionally large-scale of the process of post-glacial forest recolonization of savanna ecosystems. The site is therefore ecologically significant as a convergence point of multiple ecosystem types (Congolese Forest, Lower Guinean Forest and Savanna). It includes extensive areas of very diverse and rare Marantaceae forests (which are important food sources for apes, mandrills and elephants) as well as Zingiberaceae (ginger) forests, lowland swamp forests in the Mambili and Upper Djoua alluvial complexes, as well as drier intermediate forests. Finally, it is home to the Etokou escarpment of saxicolous forests and cloud forests. Thus, the site is exceptionally important for its ecological processes of forest recolonization and because it represents an important confluence of a broad range of ecosystem types.

With respect to criterion (x), the MFOK is a critically important park for Forest Elephant, *Loxodonta cyclotis,* (CR) migrations. The biodiversity case is also strong as one of the most important strongholds for Western Lowland Gorillas, *Gorilla gorilla ssp. gorilla* (CR), and Chimpanzees, *Pan troglodytes* (EN), in Central Africa, and as the park with the richest primate diversity in Central Africa (17 species). The park protects a near-complete assemblage of species, which is increasingly rare in a region much affected by poaching and the illegal wildlife trade. The nominated property also includes a rare population of Spotted Hyenas, *Crocuta crocuta* (LC), normally a savanna species, but which was "captured" by the forest as it expanded.

3. COMPARISONS WITH OTHER AREAS

MFOK is part of the large tri-national Dja-Odzala-Minkébé (TRIDOM) landscape, which covers 10% of the Congo Basin rainforest and includes 11 protected areas extending over 4 million hectares. In this landscape, Dja Faunal Reserve, in Cameroon and Ivindo National Park, in Gabon have already been inscribed on the World Heritage List, and Minkébé Massif, in Gabon was nominated (and referred back to the State Party by the World Heritage Committee, see Decision 29 COM 8B.18) in 2005. The nominated property is to the south of the Sangha Trinational World Heritage property, inscribed under biodiversity criteria (ix) and (x), which is a transboundary complex

of three adjoining national parks including Nouabalé-Ndoki in the Republic of Congo, Dzanga-Ndoki in the Central, and Lobéké National Park in the African Republic Cameroon. As such, the relevant scale for comparisons is Central Africa, and more specifically, whether this site provides additional and distinct values to the existing large parks which already have World Heritage status.

Ivindo National Park (Gabon), inscribed on the World Heritage List in 2021 and also part of TRIDOM landscape, differs significantly from the nominated property in its size, structure and composition. The nominated property is also located in a different forest block than the Sangha Trinational to which the neighbouring Nouabalé-Ndoki National Park is attached, both being more forested and homogeneous. The large size and high level of naturalness of the nominated property are also major assets compared to this transboundary complex. The same is true of the Dja Fauna Reserve (Cameroon), part of the larger TRIDOM Trinational Landscape, which is half the size of the nominated property and which has a significantly different forest typology, while its mammalian species diversity is lower, as is the number of threatened mammal species. Primate diversity is also higher in the nominated property, which hosts larger populations of large animals, particularly great apes and elephants. Finally, the nominated site could be compared with the neighbouring Ntokou-Pikunda National Park, which is being inscribed on the Tentative List of the Democratic Republic of Congo. Created in 2013, this park hosts most of the animal species present in the nominated property, and also a population of Bouvier's Red Colobus (EN) (*Piliocolobus bouvieri*), an endemic (and rare and endangered) species. It differs significantly, however, in the typology of the ecosystems encountered, which consist of numbers of lakes, peat bogs and other wetlands. Its role as a refuge and breeding area for certain species of migratory birds, as well as its hydrological, anthropological and economic values, led to its designation as a wetland of international importance in 2012. It is much smaller in area than the nominated site, hosts a resident population and highly threatened.

In summary, the nominated property is part of the High Biodiversity Wilderness of the Congo Forests (Central Africa) and hosts many threatened and some endemic species which, while not exceptional, are fully representative of the fauna and flora and environmental processes characterizing the geographical region and comparable to existing sites in the region. The nominated property overlaps with an Important Bird Area and Key Biodiversity Area, which is not currently represented on the World Heritage List, and with three overlapping protected areas considered to be amongst the most irreplaceable in the world for mammal, bird and amphibian conservation. Thus, the nominated property ranks as one of the most irreplaceable protected areas on the planet. It is also a wetland of international importance and lies within two freshwater priority ecoregions, one of them the Gulf of Guinea Rivers and Streams.

Located at the confluence of several major biogeographical units within the Congo Basin, the nominated provides a functional ecological link with other protected areas in the region, between which large fauna, particularly elephants, circulate (e.g.: Gabon, DRC, and Cameroon), and, in this respect, occupies a crucial and unique place in the core of the Congo Basin.

IUCN, in collaboration with UN Environment WCMC, has undertaken supplementary comparative analysis, focusing on criteria (ix) and (x), which, in addition to above analysis, confirms that the biodiversity that characterises the nominated property appears to be of global significance under both biodiversity criteria.

Regarding criterion (ix), the nominated property represents a variety of rich ecosystems, including an extensive forest-savannah mosaic. It is found in the Sangha freshwater ecoregion, only represented by one other World Heritage property, Sangha Trinational, in Congo, Cameroon, and Central African Republic. It also lies within two freshwater priority ecoregions. Regarding criterion (x), the vegetation of the nominated property, which includes an extensive forest-savannah mosaic, is highly biodiverse. Its faunal diversity is also high, with the presence of many large and medium-sized mammal species, including the richest primate fauna of Central Africa. Besides gorillas, chimpanzees and elephants, this includes pangolins, grey parrots, dwarf crocodiles and leopards as globally threatened species. Numerous rare and/or endemic plant and animal species are also found. The nominated property also overlaps with an Important Bird Area and Key Biodiversity Area, which is not currently represented on the World Heritage List, and with three overlapping protected areas considered to be amongst the most irreplaceable in the world for mammal, bird and amphibian conservation.

In conclusion, IUCN considers that the nominated property clearly appears to demonstrate global significance under both biodiversity criteria (ix) and (x).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nominated property has a very high degree of integrity given there has been no human habitation in the last 50 years, and the area has never been logged. The faunal assemblages are also nearly complete, with only lions missing from the savanna areas. The high variety of ecosystems within the nominated property also confers higher adaptive capacity, making the park more robust. The park's monitoring reports show that most species are either recovering from past impacts (e.g.: poaching and disease) or stable and that only the lion has been lost from the site. This testifies to the effective protection inside the nominated property, in principle. The nominated property is included in a national park created under Congolese law and all uses and activities are strictly forbidden in the nominated property (core and transition zones of

the park), except those that are fully compatible with the conservation objectives (e.g.: ecotourism).

However, supplementary information provided by the State Party indicates the presence of a mining concession inside the nominated property and in the vicinity of the nominated property (see sections 4.2 and 4.5). IUCN notes with concern the fact that mining concessions can overlap with the national park in spite of its strict protection regime. As mining inside the property is incompatible with World Heritage status, IUCN considers that protection requirements are currently not met.

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

4.2 Boundaries

The boundaries of the nominated property are congruent with the boundaries of Odzala-Kokoua National Park and are clearly delineated, capturing the full extent of the remaining intact ecosystem. The nominated property also benefits from a very extensive buffer zone of about 4.2 million hectares.

However, IUCN notes that the design of this buffer zone is variable given it includes several gaps, including areas with mining projects immediately adjacent to the nominated property and without any protective status. Maps provided by the State Party in supplementary information also indicate the existence of mining concessions overlapping with the nominated property. IUCN considers that, in order to effectively safeguard the currently high level of integrity of the nominated property, the buffer zone should be reconfigured to close gaps and ensure a more consistent approach.

IUCN notes that the buffer zone configuration should be reviewed to eliminate gaps and improve consistency, however, on balance considers that the boundaries of the nominated property meet the requirements of the *Operational Guidelines*.

4.3 Management

The park is managed by the Fondation Odzala-Kokoua (FOK) that was established as a public-private partnership. A management unit handles day-to-day activities under the supervision of the FOK board, bringing together representatives from the government of Congo and its partner, the African Parks Network (APN). The park management unit has a special "development service" that cooperates with the local communities and meets their members on a regular basis; this unit has also direct and regular contacts with the local governmental officials (e.g.: "*préfet*" and "*sous-préfets*") representing the central government locally. It also works with the local administrations responsible for forest, mining and other sectors of activities, and with the private sector. The IUCN field evaluation noted that park staff generally seemed highly motivated and effective.

OKNP is managed through a "Plan d'affaires" and a "Plan d'Aménagement". While the "Plan d'affaires" is valid until 2025, the "Plan d'aménagement" provided in the nomination dossier expired in 2020. The State Party noted in their response to IUCN's request for supplementary information that a management plan is currently being drafted, but as neither a new plan nor a draft for the new plan has been provided in supplementary information, IUCN notes that the nominated property currently does not appear to have a management plan. IUCN considers that the lack of a management plan is a major concern, especially given the large size of the nominated property and high levels of poaching to supply bushmeat markets, which is a serious threat throughout the region (see also section 4.4). This threat is further amplified by access opened up by extractive activity on the periphery of the park, including mining, both artisanal and industrial, and forestry. It is critically important to prevent any encroachment or pollution into the nominated property. Indeed, there are already high levels of mercury found in some of the park's rivers. The absence of a management plan is also a serious concern in light of the well-being of the 60 communities living around the park who experience extreme poverty. While these communities appear currently supportive of the nomination, devising a strategy to improve their livelihoods is critically important, both as matter of equity, and to foster participatory approaches to more effectively manage the nominated property. Finally, without a management plan, it is impossible to effectively implement other critical activities, such as research or development of sustainable tourism in a planned and cohesive manner.

Overall, the information provided does not address all concerns raised in IUCN's interim report (see also section 4.5). Furthermore, IUCN was also not provided with the draft management plan and therefore cannot consider the nomination would meet the requirements of the *Operational Guidelines* in this important respect. The State Party also noted that funding for the park was being secured for the next five years: 50% was already in hand, 23% was being negotiated and 12% was slated to come from the park's revenues. However, it was not clear how long it would take to secure the 23% under discussion or what the timeline would be for the remaining 15% of the budget. The level and sustainability of financial resources needed to manage this very large nominated property therefore remain uncertain.

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

4.4 Community

The nominated property is currently not inhabited. Based on the field evaluation mission and supplementary information provided by the State Party, IUCN notes that local communities appear to

have been consulted (though only through two consultations) and are in favor of the nomination. The field evaluation mission noted that the local communities (about 60) are living under very poor conditions, whose livelihoods are mainly based on subsistence farming and hunting. Frequent human-wildlife conflict, including with forest elephants, complicates their lives further. Addressing the socio-economic needs of these communities in the management plan being drafted, and in fundraising for the park, should therefore be a high priority. As noted above an up to date and effective management plan is essential to protect the values of the nominated property in the context of the surrounding buffer zone and the external pressures and needs of people.

4.5 Threats

The nominated property is very difficult to access and naturally protected due to difficult terrain. As a result, it has not suffered heavily from past illegal activities. However, poaching remains a major concern in the region, and while wildlife populations remain in good condition, this issue nonetheless requires particular attention given extractive activities in the buffer zone (mining and logging) and newly paved roads connecting the northern parts of the country to Brazzaville and bushmeat markets. Community hunting in the buffer zone may also become a matter of concern for some species. The field evaluation mission noted that regulations around hunting are only weakly enforced around the nominated property. Existing laws should be systematically enforced with the aim of limiting hunting pressure on certain species (e.g. small and medium-sized ungulates) and protecting endangered species (e.g. pangolins). The national road N°2, which runs along the Eastern border of the nominated property, is the site of frequent car accidents with wildlife and is reported to be facilitating poaching and illegal trade in wildlife at night; it is regularly patrolled by the parks' rangers and other police services (e.g.: customs, police, gendarmerie, forest administration) but reinforced joint efforts would be needed to reducing pressure on wildlife.

Increasing the support to communities also seems to be a high priority for management. Local communities are suffering from extreme poverty and it is critical that they receive an equitable share of benefits deriving from the nominated property, including better compensation in the event of human-wildlife conflicts. If communities do not receive assistance with sustainable development needs their support for the nominated property could decrease. The supplementary information provided by the State Party provides helpful information on efforts to provide compensation to communities for human/wildlife conflicts, wildlife management techniques to reduce incursions by wildlife and a range of sustainable development programs. However, these may take time to implement, and in IUCN's view it is important that governmental and non-governmental donors help amplify and accelerate these activities.

The supplementary information provided by the State Party with respect to the extent of mining in the buffer zone indicates that there is both artisanal mining and semi-industrial mining. One of the mining concessions, in the southwest of the nominated property, extends into the nominated area according to a map provided. The field evaluation mission also noted that pollution from mining activities has already impacted several rivers through mercury contamination. In supplementary information, the State Party indicated its solemn commitment to convene an inter-ministerial committee to assess the modalities of the withdrawal of the mining permits in the buffer zone. The State Party also submitted a list of laws and decrees government environmental impact assessment, but no information on existing EIAs currently in effect for the mining operations. However, IUCN notes that at the time of writing of this evaluation report mining permits exist in the buffer zone of the nominated property, within a gap in the buffer zone directly adjacent to the nominated property, and within the nominated property itself, according to a map submitted by the State Party in supplementary information. As mining inside World Heritage properties is considered incompatible with World Heritage status, IUCN considers that the apparent presence of a concession inside the nominated property currently precludes any possibility of inscribing the nominated property on the World Heritage List. IUCN also considers that mining permits in the buffer zone and in the vicinity of the nominated property that have the potential to negatively impact the nominated property would need to be revoked.

In addition, logging concessions have been awarded around the entire periphery of the nominated property, covering the entire buffer zone. IUCN notes that according to the supplementary information provided only 27% of the concessions are FSC certified. This makes the extensive extent of the logging (concessions totaling 4.2 million hectares) a significant issue, particularly as logging roads may facilitate access into the nominated areas in previously remote areas. It is also important for the logging companies to fully understand the implications of World Heritage status and to adjust their operations accordingly. Indeed, given the potential impacts of edge effects which have been shown to impact up to two kilometers from a disturbance, leaving a buffer between logging operations and the boundary of the nominated property would be important and beneficial.

The presence of the Atama palm oil concession north of the park, and of the invasive Kudzu plant that has been introduced by this operation was also an issue raised in the supplementary information. The State Party's response suggests that the palm oil concession has been revoked subsequent to an intervention by the FAO arguing against deforestation to allow for a palm oil concession. IUCN welcomes this whilst noting that invasive Kudzu remains a concern as it is a highly adaptable and fast spreading invasive.

In summary, IUCN considers that the nominated property meets integrity requirements, but not protection and management requirements of the *Operational Guidelines*.

5. ADDITIONAL COMMENTS

6. APPLICATION OF CRITERIA

The **Forest Massif of Odzala-Kokoua (Congo)** has been nominated under natural criteria (ix) and (x).

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

The nominated property is densely wooded in the northwest, but more open towards the south and east. The south of the site is characterized by extensive forest-savanna mosaic, including gallery forests and dry and swamp savannas. MFOK represents an excellent example, at an exceptionally large-scale of the process of post-glacial forest recolonization of savanna ecosystems. The nominated property is therefore ecologically significant as a convergence point of multiple ecosystem types (Congolese Forest, Lower Guinean Forest and Savanna). The park includes extensive areas of very diverse and rare *Marantaceae* forests as well *Zingiberaceae* forests, lowland swamp forests in the Mambili and Upper Djoua alluvial complexes, as well as drier intermediate forests. Finally, it is home to the Etokou escarpment of saxicolous forests and cloud forests. The broad range of age classifications across the forest succession spectrum further contributes to the park's highly distinct ecology, incorporating a broad range of remarkable ecological processes.

IUCN considers that the nominated property meets this criterion.

Criterion (x): Biodiversity and threatened species

The nominated property is home to at least 1,150 species of vascular plants, including several endemic and threatened species, 120 species of mammals, 463 birds and 141 fish and therefore comparable to or higher in biodiversity than the other properties on the World Heritage List in the region and ranks in the top 1% in terms of its irreplaceability of its biodiversity globally.

The nominated property is also fundamentally important in a number of other respects besides diversity and endemism. It is one of the most important strongholds for forest elephants in Central Africa, with a population of over 6,000, and more broadly the nominated property is essential to Forest Elephant migrations in the region. The nominated property also ranks as a critical stronghold for Western Lowland Gorillas and Chimpanzees in Central Africa, and is recognized as the park with the richest primate diversity in Central Africa (17 species). It further includes a rare population of Spotted Hyenas, normally a savanna species, but which was ecologically "captured" by the forest as it expanded. Finally, the nominated property also protects a near-complete assemblage of Central African species, which is increasingly rare in a region much affected by poaching and the illegal wildlife trade. The only species confirmed to be absent is the Lion, which was extirpated in the mid-1990s. The State Party confirmed in its supplementary information that lion reintroduction is actively being considered, though plans are not yet finalized.

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/22/45.COM/8B and WHC/22/45.COM/INF.8B2,

2. Recalling decision **19 COM VIIIA.3** adopted at its 19th session (Berlin, 1995),

3. Defers the examination of the nomination of **Forest Massif of Odzala-Kokoua, Congo,** taking note of the significant biodiversity values of the nominated property that are potentially of Outstanding Universal Value, in order to allow the State Party to:

a) Revoke the mining permit overlapping with the nominated property, which is not compatible with the policies of the World Heritage Convention, as well as all mining permits in the buffer zone and vicinity of the nominated property that have the potential to negatively impact the nominated property,
b) Increase the area of the buffer zone that would not be subject to logging regimes to the greatest extent possible in order to reduce any edge effects on the natural systems inside the nominated property, and ensure that all concessions in the buffer zone of the nominated property have received FSC certification, and that they will be strictly controlled and managed without any significant impacts on the potential Outstanding Universal Value of the nominated property,
c) Complete, in consultation with local communities, the new and revised management plan for the nominated property, including actions to prevent poaching and the spread of the invasive Kudzu plant and to submit a copy of the plan with the revised nomination.

Map 1: Location of the nominated property

AFRICA

ANDREFANA DRY FORESTS

MADAGASCAR

Ankarafantsika National Park © IUCN / Frank Hawkins

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

ANDREFANA DRY FORESTS (MADAGASCAR) – ID N° 494bis

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To approve the nomination as an extension under natural criteria (vii), (ix) and (x)

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

Background note: The proposed nomination is a serial extension under criteria (ix) and (x) of the Tsingy de Bemaraha World Heritage property in Madagascar, which was inscribed under natural criteria (vii) and (x) (originally (iii), (iv)) in 1990 at the 14th Session of the World Heritage Committee in Banff, Canada. The boundaries of the existing property were clarified and adopted at the 35th session of the World Heritage Committee in Paris in 2011.

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1. DOCUMENTATION

a) Date nomination received by IUCN: February 2021

b) Additional information officially requested from and provided by the State Party: Following the session of the IUCN World Heritage Panel, a progress report was sent to the State Party on 28 January 2022. This letter advised on the status of the evaluation process and requested supplementary information, firstly on the legal status of the Menabe-Antimena protected area, and whether the State Party was in a position to strengthen protection and management of that protected area to the same level as the component parts in the proposed serial extension; and, secondly, whether there would be a willingness to include Menabe-Antimena as an additional component part to the existing World Heritage property, and if so, what the timeline would be for the submission of such a proposal with all the required elements, in conformity with the *Operational Guidelines*.

Supplementary information was provided on 25 February 2022 in which the State Party recognized the global significance of the Menabe centre of endemism and the potential for future inclusion of protected areas in this region as an additional component or components to this serial site, but noted a range of concerns relating to protection and management, integrity (including a deforestation rate of over 27% from 2000-2017) and boundaries for the protected areas and the need for further public consultations before moving forward. The State Party further noted that the necessary preparations for nominating protected areas from the Menabe-Antimena area would take several years and that it was reluctant to delay the rest of the nomination in the interim.

c) Additional literature consulted: IUCN's previous evaluation consulted a wide array of relevant reference material for the biology, ecology, protection and management as well as the comparative values of the existing property. Further references included: Brinkmann, K., Noromiarilanto, F., Ratovonamana, R. Y., and A. Buerkert (2014). Deforestation processes in south-western Madagascar over the past 40 years: what can we learn from settlement characteristics? *Agriculture, Ecosystems and Environment,* 195, 231-243; Bullock, S. H., Mooney, H. A., and E. Medina (1995). *Seasonally dry tropical forests*. Cambridge, UK, Cambridge University Press; Gardner, C. J., Jasper, L. D., Eonintsoa, C., Duchene, J. J., and Z. G. Davies (2016). The impact of natural resource use on bird and reptile communities within multiple-use protected areas: evidence from sub-arid Southern Madagascar. *Biodiversity and Conservation,* 25(9), 1773-1793. doi:10.1007/s10531-016-1160-4; Janzen, D. H. (1988). Tropical dry forests: the most endangered major tropical ecosystem. In: E. O. Wilson (Ed.), *Biodiversity* (pp. 130-137). Washington, D.C., US, National Academy Press; Leigh Jr, E. G. (2018). Tropical seasonal forest. In: B. T. Fath (Ed.), *Encyclopedia of Ecology.* 2 ed., Vol. 2, pp. 684-691, Boston, Elsevier; Lerdau, M., Whitbeck, J., and H. M. Holbrook (1991). Tropical deciduous forest: death of a biome. *Trends in Ecology and Evolution,* 6, 201-202; Myers, N., Mittermeier, R. A., Mittermeier, C., da Fonseca, G., and J. Kents (2000). Biodiversity hotspots for conservation priorities. *Nature,* 403, 853-858; Patrut, A. et al. (2016). AMS radiocarbon dating of large za baobabs (*Adansonia za*) of Madagascar. *PLoS ONE,* 11(1); Patrut, A., et al. (2015). AMS radiocarbon dating of very large Grandidier's baobabs (*Adansonia grandidieri*). *Nuclear Instruments & Methods in Physics Research Section B-Beam Interactions with Materials and Atoms,* 361, 591-598; Rosenberger, A. L., et al. (2015). Giant subfossil lemur graveyard discovered, submerged, in Madagascar. *Journal of Human Evolution,* 81, 83-87; Terborgh, J. (1992). *Diversity and the tropical rain forest*. New York, Scientific American Library; Yoder, A. D., et al- (2016). Geogenetic patterns in mouse lemurs (genus *Microcebus*) reveal the ghosts of Madagascar's forests past. *Proceedings of the National Academy of Sciences of the United States of America,* 113(29), 8049-8056.

d) Consultations: 6 desk reviews received. The mission was able to meet with Madagascar National Parks (administrative authority), national, regional and park staff, Ministry of Environment and Sustainable Development staff, local community members, co-management committee members, local authorities including mayors and buffer zone committee members, community monitoring teams, members of district and regional administrative authorities.

e) Field Visit: Frank Hawkins, 21 November to 1 December 2021

f) Date of IUCN approval of this report: April 2022

2. SUMMARY OF NATURAL VALUES

The proposed Dry Forests of Andrefana is a serial extension of the Tsingy de Bemaraha World Heritage property and consists of five protected areas including the National Parks of Ankarafantsika, Mikea and Tsimanampesotse, and the Special Reserves of Analamerana and Ankarana. The proposed component parts cover almost the full range of ecological and evolutionary variation within the western forests of Madagascar from north to south, including western dry forests and southwestern spiny forest-thicket, on a north-south continuum from dry to very dry vegetation types. These additional sites are of extreme importance for conservation as they cover centres of dry forest endemism in Madagascar, a Megadiversity Country, and in particular include unique evolutionary lineages (e.g., *Mesitornithiformes*, an order of birds which is 54 million years old) not found in any other World Heritage property.

The nominated serial extension is proposed for inscription under criterion (x) as a new criterion. With respect to criterion (ix), the proposed sites represent centres of endemism resulting from paleoclimatic changes in western Madagascar over millions of years, where changing rainfall patterns led to expansion and contraction of forest ecosystems. Vegetation expansion was also restricted by the physical barriers created by major rivers, which shifted their course over time, and further constrained by changing topography and hydrological systems. The resulting interfluvial centres of endemism are very marked and unique, each with its own, often higher-level (genus or higher) taxonomic representatives.

With respect to criterion (x), the additional component parts contain a spectacular array of endemic and threatened biodiversity, including taxa such as the baobabs, members of the *Didieraceae* succulent plant family, flame trees (*Delonix*), endemic species of lemur, two of the three members of the endemic Malagasy order of the *Mesitornithiformes*, an endemic genus (*Uratelornis*) in an endemic family of birds (*Brachypteraciidae*), and three of the four remaining terrestrial tortoises of Madagascar. The presence of endemic genera, and even families of vertebrates, many of them containing species that are highly threatened, in the proposed component parts is unique among dry forests of the world. The proposed serial additions also include almost one thousand endemic species and sub-species of plants, 156 endemic reptiles, 57 endemic mammals and 34 endemic amphibians.

The Tsingy de Bemaraha World Heritage property was also inscribed under criterion (vii). The State Party notes that the proposed additions do not add further attributes under this criterion. However, the State Party also notes, and IUCN concurs, that future extensions including iconic baobab trees could indeed make further contributions to this criterion.

3. COMPARISONS WITH OTHER AREAS

The comparison provided in the nomination dossier between the Dry Forests of Andrefana and the two other tropical and sub-tropical dry forest World Heritage properties (Cerrado Protected Areas: Chapada dos Veadeiros and Emas National Parks in Brazil and the Area de Conservación Guanacaste in Costa Rica) is appropriate. The comparative analysis notes that the biodiversity and endemism of the proposed serial additions is comparable to these sites for plants, and superior for vertebrates, and that there is clearly no species overlap between them given the nominated property is separated from these other sites by oceans and continents. The presence of endemic genera, and even families of vertebrates, many of them containing highly threatened species, in the proposed serial additions is unique among tropical dry forests globally. The comparative analysis also correctly notes that the proposed additions are among the top dry forest ecosystems in the world in terms of biodiversity and endemism and that dry forests are underrepresented on the World Heritage List. However, IUCN notes that the comparative analysis would have been stronger if it had included some analysis of species composition in existing World Heritage dry forest sites to enable a more specific comparison to the nominated property.

IUCN, in collaboration with UNEP WCMC, has undertaken supplementary comparative analysis on the biodiversity values, concluding that the nominated property is clearly of global significance, based on the spatial analyses and literature review carried out, both with regards to criteria (ix) and (x).

Regarding criterion (ix), IUCN notes that the nominated property belongs to the biodiversity hotspot of Madagascar and the Indian Ocean Islands, and represents Madagascar's dry tropical and subtropical biomes, with western dry forests, southwestern dry forests and dry spiny thickets. It partially lies within the Malagasy Thorn Forest Udvardy Province which is not yet represented on the World Heritage List and that has been recognised as a gap on the List. It also partially overlaps with two terrestrial ecoregions that are not represented on the World Heritage List, the Madagascar spiny thickets and the Madagascar succulent woodlands. Moreover, the property is partially located in the South Malagasy spiny forests Endemic Bird Area, likewise identified as a gap on the World Heritage List.

Regarding criterion (x), IUCN notes that the faunal and floral biological diversity is very rich in the nominated property, especially considering that some component parts have been less intensively surveyed than others. All the component parts are distributed in centres of endemism found in the west of Madagascar. The nominated property also has a high proportion of endemic plant and animal species, including micro-endemics. It also hosts significant numbers of globally threatened species, including Critically Endangered mammals such as the Perrier's Sifaka, *Propithecus perrieri* (CR) and Mongoose Lemur, *Eulemur mongoz* (CR), and birds such as the Madagascar Fish-Eagle, *Haliaeetus vociferoides* (CR).

IUCN further notes that the nominated property overlaps with two Alliance for Zero Extinction sites, five Important Bird Areas and six Key Biodiversity Areas, which are not currently represented on the World Heritage List. The nominated property also partially overlaps with seven protected areas considered to be amongst the most irreplaceable in the world for mammal, bird and amphibian conservation. Furthermore, the Dry Forests of Madagascar, where some component parts of the nominated property are found, has been identified through regional gap studies as a possible priority for new nominations to the World Heritage List in Africa.

In conclusion, IUCN considers that the nomination has made a compelling case demonstrating global significance under biodiversity criteria. This single extension would close several important gaps on the World Heritage List.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

Madagascar benefits from an extensive legal framework for conservation and sustainable development, ranging from the Malagasy Constitution to numerous laws, including a protected areas law (COAP), decrees, ordonnances and national policies, which are listed in the nomination document and included in Annexes. National parks are fully owned by the Government of Madagascar, and managed by Madagascar National Parks, a private foundation recognized as acting in the public interest and operating under the supervision of Madagascar's Ministry for Environment and Sustainable Development (MEDD).

The proposed additions consist of five protected areas including the National Parks of Ankarafantsika, Mikea and Tsimanampesotse (IUCN Category II), and the Special Reserves of Analamerana and Ankarana (IUCN Category IV), each benefitting from its own management plan. Governance mechanisms in the buffer zone are strongly focused on sustainable development approaches with buffer zone management involving a range of community structures and organizations. Communities in buffer zones share in protected area revenues. Protected area staff also enter into traditional agreements (Dinabe) with local communities to govern activities in the park and to provide penalties for infractions. National Parks are usually not inhabited, whilst rights to live in the forest and continue traditional hunting and gathering practices are recognized for Indigenous Peoples as is the case for the Mikea Indigenous Peoples in Mikea National Park.

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

4.2 Boundaries

The boundaries of the proposed additions are congruent with the boundaries of existing protected areas which is appropriate in all cases, and the extensive proposed buffer zones provide substantial protection, and opportunities for co-management and positive engagement with local communities. The boundaries of all the component parts are clearly delineated as are the buffer zone boundaries. Each of the component parts is of sufficient size to ensure an adequate representation of biodiversity values under both biodiversity criteria and their long-term integrity.

With the proposed serial additions, almost all of Madagascar's western dry forest centres of endemism would be represented, with the important exception of the centre of endemism of Menabe-Antimena. The State Party recognizes in its nomination document that this area is the last remaining gap in this serial site, and that an additional component part or component parts from this region would not only complete the series of dry forest centres of endemism, but would contribute to all three criteria ((vii), (ix) and (x)). However, the State Party noted in supplementary information that the protected areas in the Menabe-Antimena centre of endemism do not yet meet the requirements for protection and management, and that further public consultation will be required as protected area status is upgraded. The nomination also notes that additional research is required to assess whether there are any extant mining concessions in the protected areas found in this centre of endemism to avoid having these concessions inadvertently incorporated into new protected areas as existing protected areas are upgraded. Nonetheless, the State Party acknowledges, and IUCN strongly concurs, that including a component part from the Menabe-Antimena centre of endemism as soon as feasible is desirable to further enhance the integrity of the nominated property.

IUCN considers that the boundaries of the nominated property and buffer zones meet the requirements of the *Operational Guidelines*.

4.3 Management

All of the proposed component parts have five-year management plans, which focus on four objectives: (1) conservation, (2) community level sustainable

development, (3) permanent funding for conservation and local community sustainable development and (4) effective management. These are integrated into a system-wide strategic management plan for Madagascar's national protected areas system ("Plan Stratégique de Gestion du réseau d'Aires protégées" or PlanGRAP 2014-2024). The management plans for each of the proposed additions also specify the need to maintain the Outstanding Universal Value of the sites. Madagascar's protected areas also benefit from extensive and standardized monitoring systems, with annual reviews of protected area management assessing threats and achievement of the strategic objectives listed above. In addition, the standardized monitoring software in use also gathers indicators for Outstanding Universal Value for each component part in a serial site.

Madagascar's parks are formally managed by Madagascar National Parks (MNP), but increasingly moving to a shared governance system in partnership with local communities. This is achieved via two mechanisms: (1) Park Support and Orientation Committees (COSAPs), which represent local communities as well as broader stakeholder groups (civil society, municipal, private sector etc.) and provide funding for sustainable development activities, and (2) Local Park Committees (CLPs), which are formed for each local community, and which assist with surveillance and monitoring, and also participate in the process of prioritizing COSAP funding interventions. The high level of effectiveness of these structures was noted during IUCN's field evaluation mission to several of the nominated component parts. As noted, protected area management bodies also enter into traditional agreements (Dinabe) with local communities to regulate activities in protected areas and provide agreed penalties for infractions. Thus, Madagascar is working towards a highly integrated sustainable development management approach with communities, and these mechanisms are often further integrated with regional sustainable development initiatives and projects. However, IUCN notes that there were some concerns arising from the field visits to the effect that youth and women were underrepresented in community management structures, something which would be important to address and strengthen as soon as practicable to ensure fully effective and representative management structures.

Staffing for the proposed additions totals 162 and is supplemented by buffer zone management structures with local communities. However, IUCN notes that the total size of the nominated property is relatively large (734,298 ha in the nominated property, with an additional 838,035 ha in the buffer) and that many of the component parts are remote, with limited vehicular access. Ongoing monitoring of staffing levels is important to ensure they remain adequate.

IUCN notes that budgets seem to have remained stable or increased for most of the nominated component parts between 2016 and 2018, and the Foundation for Protected Areas and Biodiversity of Madagascar recently received a grant of USD 50m. However, the nomination notes that there was a sharp drop in the budget of Mikea National Park. In addition, the budget figures provided in the nomination do not include the years of the Covid-19 pandemic, during which visitation will have dropped significantly, dramatically impacting park revenues. Funding levels are therefore a concern.

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

4.4 Community

The protected areas in the proposed serial additions all have communities in their buffer zones, ranging from a population of almost 40,000 around Ankarana to almost 400,000 for Mikea, and totalling almost 875,000 for all of the component parts. Access to natural resources in the buffer zone, sharing in protected area revenues and benefits from tourism are all of vital importance to these local communities. As noted above, local community-based committees assist with buffer zone management and provide input into park management and these mechanisms seem to be functioning effectively and in close partnership with MNP.

None of the nominated component parts are inhabited, with the exception of Mikea National Park. The Mikea people in Madagascar are the only self-identified indigenous peoples in the country, and have a nomadic, subsistence lifestyle, which is dependent on the maintenance of a healthy forest ecosystem. The Mikea's rights to live in the park in Controlled Occupation Zones and to pursue a traditional subsistence lifestyle are recognized. The field evaluation met with Mikea people who support World Heritage status as a means to ensuring the maintenance of the forest ecosystem they depend on.

The nomination dossier states that the World Heritage nomination was strongly supported (near unanimous support) during the consultation process. The field evaluation mission confirmed that support for the nomination seemed strong, and that the hope was that inscription would spur interest in tourism. Madagascar is a global leader in integrating communities into protected area management and all of the nominated component parts have been in existence for many years so there does not appear to be any friction with local communities regarding the nomination.

4.5 Threats

The nomination provides a thorough and complete assessment of threats and acknowledges that all of Madagascar's protected areas have suffered impacts, in some cases extensively. Significant impacts occurred between 1996 and 2006 and impacts continued up until about four years ago when threat mitigation has begun to yield results. Threats include widespread slash and burn agriculture, burning to renew pasture, agricultural intensification, charcoal

production, bushmeat hunting and the illegal wildlife trade, illegal logging and illegal mining. Invasive species, fire and habitat loss as well as climate change are also threatening integrity. The nomination also documents major threats to each component part, for example, major damage resulting from extensive illegal sapphire mining in Ankarana or burning for pasture in Ankarafantsika. The combination of these many factors led to high rates of deforestation – over 15% in several component parts. However, the nomination notes and the field evaluation mission confirmed that deforestation rates have plummeted between 2006-2016 thanks to effective management and increasingly good relations between MNP and communities, and that ecological restoration efforts are under way in many protected areas. Thus, there seems to be an active and successful effort to address threats, though of course this work, and the ecological restoration, must be maintained going forward.

Notwithstanding a legacy of threats and impact, IUCN considers in summary that the integrity requirements and protection and management requirements of the *Operational Guidelines* are met.

5. ADDITIONAL COMMENTS

5.1 Consideration in relation to serial properties

a) What is the justification for the serial approach?

The serial approach has been chosen as the nomination focuses on a number of geographically distinct, non-contiguous centres of endemism found in dry forests in western Madagascar which evolved in isolation in areas between major river systems. Therefore, IUCN considers that the serial approach of the nomination is appropriate.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the Operational Guidelines?

Each of the component parts represents a distinct and critically important centre of endemism in the dry forests of western Madagascar, each of which includes unique and ancient evolutionary lineages not found in any other World Heritage property. Thus, each component part has a vital role to play in telling the story of the evolution of these dry forest ecosystems. Therefore, IUCN considers that the separate component parts are clearly functionally linked. IUCN notes however, that the Menabe-Antimena area represents an important gap to be expeditiously filled in order to complete the fully ecological and evolutionally story of these forests.

c) Is there an effective overall management framework for all the component parts of the nominated property?

Each of the protected areas of the serial property of the Dry Forests of Andrefana has a five-year management plan, and as a result of the standardized nature of Madagascar National Parks (MNP) planning tools, and to ensure consistency, management plans for each component part have been developed with the same structure and follow the PlanGRAP strategy (see section 4.3). These plans must contribute to the PlanGRAP objectives, which include ensuring “the maintenance of the criteria of Outstanding Universal Value expressed through criteria (vii), (ix) and (x) in compliance with the principle of participation of local communities and sustainable development”. Each development plan and the PlanGRAP are the result of a long process of consultation, negotiation and analysis in each protected area—and across the network—following an assessment with the MIRADI and IEG tools used throughout the MNP network to qualify and quantify indicators of good management. Thus, there is a high degree of integration built into management planning in Malagasy protected areas. However, there does not appear to be a separate document specifically addressing coordinated management of the six component parts (including the Tsingy de Bemaraha). In IUCN’s view, the current arrangements appear nonetheless sufficient in the near term, particularly as Outstanding Universal Value is explicitly addressed in MNP planning. However, a separate integrated management plan for what would become a large, geographically spread serial site would benefit more integrated, harmonized and effective management of the whole property.

6. APPLICATION OF CRITERIA

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

The proposed component parts represent centres of endemism resulting from paleoclimatic changes in western Madagascar over millions of years, where changing rainfall patterns led to expansion and contraction of forest ecosystems. Vegetation expansion and evolution was also restricted by the physical barriers created by major rivers, which shifted their course over time, and further constrained by changing topography and hydrological systems. The resulting interfluvial centres of endemism are very marked and unique, each with its own, often higher-level (genus or higher) taxonomic representatives. This proposed extension greatly expands the coverage of these centres of endemism on a north-to-south continuum of increasing aridity and therefore significantly enhances the values found in the original Tsingy de Bemaraha World Heritage property.

IUCN considers that the nominated property meets this criterion.

Criterion (x): Biodiversity and threatened species

The proposed component parts contain a spectacular array of endemic and threatened biodiversity, including taxa such as the baobabs, members of the *Didieraceae* family, flame trees (*Delonix*), endemic species of lemur, and three of the four remaining terrestrial tortoises of Madagascar. The presence of

endemic genera, and even families of vertebrates, many of them containing species that are highly threatened, in the proposed component parts is unique among dry forests of the world. The proposed serial additions also include almost one thousand endemic species and sub-species of plants, 156 endemic reptiles, 57 endemic mammals and 34 endemic amphibians.

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/22/45.COM/8B and WHC/22/45.COM/INF.8B2,

2. Recalling decisions **CONF.004/13** and **35 COM 8D** adopted at its 14th (Banff, 1990) and 35th (UNESCO, Paris, 2011) sessions respectively,

3. Approves the significant boundary modification of the **Tsingy de Bemaraha Strict Nature Reserve, Madagascar**, to become **Andrefana Dry Forests, Madagascar**, on the World Heritage List, on the basis of criteria (vii), (ix) and (x);

4. Takes note of the following Statement of Outstanding Universal Value:

Brief synthesis

The Andrefana Dry Forests serial property involves four national parks – Ankarafantsika, Mikea, Tsingy de Bemaraha and Tsimanampesotse – and two special reserves – Analamerana and Ankarana. The property represents centres of endemism in the dry tropical and subtropical biomes of Madagascar with its western dry forests and south-western dry thorny forests and thickets that have evolved in isolation on a large, massive island separated from all other land for tens of millions of years. The parks and reserves comprising the property provide a continuum of dry to arid forest formations from north to south, including almost all of the dry forest centres of endemism in western Madagascar. These centres of endemism evolved in isolation as a result of geographic barriers formed by major river systems, and as a result of paleoclimatic changes over millions of years, where changing rainfall patterns led to expansion and contraction of forest ecosystems. The property represents and conserves globally unique ecosystems, habitats and species. Madagascar's long isolation has contributed to the development of a natural laboratory of evolution marked by exceptional biological diversity, one of the highest rates of endemism in the world, and a large number of ancient lineages that have disappeared elsewhere, such as the endemic order of mesites which are about 54 million years old. The Andrefana Dry Forests are essential for the protection of the island's endemic ecosystems and biodiversity, as well as the diversity of evolutionary, ecological and biogeographic systems that have developed in Madagascar.

Criterion (vii)

The Tsingy de Bemaraha Strict Nature Reserve, which has since become a National Park, represents rare or highly remarkable geological phenomena of exceptional beauty. It presents impressive geological elements including karstic scenery with a highly dissected limestone massif, crossed by a deep river gorge, which is the spectacular expression of a stage of evolution of the earth in the form of a "forest of sharp stones" with high limestone pinnacles rising up to 100 metres, forming veritable cathedrals, offering a grandiose, spectacular natural landscape. Further, "the Tsingy" of the limestone plateau forms an unusual feature of outstanding beauty, unique in the world, universally recognized by the effect created by the shades of forest green on metallic reflections of the grey karst "bristles". While not adding additional attributes, the other five component parts of this serial property contribute to the overall natural beauty of the property.

Criterion (ix)

The palaeoclimatic oscillations of the last few million years have had a profound effect on the landscapes and the evolution of the fauna and flora of Madagascar. The Andrefana Dry Forests are a complex product of this process. They have retreated during dry periods; they have expanded during wet periods but with variations deeply linked to the relief with its hydrological network. The centres of endemism that are home to many endemic species and higher taxa are the "interfluves" of the great rivers that have their sources on the highest peaks of Madagascar. The centres of endemism on the western slopes were refugia that captured parts of the hydrological system, allowing animal and plant populations to survive in isolation during dry periods. The Andrefana Dry Forests are distributed over all but one of the western endemic centres. Namely from south to north in the serial property, the endemism centres of Karimbola (Tsimanampesotse National Park), Mikea (Mikea National Park), Melaky (Bemaraha National Park), Sofia (Ankarafantsika National Park), Ankarana (Ankarana Special Reserve) and Vohimarina (Analamerana Special Reserve).

Criterion (x)

Madagascar's different forest types are home to 80% of its endemic species, and the dry forests make a major contribution to this richness. The dry forests are clearly distinct from the humid forests of Madagascar with flagship groups entirely restricted to dry formations such as baobabs, most members of the family Didiereaceae*, flamboyant trees, mammals, birds, reptiles, amphibians, tortoises and more than half of the scorpions. Important species also include the Perrier's Sifaka, and the Mongoose Lemur, the Madagascar Fish Eagle and the Western Woolly Lemur. Within the orders and families endemic to Madagascar, many genera and species are found only in dry forests or thorny thickets. Even more notable are*

the ancient orders of fauna that are endemic to the island, such as the two endemic birds of Mikea, named after a centre of endemism and a cultural group. The presence of endemic genera, and even families of vertebrates, many of them containing species that are highly threatened, in the component parts added in 2022 is unique among dry forests of the world. The additions also include almost one thousand endemic species and sub-species of plants, 156 endemic reptiles, 57 endemic mammals and 34 endemic amphibians.

Integrity

The size of the serial property and its buffer zone, the strict protection status of its component parts, and the north-south continuum they provide, ensure a strong basis for its Outstanding Universal Value. The size of the northern reserves is relatively small but they are set in a local geographical context and their integrity is enhanced by the dry forests of the Andrafiamena-Andavakoera Reserve (IUCN category V) which links the two reserves. The Andrefana Dry Forests serial property includes all the elements necessary for the inclusion of key aspects of the processes essential for the long-term conservation of the ecosystems and the biological diversity they contain. Its component parts represent a series of unique centres of micro-endemism. Each of the property's component parts has pursued a distinct but circumscribed history through the paleoclimatic oscillations of the Quaternary and earlier periods; this history, set in geological time, has had a determining impact on the groups of flora and fauna observed today and has directed evolution in many groups. Each nominated area contains those habitats that maintain the maximum animal and plant diversity that are characteristic of the centres of endemism in which biodiversity is embedded.

The component parts have in the past suffered impacts related to slash and burn agriculture, burning to renew pasture, agricultural intensification, charcoal production, bushmeat hunting and illegal wildlife trade, illegal logging and illegal mining. Invasive species, fire and habitat loss as well as climate change are continuing to threaten the integrity. However, effective management and restoration efforts have been successful in addressing threats, with deforestation rates having plummeted between 2006 and 2016. Nevertheless, these efforts, including ecological restoration, must be maintained.

Protection and management requirements

The Andrefana Dry Forests form a serial property including the Tsingy de Bemaraha Strict Nature Reserve, which was inscribed on the World Heritage List in 1990, and extended in 2022 to include the two Special Reserves of Ankarana and Analamerana and the three National Parks of Ankarafantsika, Mikea and Tsimanampesotse. The six protected areas in this serial property are managed by the Government of Madagascar with Madagascar National Parks. They are officially protected by their respective creation decrees but also by a legal measures starting with the Constitution of the Fourth Republic of Madagascar which underpins the management and conservation of biodiversity at the country level. The network is managed in accordance with the Strategic Plan, which presents the guidelines for the integrated management of properties. These guidelines are set out in the Development and Management Plans of each of the six protected areas and are complemented by a monitoring and evaluation system based on standardised tools, including tools using innovative technologies facilitating the maintenance of the Outstanding Universal Value. The plan is divided into four strategic axes which should ensure (1) conservation, (2) development and sustainable support of communities and stakeholders in conservation, (3) financial sustainability of conservation activities and development of the riparian communities, and (4) effective management of the property.

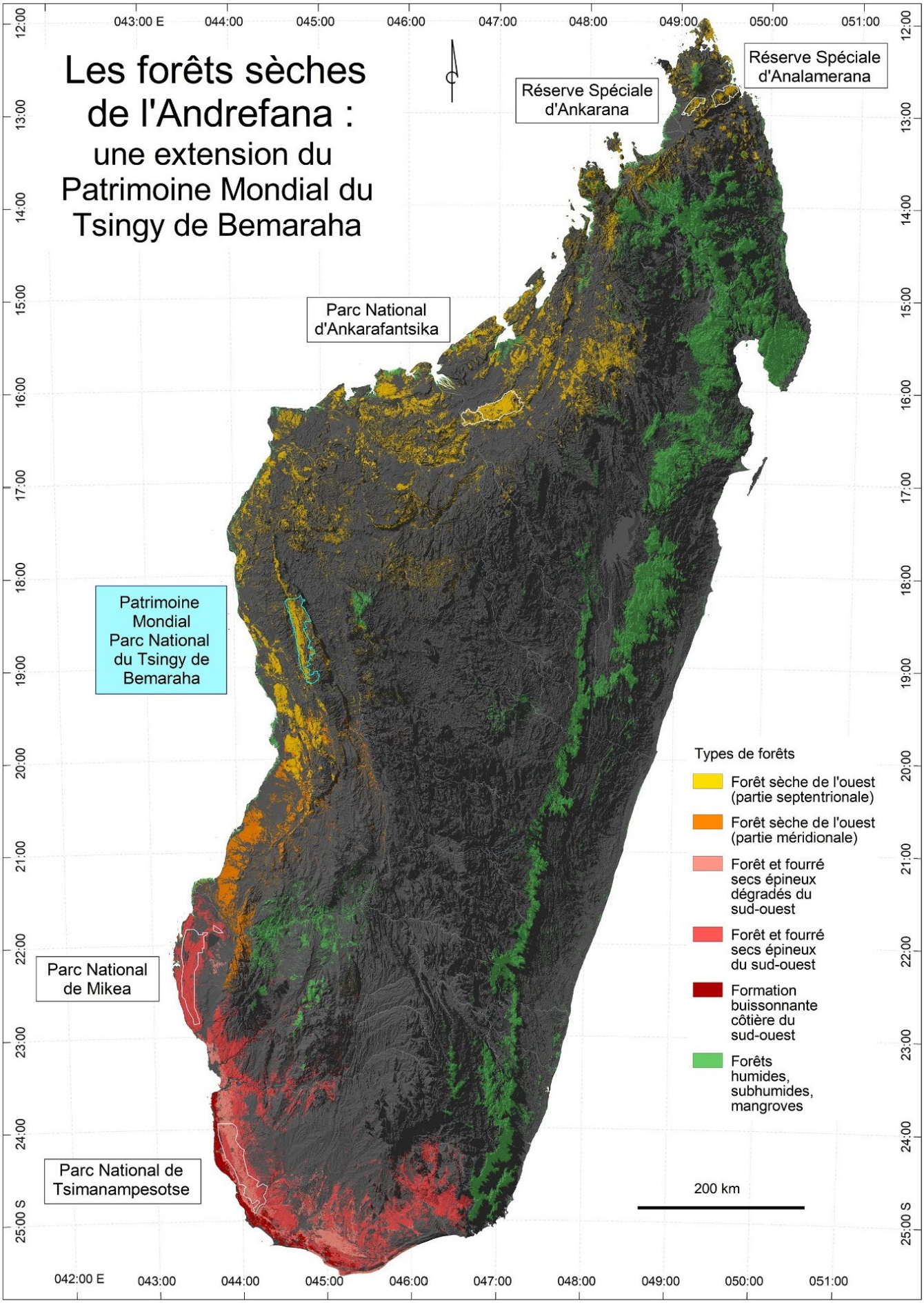
Fire is one of the major pressures facing the Andrefana Dry Forests. Mitigation and monitoring measures based on key indicators are in place to address the pressures identified in the property. It should be recalled that primary forests, even extremely dry ones, are less susceptible to fire than degraded forests and have a much higher resilience.

4. Commends the State Party for its very thorough nomination dossier and also commends its extensive work in integrating local communities into protected area management and ensuring benefit sharing, while noting the need to strengthen wherever possible the full participation by women and youth in community management structures;

5. Strongly encourages the State Party to consider a future addition of suitable component parts of the Menabe-Antimena center of endemism as soon as the identified preparatory measures in compliance with the *Operational Guidelines* are complete, including by increasing the State Party's restoration efforts within Menabe-Antimena, given past degradation and deforestation;

6. Recommends the State Party consider the development of a standalone integrated management plan for the extended property to support more integrated, harmonized and effective management, and to monitor whether staffing levels continue to be adequate for the management of the serial property, and to increase these resources further as necessary.

Map 1: Location of the nominated property



ARAB STATES

AREA OF THE AJGAL DRAGON TREE

MOROCCO

WITHDRAWN

ASIA / PACIFIC

HA LONG BAY – CAT BA ARCHIPELAGO

VIET NAM

Cat Ba Archipelago © IUCN / Ulrika Aberg

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

HA LONG BAY - CAT BA ARCHIPELAGO (VIET NAM) – ID N° 672Ter

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To defer the nomination under natural criteria (vii), (viii) and (x)

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

Background note: Ha Long Bay was first evaluated by IUCN in 1993 with a recommendation that "*the boundaries as presented in the nomination need some adjustment to better encompass the features of World Heritage quality*" and "*added to the site should be the islets adjacent to Cat Ba Island which form part of the National Park but are found in the adjacent province of Haiphong*". Considering the need for boundary modifications, IUCN recommended that "*The Bureau should defer a decision but encourage Vietnamese authorities to consider the above prerequisites for an acceptable nomination*". However, Ha Long Bay was inscribed in 1994 under criterion (vii) (criterion N(iii) at that time), without adjustment to add the islets of Cat Ba. In 2000, Ha Long Bay was re-nominated and inscribed also under criterion viii (then criterion N(i)). In 2013, Cat Ba Archipelago was nominated as a separate property under criteria (ix) and (x). The IUCN evaluation, concluding not to inscribe the nominated property, recommended "*to consider the possibility of proposing an extension of Ha Long Bay, under criteria (vii) and (viii) and possibly criterion (x), to include Cat Ba Archipelago*". The State Party withdrew the nomination on 12 June 2014.

In 2018, an IUCN Advisory mission visited Ha Long Bay finding *inter alia* that the World Heritage values of Ha Long Bay are impacted by the visual and physical effects of waste related to current and projected growth in visitor numbers to the property, that could have significant additional impacts.

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1. DOCUMENTATION

a) Date nomination received by IUCN: February 2021

b) Additional information officially requested from and provided by the States Parties: Following the session of the IUCN World Heritage Panel, a progress report was sent to the State Party on 17 December 2021. This letter advised on the status of the evaluation process and requested supplementary information across a wide range of issues including on boundaries and the rationale for these; legal protection status; planned developments in and around the nominated property; corrected and updated species data; further information on pollution and water quality; human population data and trends; and clarifications on people and community relocations. The supplementary information was provided by the State Party on 25 February 2022.

c) Additional literature consulted: IUCN's previous evaluations consulted a wide array of relevant reference material for the biology, ecology, protection and management as well as the comparative values of the nominated property. Comprehensive reference lists were compiled within IUCN's previous evaluations, which are available as referenced above. Further references included: Hendershott, R. et al. (2018). Home range size and habitat use by Cat Ba Langurs (Trachypithecus poliocephalus) in a disturbed and fragmented habitat. *International Journal of Primatology*, 39, 4, 547-566; Key Biodiversity Areas Partnership. (2022). Key Biodiversity Areas factsheet: Cat Ba. Extracted from the World Database of Key Biodiversity Areas; Leonard, N. et al. (2016). Golden-headed or Cat Ba langurs Trachypithecus poliocephalus poliocephalus (Trouessart 1911) Vietnam. In: Schwitzer et al. (eds). *Primates in peril: The world's 25 Most Endangered Primates 2016-2018*; Long, T.H. et al. (2020). Structural characteristics of natural limestone forests in cat ba biosphere reserves, Vietnam. *Annual Research & Review in Biology*, pp.161-172; Mai, T. and C. Smith (2018). Scenario-based planning for tourism development using system dynamic modelling: A case study of Cat Ba Island, Vietnam. *Tourism Management*, 68, 336-354; Milto, K.D. et al. (2013). Two new rhacophorid frogs from Cat Ba Island, Gulf of Tonkin, Vietnam. *Russian Journal of Herpetology*, 20, 4, 287-300; Ngai, N.D. et al. (2015). Biological community in submerged caves and marine lakes in Ha Long-Cat Ba area, Vietnam. *Journal of Life Sciences*, 9, 541-548; Ngo, H.N. et al. (2016). First population assessment of two cryptic Tiger geckos (Goniurosaurus) from northern Vietnam: Implications for conservation. – Amphibian and Reptile Conservation 10, 1: 34-45; Ngo, H.N. et al. (2019a). First record of the Cat Ba tiger gecko, Goniurosaurus catbaensis, from Ha Long Bay, Quang Ninh Province, Vietnam: Microhabitat selection, potential distribution, and evidence of threats. *Amphibian and Reptile Conservation*, 13, 2, 1-13; Ngo, H.N. et al. (2019b). A case study on trade in threatened Tiger Geckos (Goniurosaurus) in Vietnam including updated information on the abundance of the Endangered G. catbaensis. *Nature Conservation*, 33, 1-19; Nguyen,

T.Q. et al. (2018). The reptile fauna of the Cat Ba Archipelago: An unique biological resource with a high level of local endemism and important conservation significance. In: Proceeding of a scientific workshop on "Values and Solutions to conserve biodiversity in Ha Long Bay and Cat Ba Archipelago", IUCN Vietnam, Gland, Switzerland: IUCN: 124 pp; Pham, V.V. et al. (2020). The Presence of IUCN Red List Tree Species in Dependence of Site Characteristics in the Vietnamese Cat Ba National Park. Diversity, 12, 3, 104; Pham, V.V. et al. (2022). Tree regeneration characteristics in limestone forests of the Cat Ba National Park, Vietnam. *BMC Ecology and Evolution*, 22, 1, pp.1-27; Phan, D.T. et al. (2014). Population status of the Southwest China serow Capricornis milneedwardsii: a case study in Cat Ba Archipelago, Vietnam. *Pacific Conservation Biology*, 20, 4, pp.385-391; Phan, T.D. et al. (2016). A systemic approach to understand the conservation status and viability of the critically endangered Cat Ba Langur. *Systems Research and Behavioral Science*, 33, 6, pp.742-752; Phuong, T.H. et al. (2013). Geoheritage values in the Cat Ba islands, Vietnam. Environmental Earth Sciences, 70, pp.543-548; Tatarski, M. (2019). On one island, a microcosm of Vietnam's environmental challenges: Cat Ba Island, off Vietnam's northeast coast, hosts a vast array of flora and fauna, including one of the rarest primate species in the world. Mongabay Series: Global Forests, Mongabay, 22 April, 2019; Tri, D.Q. et al. (2015). Application of environmental sensitivity index (ESI) maps of shorelines to coastal oil spills: a case study of Cat Ba Island, Vietnam. Environmental Earth Sciences, 74, 4, pp.3433-3451; Van, Q.N. et al. (2010). Landscapes and ecosystems of tropical limestone: Case study of the Cat Ba Islands, Vietnam. *Journal of Ecology and Environment*, 33, 1, pp.23-36; Vietnam Plus (2020). Rescuing Cat Ba Skybirds - Protecting the World Biosphere Reserve, Part 1, 30 Nov. 2020, Part 2, 1 Dec. 2020, Part 3, 2 Dec. 2020; Vietnam Plus. (2020). Request Hai Phong to check and handle the problem of "extermination" of Cat Ba sky birds, Part 4, 4 December 2020; Williams, P. (2008). *World Heritage Caves and Karst*. Gland, Switzerland: IUCN. 57pp.

d) Consultations: 11 desk reviews were received for the 2014 evaluation of "Cat Ba Archipelago" (Viet Nam) and 10 desk reviews for this proposed extension of Ha Long Bay. The mission was able to meet with representatives of the UNESCO Office in Hanoi and the Viet Nam National Commission for UNESCO; leaders of the Ministry of Culture, Sports and Tourism; representatives of the Department of Foreign Affairs; representatives of the Bureau of Cultural Heritage; leaders of the Hai Phong City People's Committee; leaders of Quang Ninh Province; the Management Board of Cat Ba Archipelago; the Management Board of Ha Long Bay; the Management Board of Cat Ba Archipelago Biosphere Reserve; leaders of Cat Hai District People's Committee; representatives of the Institute of Marine Environment and Resources; representatives of Cat Ba National Park; NGOs, Viet Hai Commune representatives and civil society associations.

e) Field Visit: Ulrika Åberg, 29 October to 5 November 2021

f) Date of IUCN approval of this report: April 2022

2. SUMMARY OF NATURAL VALUES

The present nomination constitutes both a re-nomination of the already inscribed Ha Long Bay (henceforth referred to as HLB) under all four natural criteria (vii-x), and an extension of the area of HLB to incorporate the adjacent Cat Ba Archipelago (henceforth referred to as CBA) in the property. HLB is currently inscribed under criteria (vii) and (viii) and the nomination dossier argues that the extension to include CBA would add similar and complementary values under criteria (vii) and (viii). The nomination proposes natural criteria (ix) and (x) to apply to both HLB and CBA. Therefore, IUCN evaluates in the present report whether CBA would add value under criteria (vii) and (viii) to the existing property of HLB, and whether HLB and CBA together would meet criteria (ix) and (x).

The proposed extension, comprising HLB and CBA, is located in the Gulf of Tonkin in the north-east of Viet Nam, 165 km east from Hanoi, and is part of the Indochinese rainforest biogeographical province. It covers a total of 65,650 ha of which 43,300 ha constitute the HLB World Heritage property in Quang Ninh Province, a marine area studded with 775 islands. The nominated property, being the CBA extension in Hai Phong City Province, covers 22,250 ha, encompassing a marine area with 358 islands as well as a larger contiguous landmass of approximately 13,000 ha on Cat Ba Island. The highest point within the nominated property is Cao Vong Peak (322 m a.s.l.), located in the north of Cat Ba Island. The lowest point is 39 m below sea level, located in the Lach Van channel east of Cat Ba Island.

The proposed extension is comprised of a multitude of vegetated limestone islands and towering limestone pillars rising from the sea, with associated eroded notches, arches and caves, which present a very picturesque and beautiful landscape (criterion vii). HLB is inscribed as one of the most extensive and best-known examples of marine-invaded tower karst in the world. The proposed extension of HLB to include CBA would comprise examples of all the stages of the process of sea-inundation of tropical karst, from hanging karst depressions with tropical forests, to areas of Fengcong (clusters of conical peaks) and Fenglin (isolated tower features) karst with marine lakes gradually merging into the open sea (criterion viii). Marine lakes are, geologically speaking, short lived special phenomena where depressions become permanently inundated by the sea before either drying up or erosion re-connects them with the sea. Some 138 marine lakes have been mapped in HLB-CBA, which is about one-third of all marine lakes in the world. Many good examples of both enclosed and semi-enclosed marine lakes are located within the nominated CBA extension. While HLB shows the later stages of the sea-inundation process, CBA provides

examples of the earliest stages of the process and of what the karst looked like before inundation started. The presence of a wide (and still not fully understood) diversity of freshwater swamps in valleys on Cat Ba Island further adds to the karst inundation story. The proposed extension includes three main types of caves, ancient marine notch caves, old karstic foot caves and notch caves.

The nomination dossier outlines seven key ecosystem types (criterion ix): tropical rainforest; mangrove forest; caves; marine lakes; tidal flats; soft bottom ecosystems; and coral reefs. It highlights a gradient and transgression of habitats from forest covered limestone hills and karst valleys, down to the submerged karst plains. The CBA extension also encompasses some of the few remaining freshwater swamps within this ecosystem.

The proposed extension, and particularly the CBA, is home to a wide range of marine and terrestrial species, including a large number of plants (criterion x). Among these are some threatened endemic species such as the Cat Ba Langur (*Trachypithecus poliocephalus*, CR) and the Cat Ba Tiger Gecko (*Goniurosaurus Catbaensis*, EN). Other threatened species include the Keeled Box Turtle (*Cuora mouhotii*, EN), the Asian Small-clawed Otter (*Aonyx cinerea*, VU), the Mainland Serow (*Capricornis milneedwardsii*, VU) and the King Cobra (*Ophiophagus hannah*, VU). There are also at least 29 species of land snails, 3 spiders, 1 cave crab and 1 amphibian.

3. COMPARISONS WITH OTHER AREAS

The comparative analysis provided in the nomination dossier compares the nominated property with two natural World Heritage properties against criteria (vii) and (viii) and to seven natural properties against criteria (ix) and (x). The basis for selecting comparable sites is very broad, including marine and terrestrial World Heritage properties inscribed under natural criteria, and natural properties that have at least one criterion (vii, viii, ix, or x) in common. Comparison has only been made to inscribed World Heritage properties. IUCN notes that the comparative analysis is largely a repetition of the analysis provided in the 2013 nomination dossier presenting CBA as a standalone site. In its evaluation at that time, IUCN noted inadequacies in this comparative analysis relating to inaccurate species data and the choice of sites compared. IUCN notes that these earlier concerns have again not been addressed in the present nomination dossier. The choice of several properties for comparison does not appear to be convincing as they bear little resemblance to HLB-CBA, or are not compared based on their criteria.

Regarding criteria (vii) and (viii), IUCN also notes that the two World Heritage properties selected for comparison under these criteria were also included in the 2013 analysis, however, at that time they were compared against criteria (ix) and (x). The comparison with the World Heritage property of Phong Nha - Ke Bang (Viet Nam), inscribed under criteria (viii), (ix) and (x), focuses on species, habitat diversity and threatened species, with no comparison made regarding the geological or geomorphological values. Similarly, the comparison with the World Heritage property of Rock Islands Southern Lagoon (Palau), inscribed under criteria (iii), (v), (vii), (ix) and (x), focuses on species and habitats, but does not touch upon natural beauty. Several desk reviewers also noted that values under criteria (vii) and (viii) are not sufficiently dealt with in the comparative analysis. Nevertheless, based on the description in the nomination dossier, literature, desk reviews and the field evaluation mission, the proposed extension would appear to add value to HLB through the addition of vegetated limestone islands and towering limestone pillars completing the similarly picturesque and spectacular seascape of HLB under criterion (vii). Under criterion (viii), CBA would appear to complete the stages of the process of sea-inundation of tropical karst through examples of the terrestrial and intertidal stages. However, IUCN notes concerns regarding the protection and management of the nominated property and threats to its values under criteria (vii) and (viii) in section 4.

Regarding criteria (ix) and (x), the nominated property is compared to seven World Heritage properties, however, many of these do not seem relevant to the values of the nominated property. The comparison with the Shiretoko World Heritage property (Japan), inscribed under criteria (ix) and (x) is not convincing as biological richness in this property is largely influenced by sea-ice and therefore bears no resemblance to the tropical/sub-tropical environment of HLB-CBA. The World Heritage property of Thungyai-Huai Kha Khaeng Wildlife Sanctuaries (Thailand), inscribed under criteria (vii), (ix) and (x), is also included in the comparative analysis but this property is principally an inland forest ecosystem with a very different ecological context. The Ogasawara Islands World Heritage property (Japan), inscribed under criterion (ix), consists of an isolated volcanic North-Western Pacific island group with little ecological or habitat similarity to HLB-CBA.

Furthermore, IUCN notes that the information on the size and importance of mangrove forest within the nominated property is inaccurately portrayed. Supplementary information provided by the State Party has confirmed that only 10.34 ha of mangrove forest exists within the nominated property, and not up to 650 ha as indicated in the nomination dossier. IUCN notes that several other key habitats presented to illustrate a continuous ecological transgression are degraded by human activities or only exist in small areas (see section 4.5). Moreover, in its 2014 evaluation of the standalone CBA nomination, IUCN argued that claims on the transgression of ecosystems from terrestrial to marine, are not a valid argument and merely demonstrate that there is habitat diversity within the nominated property. All the endemic plant species listed in the 2014 nomination dossier of CBA, except for one, are put forward again in the current nomination; however, the 2014 IUCN evaluation found that only a few species were truly endemic to the Cat Ba – Ha Long landscape. IUCN recalls that the CBA nomination in 2013 did not make a convincing case

under criterion (ix) as much of the species data was inaccurate with no case for CBA being made as a centre of endemism or evolutionary processes in insular systems. IUCN notes that the species data in the current nomination dossier remain inaccurate and do not provide evidence for outstanding endemism or evolutionary processes. The nominated extension of HLB to include CBA has not strengthened above arguments. In summary, there does not appear to be a case for criterion (ix).

IUCN concluded in its 2014 evaluation that HLB and CBA together might have potential to meet criterion (x), but requiring further study. Comparative analysis undertaken in 2014 by UNEP's World Conservation Monitoring Centre (UNEP-WCMC) in conjunction with IUCN noted that CBA appears to have a higher overall biodiversity compared to the adjacent HLB, especially in regards to terrestrial species. However, monitoring data, including abundance and distribution, was not provided in the 2013 nomination dossier for most species. The populations of Cat Ba Tiger Gecko and Mainland Serow are considered to be probably too small to be viable and the current Cat Ba Langur population is small, estimated to count about 65-70 individuals. Several marine species were also indicated as being on the brink of local extinction, including bivalves and crustaceans. Based on desk reviews of the current nomination and peer-reviewed journal articles, IUCN finds that up to 25% of the mammals listed in the nomination dossier (excluding bats) are not considered to exist within the nominated property, including Chinese Pangolin (*Manis pentadactyla*), Asian Golden Cat (*Catopuma temminckii*), Masked Palm Civet (*Paguma larvata*), Large Indian Civet (*Viverra zibetha*) and Eurasian Otter (*Lutra lutra*). Among marine species, it is highly unlikely that Leatherback Turtles (*Dermochelys coriacea*) are present.

In conclusion, IUCN considers that CBA would have potential as an extension of HLB under criteria (vii) and (viii). IUCN further considers that the nominated property appears to also have potential under criterion (x); however, the case for criterion (x) would need to be demonstrated based on accurate species data for both CBA and HLB.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The entire area of the nominated property is state-owned. Some agricultural areas exist within the nominated area on Cat Ba Island, for example in Viet Hai commune, but the state, via Hai Phong province, exercises control over these areas. The CBA extension encompasses most of Cat Ba National Park (IUCN Category II), which is a legally protected area. However, the field evaluation mission and supplementary information, including maps provided by the State Party, confirm that the nominated area also includes areas outside the National Park boundaries, on Cat Ba Island as well as the Long Chao island group.

Both HLB and CBA are designated as "National Special Scenic Sites" and the terrestrial areas of the two sites are classified as "Special-use forest". The HLB Management Board is currently in the process of developing a Marine Protected Area (MPA) for the site. HLB-CBA is also protected by a number of laws and decrees including the Cultural Heritage Law, Law on Forestry, Law on Biodiversity, Fisheries Law, Law on Environmental Protection and Tourism Law. Activities that could have significant impact on the Sites must have official approval from the Ministry of Culture, Sports and Tourism, along with other relevant ministries. In supplementary information, the State Party noted that the buffer zone is subject to the Law on Cultural Heritage and that development projects must be approved by the Ministry of Culture, Sports and Tourism. IUCN notes however that large scale tourism resorts and other development projects have been constructed in the buffer zone of HLB and new tourism developments are planned in or directly adjacent to the buffer zones of both HLB and CBA.

The fisheries law in HLB was strengthened in 2018, limiting boat sizes and banning damaging fishing methods as well as aquaculture in marine lakes. Despite some issues, overall there seems to be sufficient national legal protection in place, at least for parts of the proposed extension, such as the area protected by the Cat Ba National Park and the islands in HLB. However, the field evaluation mission, supported by research and publications referenced in section 1 c) above, found law enforcement, especially for poaching and illegal resource extraction, to be ineffective.

Maps provided in supplementary information also indicate that there are gaps in the protection of CBA (see also section 4.2). The protection status of the Long Chao Island group is not clear apart from the fact that it is controlled by the military. Therefore, IUCN considers that it is not clearly demonstrated that the protection status of the nominated extension outside the Cat Ba National Park can assure the protection of the nominated property from social, economic and other pressures or changes that might negatively impact natural values. Specific regulations and enforcement need to be strengthened, especially for tourism, development, poaching, conservation of rare and threatened species, aquaculture, fisheries, forest protection (see section 4.5).

In order to ensure the future integrity of the nominated property, IUCN considers that Cat Ba National Park would need to be expanded to ensure important values in nominated areas outside the national park are adequately protected.

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

4.2 Boundaries

For HLB, the boundaries would remain the same except along its western border where the core area is extended to the west covering Cat Ba Island and its archipelago and Lan Ha Bay, as well as Long Chau to the south. Some minor changes have also been introduced to its boundary south of Dau Be island group.

Concerning the CBA extension, the boundaries would encompass about half of Cat Ba Island and most of Cat Ba National Park. Cat Ba National Park includes three zones: a strictly protected zone, an administrative zone and a restoration zone. However, some areas of importance to protect rare, endemic and threatened species are not located within the strictly protected zone. HLB has recently dedicated five areas as strictly protected, where fishing and tourism activities are prohibited, but no other zonation scheme appears to be in place in HLB.

Furthermore, supplementary information confirms that the boundaries of the nominated property and the national park do not align (see section 4.1), nor do they align with the boundaries of the UNESCO Biosphere Reserve. The proposed boundary crossing Cat Ba Island does also not align with any existing protected area boundary and does not seem to follow any natural boundary. The boundary is in parts located within the National Park and in parts outside, the latter argued in the supplementary information to encompass values of on-going limestone processes and significant ecosystems, as well as the distribution areas of the Cat Ba Langur, located outside the National Park boundaries. As noted in section 4.1, this indicates in the view of IUCN the need to expand the area of the national park to include these important areas to ensure their strict protection.

The buffer zone, especially on Cat Ba Island, does not appear to serve as effective layer of protection for the nominated property from development or other use (see section 4.5). IUCN considers that some areas, including mangrove forests in Phu Long should be added to the buffer zone as an added layer of protection, especially to facilitate better protection for threatened bird species. The legal protection status of the buffer zone would also need to be strengthened in accordance with the *Operational Guidelines*.

In order to meet integrity requirements, the boundaries of the nominated property would need to align with an enlarged national park to ensure the boundaries comprise all attributes subjecting them to an effective protection of the nominated area from the direct effects of human encroachments and impacts of resource use outside of the nominated area (see section 4.5), as well as to support workable on-the-ground management through easy to identify boundaries.

IUCN considers that the boundaries of the nominated property and buffer zones do not meet the requirements of the *Operational Guidelines*.

4.3 Management

The Ministry of Culture, Sports and Tourism is directly responsible for conservation of the nominated property. However, since the National Park included within the nominated property (Cat Ba National Park) is located in only one province it is managed at that level of authority and not at national level. At the provincial level, HLB is under the administration of the Quang Ninh Province People's Committee and CBA under the Hai Phong City People's Committee. Locally, HLB is managed by the HLB Management Board and CBA by the CBA Natural Heritage Management Board. Within CBA, the Cat Ba National Park, Cat Ba Bay and the Cat Ba Biosphere Reserve are managed by the respective Management Boards. Evidence of some cooperation between the management of the two areas was established by the field evaluation mission.

A management plan for HLB-CBA covering the period 2021-2025 was included in the nomination dossier. It describes the characteristics and values of the nominated property and includes a list of legal documents, guidelines, decisions, decrees and resolutions at central and provincial level that apply to the nominated property. It also outlines the provisions of some major laws, such as the Cultural Heritage Law, Law on Forestry, Law on Biodiversity, Fisheries Law, Law on Environmental Protection and Tourism Law, as well as roles and responsibilities. Most pressures are well described with a good overview of the situation, however, measures to address these do not appear to be sufficient to address threats from poaching and tourism.

In contrast to the nomination dossier, which emphasises the terrestrial values of the nominated property, the management plan is very much focused on marine areas. The Management Plan does not demonstrate any clear institutional arrangements for biodiversity conservation or commitment to conserve or monitor terrestrial species other than the Cat Ba Langur. The action plan for 2021-2025 is based on tourism and the marine part of the nominated property (managing tour boats, fishery, aquaculture and marine habitats), with no actions specified for terrestrial protection or management. Tasks listed are dominated by the promotion of tourism for HLB and renovating and embellishing infrastructure in CBA. The nominated property does not have a separate tourism management plan.

Funding from the provincial governments and staffing seems to be sufficient for both HLB and CBA, but there is a need for more technical equipment that can be applied in the protection of the sites and training in how to use these, as well as capacity building and increased authorities to enforce the law. Main funding sources for the nominated property are central and local state budgets, revenues from ticket sales and service provision, as well as some sources from inhabitants. Monitoring, protection and conservation of the Cat Ba Langur is largely dependent on international funds.

In conclusion, IUCN considers that the inter-provincial management of the nominated property could be strengthened by a joint Management Board for the whole HLB-CBA nominated property. More collaboration around strategic conservation and protection measures, species monitoring and actions to combat major threats are also needed to enhance management, in addition to a joint sustainable tourism management plan based on ecological carrying capacity analysis for the entire nominated property.

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

4.4 Community

The IUCN field evaluation mission was informed that there is currently a large relocation scheme being implemented in CBA to move aquaculture and floating villages out of the core zone of Cat Ba National Park. In 2021, there were 1,298 people living in 516 floating houses, subsisting on aquaculture. In total, information provided by the State Party indicates 80% of the population will be relocated, leaving 260 family members to continue aquaculture in designated areas. In addition to the relocation of floating villages, the Management Plan provided as part of the nomination also mentions some people being relocated from the core area of the Cat Ba National Park. The field evaluation mission met with some selected people from Viet Hai commune but did not meet resident populations within the floating villages.

In HLB, all of the previously existing floating villages (about 2,000 people) within the property have already been removed and IUCN understands residents were resettled on the mainland. A small number (c.10%) have been employed within the tourism industry to row small tourist boats and showcase traditional culture. According to the nomination dossier, the reason for the resettlement was to minimise the impact on the environment.

The field evaluation mission, confirmed by peer-reviewed literature referenced above in section 1 b), understood that local people seemingly benefit very little from tourism including from large-scale tourism developments constructed or from the cruises in the bay. However, IUCN also notes some convincing examples of benefit sharing, such as the community-based farm stay in Viet Hai village in the nominated property.

The supplementary information provided by the State Party of Viet Nam notes that 422 out of 440 owners have signed a commitment to removing their premises. It outlines the financial compensation scheme and confirms that resettlement assistance has been granted to 127 people as of 31 December 2021. According to the supplementary information, the reasons for the relocation of people are to: 1) protect the environment from sediment- and organic pollution, 2) not hinder transportation in and out of harbours, and 3) reduce the “untidy and disordered scenery in the eyes of visitors, for them to not have a bad impression on CBA”.

While IUCN has not received any direct representations or objections from local communities, IUCN notes with concern that the information obtained in the course of the evaluation process, including the information provided by the State Party, does not demonstrate that local communities have been appropriately consulted and given their free, prior and informed consent to the relocation and its conditions.

4.5 Threats

Both HLB and CBA are subject to several current threats, which are likely to be exacerbated in future. The impact of mass tourism has been a recurring topic in the State of Conservation reports of HLB since 1995, which was reconfirmed by the 2018 Advisory mission. Similar concerns exist for the integrity of CBA which has already been affected by human activities significantly impacting forests, limestone cliffs, caves, marine lakes, tidal flats and corals, shrinking these ecosystem types to small areas. Past logging, landscape fragmentation and poaching on Cat Ba Island have impacted species abundance and distribution in the forest. Caves have been impacted by tourism activities with some caves receiving up to 10,000 visitors per day. Aquaculture and impoundment has affected marine lakes. Several unique and important karst habitats in the area have reportedly already been converted into tourist resorts. The majority of tidal flats within the nominated property are smaller than 0.5 ha in size. The field mission also noted concerns regarding the state of corals, views supported by peer-reviewed literature.

Overexploitation of marine resources, poaching for food, medicinal and commercial purposes impacts many species, such as macaques, porcupines, civets, squirrels, turtles, snakes, frogs and birds. Hunting has brought the Mainland Serow to the brink of local extinction, with only some 20-25 individuals remaining on Cat Ba Island and has caused a dramatic 97% population decline of the Cat Ba Langur since the 1960s, although conservation efforts have halted langur poaching in recent years. Other terrestrial resources exploited include timber, fuel wood, honey, bamboo shoots, edible roots, ornamental and medicinal plants, while some rare species of the limestone forest, such as the Cat Ba Gecko and Keeled Box Turtle, are subject to overexploitation to supply international pet trade.

Waste and pollution from tourism and industry is negatively impacting the nominated property. Some measures are being taken by the State Party through the introduction of new wastewater management systems, treatment of wastewater from tourist boats, solid waste collection and water quality monitoring. However, no improvements in water quality have so far been detected, possibly due to continued discharge from industry and fishing boats, tankers and cargo ships passing through the nominated property, as well as the discharge of several large rivers into the bay

area. Accumulation of pollutants in sediments and organisms is relatively high. In addition, marine values are also affected by turbidity and anchoring of boats, habitat destruction, and release of non-native and invasive species.

Therefore, IUCN considers that the integrity of HLB and CBA is currently under serious threat. In addition, IUCN notes with concern that the prospect of further large-scale tourism development will likely compromise the integrity of the proposed extesnion further. Before the COVID-19 pandemic, CBA has already received 2.5-2.7 million visitors per year. Hai Phong City People's Committee expects to increase the number of visitors to 3.7 million by 2025, with a long-term vision of 10.4 million visitors by 2050. HLB received 4.4 million tourists in 2019, and after the pandemic, this number is projected to grow as well. Over 1,000 tour boats are already operating within the nominated property. Especially tour boats organising parties, including by night, are evidently causing noise pollution and disturbance of night habitats for the Cat Ba Langur, which sleep on the cliffs by the sea. However, three new sightseeing routes are being planned in HLB, to areas within the Bay that are not yet highly exploited by tourism. Nevertheless, in its supplementary information, the State Party has confirmed that Haiphong City authorities shall coordinate with the counterpart of Quang Ninh province in undertaking a common carrying capacity study for both HLB and CBA.

The supplementary information provided by the State Party confirms that large-scale projects are in the planning stage, including a golf course and the Amatina project on Cat Ba Island as well as the Domino project in the buffer zone of HLB. While the Amatina project is awaiting approval of the Environmental Impact Assessment (EIA) from the Ministry of Natural Resources and Environment, the Domino project and the golf course are yet to submit EIAs. These types of developments are likely to cause further fragmentation and demands for natural resources ranging from freshwater to seafood and forest specialties, including wine preserved with reptiles, putting pressure on protection and conservation of wildlife and rare marine species, as noted in the nomination dossier.

Further large-scale projects that could impact the potential OUV of the nominated property include the new 18 km long International Seaport "Lach Huyen" that is being constructed by Hai Phong City to the west of Cat Ba Island.

IUCN concludes that the significant growth plans for large-scale tourism and industrial developments pose serious threats to the integrity of the terrestrial and marine parts of the nominated property, precluding the possibility of inscription. IUCN considers that the impacts of these threats would need to be reduced at very least to the maximum ecological carrying capacity of the nominated property. Regarding any relocations, local communities need to be appropriately informed and consulted, and given their free, prior and informed consent to the relocation and its conditions.

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

5. ADDITIONAL COMMENTS

6. APPLICATION OF CRITERIA

The **Ha Long Bay - Cat Ba Archipelago (Viet Nam)** has been nominated as an extension to the existing World Heritage property of Ha Long Bay and as a renomination under all four natural criteria.

Criterion (vii): Superlative natural phenomena or natural beauty or aesthetic importance

HLB fulfils criterion (vii) as confirmed through the inscription in 1994. The nominated extension to include CBA also contains areas of natural beauty including vegetated limestone islands and towering limestone pillars rising from the sea, with associated karst features such as arches and caves. Unspoilt and spectacular views of the vegetated islands, marine lakes and limestone towers, with sheer cliffs plunging into the sea, along the eastern and south-eastern coast of the Cat Ba Island would add value to the existing property (HLB) under this criterion.

However, IUCN notes that the values of HLB have been impacted by mass tourism, waste and marine transport, as well as large-scale developments in the buffer zone since its inscription. These threats from large-scale growth of tourism developments and infrastructure are similarly relevant for the extension to CBA and currently not addressed. Therefore, IUCN considers that the nominated extension would have the potential to meet this criterion if the threats to the nominated area of CBA are significantly reduced to ensure the long-term integrity of the aesthetic values of the nominated area.

IUCN considers that the nominated property has the potential to meet this criterion.

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

HLB also fulfils criterion (viii) as confirmed through a re-nomination under this criterion, accepted by the Committee in 2000. HLB showcases one of the most extensive and best-known examples of marine-invaded tower karst in the world and one of the most important areas of Fengcong (clusters of conical peaks) and Fenglin (isolated tower features) karst. Through an extension to include CBA, HLB and CBA together would comprise all the stages of the process of sea-inundation of tropical karst as well as three main types of caves (ancient marine notch caves, old karstic foot caves and notch caves). While HLB shows the later stages of the sea-inundation process, CBA would add important geological values to the property

through examples of the terrestrial and intertidal stages, some of which are rare or even unique. With the extension of HLB to include CBA, the area would be increased by slightly more than 50%, and include about one-third of the world's marine lakes. Therefore, the extension to include CBA would strengthen the values and integrity under criterion (viii) and complete the story of drowned karst systems within one extended property.

However, IUCN notes the impacts from mass tourism on caves and the planned increase of tourism that will likely exacerbate pressures on the values of CBA. Therefore, IUCN considers that the threats to the nominated area of CBA need to be addressed in order for this criterion to be met.

IUCN considers that the nominated property has the potential to meet this criterion.

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

HLB and CBA are nominated under criterion (ix). The nomination dossier contends that the nominated property would meet this criterion due to the high representation of the world's total number of marine lakes within the nominated area, these habitats could be of value for on-going speciation. However, as no endemic species have so far been recorded in the marine lakes within the nominated property, there is currently no evidence demonstrating that such biological processes are taking place. Besides marine lakes, the nomination also proposes six further habitat or ecosystem types under criterion (ix) as prime examples of tropical and subtropical insular limestone ecosystems: primary forest; caves; mangrove forest; tidal flats; soft sea bottom and corals.

However, IUCN notes that many of these attributes critical to express OUV under criterion (ix), have been heavily impacted or modified by human activities and some are only present in very small areas. For instance, a number of marine lakes have been affected by past aquaculture and damming. Logging and land conversion has restrained primary forest to a small area of about 1,045 ha in the centre of CBA. Mangrove forest within the nominated property covers only some 10 ha, as indicated in supplementary information by the State Party. The largest areas of tidal flats are located outside the buffer zone on the west coast of Cat Ba Island, and are subject to modifications or planned to be converted for tourism, while corals have been impacted by pollution, siltation, boat traffic, anchoring, shellfish collection and fishing, including dynamite fishing in the past. Considering that the remaining areas of undisturbed or semi-natural habitats of most of the key ecosystems, and their size, within the nominated property are very small, IUCN considers that criterion (ix) is not met for the nominated property.

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

Criterion (x): Biodiversity and threatened species

HLB and CBA are also nominated under criterion (x). The nomination contends that the nominated property would meet this criterion as the property is home to a large number of plant and animal species, and in 2012 the western side of Cat Ba Island together with Lan Ha Bay was identified as a Key Biodiversity Area. The nominated property also hosts endemic flora and fauna such as the *Livistona halongensis* palm and Cat Ba Tiger Gecko as well as threatened species such as the Keeled Box Turtle, the Asian Small-clawed Otter, the Mainland Serow and the King Cobra. Furthermore, the nominated property is suitable for the Rhesus Macaque, Leopard Cat, Oriental Pied Hornbill, Asian Water Monitor, Indian Cobra, *Livistona Saribus* palm, bats and some records of sea turtles. The Cat Ba Langur is a Critically Endangered endemic primate and the flagship species of the nominated property. Conservation efforts have largely dealt with the threat from langur poaching.

However, the small population of only 65-70 individuals of Cat Ba Langurs continues to be affected by disturbance from tourism, restrictions on gene flow due to few individuals and fragmentation of sub-populations in increasingly isolated and marginalised habitats, among other pressures. As noted in IUCN's 2014 evaluation of the standalone CBA nomination, IUCN does not consider that the presence of this species alone is sufficient to justify criterion (x). The state, abundance and distribution of the other species within the nominated property remain largely unclear. The species lists in the nomination dossier appear to be conflicting with more recent information. As the data does not appear to provide an accurate representation of species present, IUCN considers that the basis for criterion (x) is currently not demonstrated. Furthermore, a revised nomination should also consider any biodiversity values found within HLB as these have not been considered. Finally, poaching and other human activities, especially tourism and development, threaten many species of mammals, reptiles, amphibians and birds, as well as flora extracted for ornamental and medicinal plants. These threats need to be addressed before this criterion could be met.

IUCN considers that the nominated property 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/22/45.COM/8B and WHC/22/45.COM/INF.8B2;

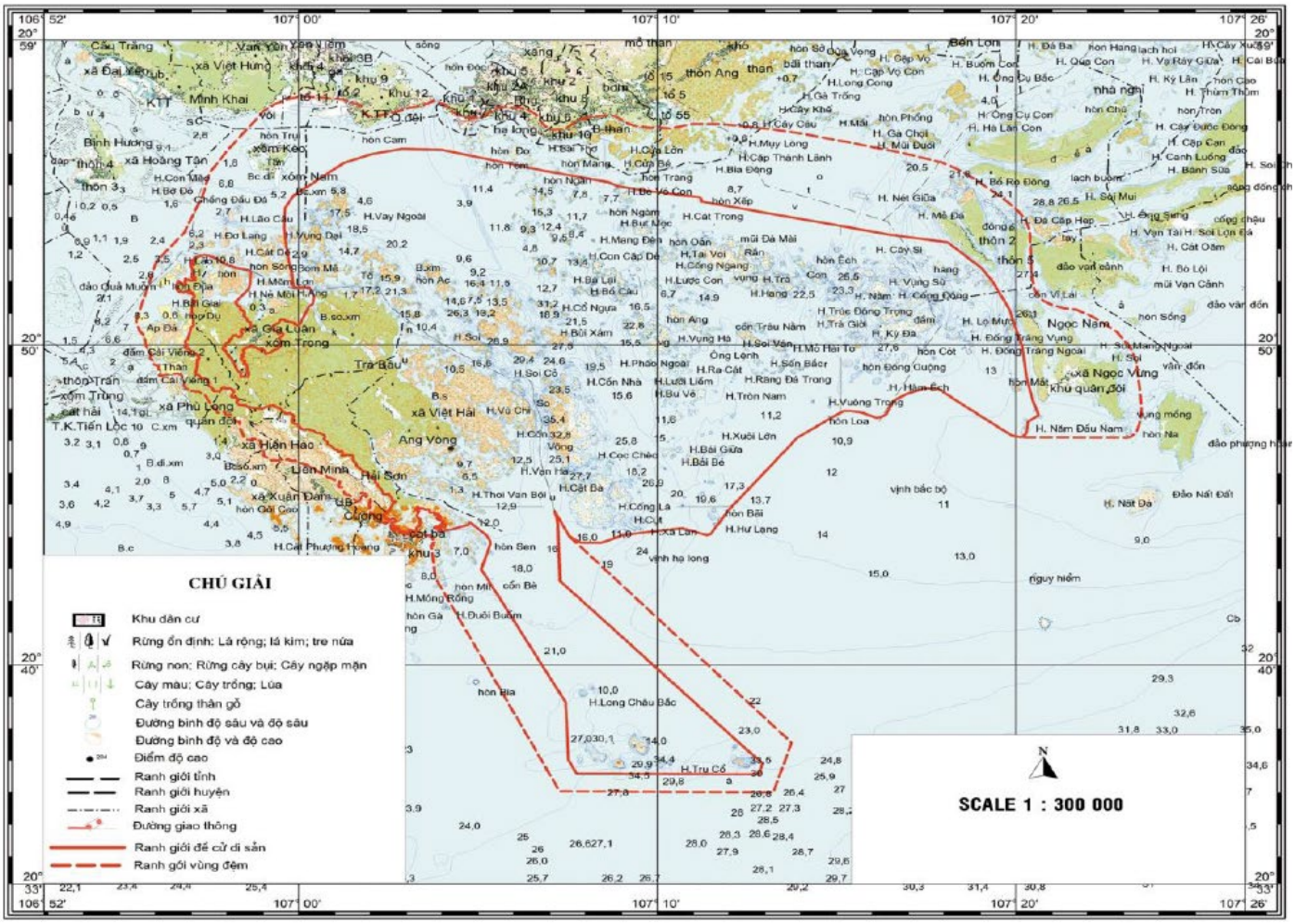
2. Recalling decisions **18 COM XI**, **24 COM XA.2**, and **44 COM 7B.98** taken at its 18th (Phuket, 1994), 24th

(Cairns, 2000) and 44th (Fuzhou, 2021) sessions respectively,

3. Defers the nomination of **Ha Long Bay – Cat Ba Archipelago (Viet Nam)**, in order to allow the State Party to prepare a new nomination focused on criteria (vii), (viii) and (x), and taking account of the need to:

a) revise the boundaries of Cat Ba National Park to align with the proposed boundaries of the Cat Ba Archipelago extension to the Ha Long Bay World Heritage property, and include the Phu Long mangrove forest within the buffer zone of the nominated property,
b) cancel large-scale development projects located in the buffer zone of the nominated property and adjacent to the buffer zone, such as a new golf course and the Cat Ba Amatina and Domino projects, and strengthen the legal protection status of the buffer zone,
c) complete an ecological carrying capacity analysis for the entire nominated property as a basis for revised tourism planning through a comprehensive joint tourism management plan for the nominated property, ensuring that tourism does not negatively impact the potential Outstanding Universal Value of the nominated property,
d) address key threats to the nominated property and strengthen law enforcement accordingly, including threats from mass tourism, a major shipping lane, growth of settlements, poaching, exploitation of marine resources and forest products, overfishing, unsustainable aquaculture, pollution (oil, noise, sewage, litter, including from river catchment inputs), and significant developments in the buffer zone,
e) ensure a new nomination dossier includes accurate, up-to-date and verifiable data on species and habitats both in Ha Long Bay and Cat Ba Archipelago, distinguishing between the biodiversity values found within the nominated property and within the buffer zone,
f) demonstrate that local communities have been appropriately consulted and given their free, prior and informed consent to any relocations from the nominated property and its conditions.

Map 1: Location of the nominated property



EUROPE / NORTH AMERICA

HYRCANIAN FORESTS

AZERBAIJAN / IRAN (ISLAMIC REPUBLIC OF)

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WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

HYRCANIAN FORESTS (AZERBAIJAN / IRAN (ISLAMIC REPUBLIC OF)) – ID N° 1584bis

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To approve as an extension two of five nominated component parts under natural criterion (ix): Dangyaband and İstisuchay Valley (Azerbaijan).

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property includes component parts that meet World Heritage criteria, however several component parts do not.
Paragraph 78: Nominated property includes component parts that meet integrity, protection and management requirements, however several component parts do not.

Background note: In 2005, the Republic of Azerbaijan (hereinafter referred to as "Azerbaijan") nominated the entire territory of the Hirkan National Park (21,435 ha; no buffer zone) to be inscribed on the World Heritage List, under all four natural criteria and under the name "Hirkan Forests of Azerbaijan." The World Heritage Committee deferred the nomination "to allow the State Party to consider options for renominating the property as part of a transnational serial property with other Hirkanian forest areas in Iran" (Decision 30 COM 8B.24).

In 2019 the Committee inscribed "Hyrcanian Forests" (Islamic Republic of Iran – hereinafter referred to as Iran) as a serial site of 15 components under criterion (ix). Decision 43 COM 8B.4 took "note of the potential for this property to also meet criterion (x)" and the Committee recommended the State Party "to undertake significant further work to complete species inventories and confirm species composition and population conservation status within each of the components, and to consider submitting a re-nomination of the property if the further studies confirm the relevant values are sufficient to meet criterion (x)." Decision 43 COM 8B.4 also encouraged the two relevant States Parties "to consider options for further serial and transboundary extension of the property to include other areas in Azerbaijan of internationally significant conservation value…" The Committee's attention is also drawn to IUCN's previous evaluations of 2006 and 2017 (WHC-06/30.COM/INF.8B2; WHC-19/43.COM/INF.8B2) which contain relevant analyses.

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1. DOCUMENTATION

a) Date nomination received by IUCN: February 2021

b) Additional information officially requested from and provided by the States Parties: Following the session of the IUCN World Heritage Panel, a progress report was sent to the States Parties on 17 December 2021. This letter advised on the status of the evaluation process and requested supplementary information on species inventories, species composition and population status; commitments of the States Parties to transnational management; rights and free, prior and informed consent of communities within the nominated area; a map of component parts in relation to boundaries of Hirkan National Park; and finally, if and how the two nominated component parts in Iran respond to the expectations of criterion (ix) given the scale of recent changes which impact integrity. The supplementary information was provided by the States Parties on 28 February 2022.

c) Additional literature consulted: IUCN's previous evaluations consulted a wide array of relevant reference material for the biology, ecology, protection and management as well as the comparative values of the nominated property. Comprehensive reference lists were compiled within IUCN's previous evaluations which are available as referenced above. Further references included: Breitenmoser, U., Askerov, E., Soofi, M., Breitenmoser-Würsten, C., Heidelberg, A., Karen, M. and N. Zazanashvili (2017). Short Communication: Transboundary leopard conservation in the Lesser Caucasus and the Alborz Range. *Cat News,* 65, ISSN 1027-2992; Critical Ecosystem Partnership Fund (2003). *Caucasus Biodiversity Hotspot. Ecosystem Profile*; Ghomi, A., et al. (2020). Prioritizing of the Hyrcanian Proposed Sites for Inscription on the UNESCO's World Heritage List by use of Decision Making Methods. *Ecology of Iranian Forest* 8, 16, pp.90-102; Maharramova, E., Safarov, H., Kozlowski, G., Borsch, T., L. Muller (2015). Analysis of nuclear microsatellites reveals limited differentiation between Colchic and Hyrcanian populations of the wind-pollinated relic tree *Zelkova carpinifolia* (Ulmaceae). *American Journal of Botany 102*, pp.119-128; Nakhutsrishvili, G., Zazanashvili, N., Batsatsashvili, K., C. Mancheno (2015). Colchic and Hyrcanian forests of the Caucasus: Similarities, differences and conservation status. *Flora Mediterranea*. 25, pp.185-192. 10.7320/FlMedit25SI.185; Noroozi, J., et al. (2019).

Hotspots of vascular plant endemism in a global biodiversity hotspot in Southwest Asia suffer from significant conservation gaps. *Biological Conservation* 237, pp. 299-307, 10.1016/j.biocon.2019.07.005; Ramezani, E., Mrotzek, A., Mohadjer, M.R.M., Kakroodi, A.A., Kroonenberg, S.B. and H. Joosten (2016). Between the mountains and the sea: Late Holocene Caspian Sea level fluctuations and vegetation history of the lowland forests of northern Iran. *Quaternary International 408*, pp.52-64, https://doi.org/10.1016/j.quaint.2015.12.041; Soofi, M., et al (2018). Livestock grazing in protected areas and its effects on large mammals in the Hyrcanian forest, Iran, *Biological Conservation*, 217, pp. 377-382, https://doi.org/10.1016/j.biocon.2017.11.020; Song, Y. et al.-. (2020). Phylogeny, species delimitation and biogeography of the relict tree genus *Pterocarya* (Juglandaceae). *Plants* 9, 1524; Song, Y.-G., et al. (2021). Past, present and future suitable areas for the relict tree *Pterocarya fraxinifolia* (Juglandaceae): integrating fossil records, niche modelling, and phylogeography for conservation. *European Journal of Forest Research* 140, pp. 1323-1339; Yousefzadeh, H., et al. (2021). Genetic diversity and structure of rear edge populations of *Sorbus aucuparia* (Rosaceae) in the Hyrcanian Forest. *Plants* 10, 1471.

d) Consultations: 9 desk reviews were received for the 2019 evaluation of "Hyrcanian Forests" (Iran) and a further 8 desk reviews received for this proposed extension. The mission met with a wide range of stakeholders including, in Azerbaijan, representatives from the Ministry of Ecology and Natural Resources, Hirkan National Park, districts of Astara and Lenkoran, Zangulash and İstisuchay villages, and WWF Azerbaijan; and in Iran Ministry of Cultural Heritage, Tourism and Handicrafts, Department of Environment, Forests, Range and Watershed Management Organization, Eastern Azerbaijan province government, local residents of villages Kerengan, Keranlu.

e) Field Visit: Oliver Avramoski and Jan Woollhead, 25 to 30 October 2021

f) Date of IUCN approval of this report: April 2022

2. SUMMARY OF NATURAL VALUES

The nominated property is situated in the Caspian Hyrcanian mixed forests ecoregion (hereinafter referred to as the Hyrcanian Region), stretching around 1,000 km along the southern coast of the Caspian Sea. This ecoregion belongs to the ecoregion complex Caucasus-Anatolian-Hyrcanian Temperate Forests, considered globally significant within WWF's Global 200 priority ecoregions system. The Hyrcanian Forests form a green arc of forest, separated from the Caucasus to the west and from semi-desert areas to the east: a unique forested massif that extends from south-eastern Azerbaijan eastwards to the Golestan Province in Iran. The Hyrcanian Region also includes non-forested rangelands above the timberline, as well as formerly forested lowland areas. The narrow coastal plains along the Caspian Sea are heavily degraded and almost entirely converted into cultivated lands, however, the forest ecosystems have so far been preserved at higher altitudes on both slopes of the Tallish and the Alborz Mountains.

A description of the property already inscribed under criterion (ix) is included here because the nomination calls for both an extension in area of the serial property and a re-nomination on the basis of criterion (x). The currently inscribed property is a serial site with 15 component parts (see Table 1), situated throughout the Hyrcanian Region from the northwest to east of Iran and covering two main ecotones from east to west and from low elevation to subalpine meadows. The component parts had been selected meticulously and represent examples of the various stages and features of the Hyrcanian Forest ecosystems. One component part (Khoshk-e-Daran, No. 12) is located on the coastal plain and includes a unique lowland forest ecosystem (swamp-forests). All other component parts are in higher altitudes, up to the treeline and sometimes include on their margins, subalpine and alpine ecosystems. A considerable part of the site is inaccessible steep terrain given 92% of the nominated area is described as hilly or mountainous.

Nr	Component part	Component part (ha)	Buffer zone (ha)
Islamic Republic of Iran			
1	Golestan (North)	17,873	64,301
2	Golestan (South)	10,658	
3	Abr (East)	6,673	23,323
4	Abr (West)	10,991	
5	Jahan Nama	11,340	26,863
6	Boola	17,516	12,344
7	Alimestan	394	846
8	Vaz (East)	2,218	3,720
9	Vaz (West)	4,692	
10	Kojoor	14,892	9,629
11	ChaharBagh	6,886	2,664
12	Khosk-e-Daran	215	39
13	Siahroud-e-Roudbar	11,197	15,897
14	Gasht Roudkhan	10,541	16,015
15	Lisar	3,398	1,487
Total area (ha)		**129,485**	**177,129**

Table 1: Inscribed property component parts and buffer zone areas

The proposed serial extension of the inscribed World Heritage property "Hyrcanian Forests" (Iran) includes two additional component parts in Iran totaling 7,122 ha, encompassed by a joint buffer zone of 55,725 ha. It also includes three new component parts in Azerbaijan with a total area of 24,588 ha that partially overlaps the "Hirkan Forests of Azerbaijan", initially proposed in 2006. A joint buffer zone of 61,632 ha encompasses all the three nominated component parts (see table 2). The total area of Hirkan National Park has nearly doubled since the 2005 nomination to 40,358 ha (in 2008).

Nr	Component part	Core area (ha)	Buffer zone (ha)
Republic of Azerbaijan			
01	Dangyaband	2,703	61,632
02	Khanbulan	9,068	
03	İstisuchay Valley	12,817	
Islamic Republic of Iran			
04	Dizmar West	4,706	55,725
05	Dizmar East	2,416	
Total area (ha)		**31,710**	**117,357**

Table 2: Nominated property component parts and buffer zone areas

As part of the so-called Arcto-Tertiary Geoflora, vast deciduous and mixed forests historically covered much of the land of the Northern Hemisphere. Following historic climate change resulting in widespread glaciation, these forests were reduced to refuges in North America, Western Eurasia and East Asia. Countless species went extinct, while others survived as relics. During warmer, interglacial periods, the forests expanded again. Globally, it is extremely rare that the evolution of a temperate deciduous forest region has remained uninterrupted over such a long period of time and is ongoing at such a large scale and with such a high degree of naturalness. The forests could thereby diversify into an exceptional range of forest types along a gradient from sea level up to the tree line at some 2,500 to 2,800 m a.s.l., as well as in a gradient of decreasing humidity along the southwestern and southern shore of the Caspian Sea from the northwest to the east. The extension would cover the north-western extreme to complete the west-east gradient.

The property (inscribed and nominated) contains Arcto-Tertiary relicts from broad-leaved forests that 25-50 million years ago covered most parts of the Northern Temperate Zone. These huge forest areas retreated during Quaternary glaciations and later during milder climatic periods, expanded and spread out from this refugia. It is considered as an origin for European broad-leaved forests and, due to this isolation, hosts many relict, endangered, regional and local endemic flora species giving the site and the whole Hyrcanian Region in general, important natural features and very high ecological values.

The floristic biodiversity of the Hyrcanian Region is on a global level remarkable with over 3,200 vascular plant species documented. About 44% of known vascular plants in Iran occurs in the Hyrcanian Region which covers only 7% of Iran's territory, emphasizing the exceptional importance of this region for the protection of biodiversity. Approximately 280 taxa are endemic or sub-endemic for the Hyrcanian Region and about 500 plant species are Iranian endemics. A total of 80 native tree species have been documented here. Most ecological characteristics from this ecoregion are represented in the nominated property.

Due of the extent of the forested ecosystems, the population size for many forest birds and mammals of the Hyrcanian Region is significant on national, regional and global scales. To date, 58 mammal species and 180 bird species typical for broadleaved temperate forests have been recorded in the Hyrcanian Region. Persian leopard (*Panthera pardus saxicolor*, EN*)* and the wild goat (*Capra aegagrus*, VU*)* are the most threatened and iconic mammals included on the IUCN Red List. Birds like the Steppe Eagle (*Aquila nipalensis*, EN), European Turtle Dove *(Streptopelia turtur*, VU*)*, Eastern Imperial Eagle (*Aquila heliacal*, VU*)*, European Roller (*Coracias garrulus*, LC*)* and Semicollared Flycatcher (*Ficedula semitorquata*, NT*)* amongst many other species inscribed on the IUCN Red List, as well as the near-endemic Caspian Tit *(Poecile hyrcanus* LC*)* have also been observed in the region.

3. COMPARISONS WITH OTHER AREAS

The IUCN evaluation from the time of the initial inscription of the property provides a comparative analysis (see document WHC-19/43.COM/INF.8B2), which remains relevant here. The analysis below therefore focuses upon the component parts proposed in this extension nomination.

Temperate forests are an underrepresented category of World Heritage properties for the simple reason that those forests have disproportionately suffered from forest loss and degradation. The Hyrcanian Forests stand out within the relatively small number of meaningful remnants of nemoral deciduous forests due to their unique isolated location nestled between the Caspian Sea, high mountains and non-forested drylands. In terms of the sheer age and duration of evolutionary processes, the Hyrcanian Forests can only be compared to the forests of the Colchis in Georgia, which were inscribed in 2021 as "Colchic Wetlands and Forests" (Decision 44 COM 8B.8). However, the latter differ substantially in terms of species composition and structure. In the following section, the newly proposed component parts are discussed with regard to their potential contribution to the existing property, inscribed under criterion (ix).

Dangyaband, Khanbulan and İstisuchay Valley (Azerbaijan)

Many similar habitats, landscapes and species occur within the existing Western Caucasus World Heritage property (Russian Federation) and the Hirkan National Park, although the Western Caucasus is much larger. The nominated component parts are not normally considered to be part of the Caucasus Mountain range; rather, within the neighbouring Talish Mountains, which lack the high mountainous belt of the Caucasus Mountain range. Both properties are covered by deciduous forests characterized by oak and hornbeam forests and have similar wildlife composition, although the Western Caucasus property also includes an introduced population of European bison. The importance of the nominated component parts by comparison with the Western Caucasus rests on the distinctiveness of the Hyrcanian forests as nemoral forests, i.e. temperate deciduous broad-leaved forests, which differ from the typical mesophytic deciduous broad-leaved forests. The uniqueness of these forests reflects their status as arcto-tertiary elements providing continuous forest cover since the Upper Tertiary

(Pliocene Epoch) period, thus providing important refuges for natural woodland of Tertiary origin. The nominated component parts are representative of the relict Hyrcanian Forests found in the eastern Caucasus region.

Therefore, IUCN considers that the nominated component parts of Dangyaband, Khanbulan and İstisuchay Valley (Azerbaijan) continue and complete the rationale for component part selection based on forest type diversity, which was already presented in the previous 2019 nomination.

Dizmar East and Dizmar West (Iran)
The Global Comparative Analysis does not consider the neighbouring Arasbaran Protected Area, on the Tentative List of the Islamic Republic of Iran, under criteria (vii), (viii), (ix) and (x). This site was evaluated by IUCN in 2018 and deferred by the Committee (Decision 42 COM 8B.7). The nomination dossier for Arasbaran clearly separated the Arasbaran from the Hyrcanian region. This is also reflected in contemporary literature, which locates the geographical distribution of the Hyrcanian Forests within the watershed of and exposed to the Caspian Sea, covering the gradient from the coast to the upper limit of the tree line. Furthermore, the forests included in the nominated component parts of Dizmar East and Dizmar West appear to lack characteristic Hyrcanian elements, such as *Parrotia persica, Albizia julibrissin, Quercus castaneifolia, Tilia hyrcana, Pyrus mazandaranica*, and many of the Hyrcanian-Euxinian forest elements, such as *Zelkova carpinifolia, Pterocarya fraxinifolia*, and *Fagus orientalis*.

Therefore, IUCN considers that the proposed component parts of Dizmar East and Dizmar West do not appear to contribute to the series of Hyrcanian Forests of the existing property.

In respect to criterion (x), the IUCN evaluation of the 2019 Hyrcanian Forest nomination submitted by Iran noted that the 15 component parts include irreplaceable habitat refuge areas of Arcto-Tertiary forest elements in West Eurasia, which are key for the in-situ conservation of a great number of relic and endemic species of plants and animals of invaluable scientific and ecological importance. However, the effective presence of those species in 15 component parts was not confirmed and should in several cases be clarified by the State Party. IUCN noted that the property had potential to meet criterion (x) but there was a need to detail which species were found in which component part to better understand the rationale for the inclusion of the existing 15 component parts under this criterion. IUCN notes that important biodiversity values have been reported for all newly nominated component parts, including for instance the presence of the Persian Leopard (*Panthera pardus saxicolor*, VU), however, while the present extension nomination seeks to re-nominate the existing property and the proposed new component parts under criterion (x), neither the nomination file nor the supplementary information provided by the States Parties contain any additional details that could specifically strengthen the case under criterion (x) for the nominated property as a whole. The States Parties acknowledged that the information for criterion (x) remains limited to this day, agreeing that further research and documentation is still needed. The States Parties also stated in their supplementary information that they are open to consider criterion (x) at a later stage when more conclusive evidence will be available.

In conclusion, IUCN reiterates that the nominated property is considered to still have potential to meet criterion (x), but there remains a need to detail which species are found in which component part of the nominated property. IUCN considers that the nominated component parts of Dangyaband, Khanbulan and İstisuchay Valley (Azerbaijan) add attributes that complete the existing serial site representing the northernmost part of the Hyrcanian Forests.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

Dangyaband and İstisuchay Valley (Azerbaijan)
The area of the nominated component parts of Dangyaband and İstisuchay Valley in Azerbaijan are within the boundaries of the state-owned Hirkan National Park (IUCN Category II), and are under a strict protection regime. With few exceptions, no access is allowed to the nominated component areas for the public, including tourists. Rangers patrol the areas and, in most cases, live in the buffer zones. The buffer zone comprises mostly forests and connect the nominated component areas together. Grazing and recreational uses are permitted, but high-intensity land use and the construction of new settlements are prohibited.

Khanbulan (Azerbaijan)
While the above also applies to the nominated component part of Khanbulan, IUCN notes that the boundaries of this component part do not match the forest cover nor is it entirely overlapped by the national park ensuring strict protection of the area (see section 4.2). Therefore, IUCN considers that the boundaries of this nominated component part need to be revised to ensure adequate legal protection before it can be added to the existing World Heritage property.

Dizmar East and Dizmar West (Iran)
The protection of the forest ecosystems in the proposed component parts in Iran is due to prevention of interference, lack of road infrastructure and close cooperation with the local communities around the proposed component parts. The Dizmar Protected Area, containing both nominated component parts, is state-owned. The protection of the nominated areas is based on the protective regulations under the responsibility of the Forests, Range and Watershed Management Organization, the Department of Environment, and the Ministry of Cultural Heritage, Tourism and Handicrafts, which is in line with the governance of the existing World Heritage property. This legal framework prohibits any interference and degradation to the nominated property as well as any intervention affecting its integrity. The strict protection regime appears to be adequate.

IUCN considers that the protection status meets the requirements of the *Operational Guidelines* for the nominated component parts of Dangyaband and İstisuchay Valley (Azerbaijan), Dizmar East and Dizmar West (Iran), but not for Khanbulan (Azerbaijan) due to the lack of alignment with the national park's legal protection regime.

4.2 Boundaries

Regarding the potential of the nominated component parts to add value to the existing series, IUCN notes that the proposed component parts would significantly increase the size of the existing property by 24.5%. The nominated component parts in Azerbaijan, Dangyaband, Khanbulan and İstisuchay Valley, represent the northernmost extension of the Hyrcanian Forests and contain highly valuable ancient forests and therefore complement the already inscribed component parts in Iran. These nominated component parts belong to the same arch of forest stretching from the southern coast of the Caspian Sea northwards along its western coast, expanding the climatic and biogeographical gradient of the inscribed serial property. They also exhibit a high degree of integrity. While the nominated component parts of Dizmar East and Dizmar West (Iran) are presented as a transition type between the Hyrcanian and the Colchic forests, there does not appear to be any forest connectivity to the same degree as between the existing component parts and the nominated component parts in Azerbaijan. The limited connectivity is also exemplified by satellite imagery and the low integrity of the nearby Arasbaran Protected Area, evaluated by IUCN in 2018. In the following, the boundaries of each of the nominated component parts are discussed in detail.

Dangyaband and İstisuchay Valley (Azerbaijan)
The border of the nominated component areas of Dangyaband and İstisuchay Valley (Azerbaijan) encompass the best protected and oldest forests of the Hirkan National Park, with trees aged up to 300-400 years. The boundaries of the nominated component parts appear to capture these most valuable areas. Conceptually this is designed to simplify management with only two management regimes within the National Park: the component areas and the buffer zone. An important exception from this is the lack of a buffer zone South of İstisuchay Valley, due to this being Iranian territory. Given the international border is a deep river valley, and it is forbidden to approach the border, IUCN considers this an acceptable configuration. With regard to the surrounding landscape, a zonation scheme is not needed because of the wide buffer zone. The forests in the buffer zones are often subject to slight grazing in some parts. Other parts of the buffer zone can be described as pastureland. Forests outside the buffer zone do provide some connectivity to other forest habitats which the significantly larger buffer zone accommodates. However, in the lowland towards the Caspian Sea there is virtually no forest remaining. South of İstisuchay Valley, on the Iranian side, there are also forests next to İstisuchay Valley.

Khanbulan (Azerbaijan)
Between Dangyaband and Khanbulan there is a paved road in the buffer zone creating some lack of connectivity. The nominated component part includes a village within the boundaries (shown on the maps in the dossier). Unlike the other two component parts in Azerbaijan, the boundary of Khanbulan does not correspond with the boundaries of the central unit of the National Park. That is, the boundary of the nominated component part both extends beyond the boundary of the protected area and in other cases it does not include all of the protected area. Map 2, on p. 62, was provided as supplementary information by the States Parties and shows the nominated boundary in relation to the Park boundary and buffer zone. This map indicates a clear incongruence between the protected area and the component part. IUCN also notes that the areas located outside the National Park but included in the nominated component part appear to be deforested to a large extent. Therefore, IUCN is of the view that the boundaries of the nominated component part of Khanbulan would need to be aligned with the existing boundaries of the National Park before this nominated component part can be included into the existing series.

Dizmar East and Dizmar West (Iran)
The boundaries of these component parts include most of the contiguous forests in the Dizmar Protected Area, void of any road infrastructure or power lines. The nominated component parts display a full range of evolved characteristic plants and animals. However, the field evaluation mission did not observe any significant old-growth or primary forest stands and most of the trees are aged 20-40 years. Trees older than 60 years are rare.

The nominated component parts are embedded within the "Intense Protection Zone" (8,805 ha) in which use of natural resources is prohibited and human disturbance from research and tourism activities are strictly controlled. The buffer zone is large and comprises small traditional settlements, forested areas, patches of grazing land, meadows, arable land and a network of mostly unpaved roads as well as gas and power lines. A large part of the buffer zone falls within the "Protection Zone" (17,969 ha) that completely surrounds the Dizmar West and Dizmar East nominated component parts ensuring adequate prevention of pressures and threats. The "Rehabilitation Zone" (9,461 ha) includes the area surrounding settlements at lower altitudes; this zone runs along most of the eastern part of the buffer zone except for a stretch in the south-eastern corner where the "Protection Zone" enables unimpeded ecological connectivity with the buffer zone of the neighbouring Arasbaran Biosphere Reserve. The "Protection Zone" includes most of the western part of Dizmar Protected Area, aiding the ecological connectivity with the Kiamaky Wildlife Refuge to the west (IUCN Category V), although the two protected areas are not contiguous.

IUCN considers that the boundaries of the nominated component parts of Dangyaband and İstisuchay Valley (Azerbaijan) and their buffer zones meet the requirements of the *Operational Guidelines*; however the boundaries of the nominated component part of Khanbulan (Azerbaijan) do not meet these

requirements. While the boundaries of the nominated component parts of Dizmar East and Dizmar West (Iran) and their buffer zone are appropriate, these nominated component parts are disconnected from the existing series of the inscribed property.

4.3 Management

Dangyaband and İstisuchay Valley (Azerbaijan)
The national park's management plan is detailed, and important management elements appear to be in place, as observed by the field mission, except for a monitoring system over and above the Persian Leopard. In supplementary information, the State Party has committed to update this management plan, if the nominated component areas are inscribed. Managers operate with annual work plans and budgets and regular horse patrols report no incidents of poaching in 2021 and only one in 2020. Free ranging cattle in the buffer zone could enter Dangyaband but the field evaluation mission found that grazing in the buffer had no serious impact on the nature within.

The nominated component areas are under the full control of the State National Park Administration that is a part of the Ministry of Ecology and Natural Resources, managed by a Park Director supervising 96 staff of which 50 are rangers. It is expected to increase staff by 10-20 people if the nominated component areas are inscribed on the World Heritage List. Most of the funding is provided by the Ministry of Ecology and Natural Resources with local revenue contributing to operating expenses.

The buffer zone includes villages inhabited by the Talish People, who have traditional rights to use the land and whose activities are accommodated and do not appear to pose any threats to the natural values of the nominated component parts.

Khanbulan (Azerbaijan):
This nominated component part includes a village in its northern extent. Cohesive and consistent management of this component part is complicated by the fact that the boundary of Middle Hirkan National Park does not correspond with the boundary of the nominated component part of Khanbulan (see section 4.2). In areas outside the national park, a different and more liberal management regime applies.

Dizmar East and Dizmar West (Iran)
The summary of the Management Plan of Dizmar Protected Area, formally approved in 2019 by the Department of Environment that was attached to the nomination file lacks clear identification of the key biodiversity values as well as a list of the related management objectives. The State Party provided the mission the full document in Farsi language and briefly explained its content. The document is rich in information sufficient to provide effective management planning for the Dizmar Protected Area. However, in the event the nominated property extension is approved, it should be revised and upgraded by clearly identifying the attributes of the OUV and the related management objectives.

IUCN considers that the nominated component parts of Dangyaband and İstisuchay Valley (Azerbaijan), and Dizmar West and Dizmar East (Iran) meet management requirements, but that the nominated component part of Khanbulan (Azerbaijan) does not meet the requirements of the *Operational Guidelines*.

4.4 Community

Dangyaband and İstisuchay Valley (Azerbaijan)
The Talish people living in the buffer zone of Hirkan National Park have a unique language and cultural heritage. Their living with nature is close to being self-sustainable, and has been so for centuries. Their way of appreciating the environment in the Talish Mountains has contributed to secure the preservation of this valuable forest until the present time. The Talish people have traditional rights to use the land within the buffer zone of the national park, which is also noted in supplementary information. The field mission reported that the national park authority manages in cooperation with local stakeholders, especially the Talish people living within the national park, but also tourism business, the district councils, the municipalities and NGOs.

Khanbulan (Azerbaijan):
While the settlements are all located in the buffer zone of Hirkan National Park, those areas of the nominated component part of Khanbulan outside the national park currently include one village as well as deforested areas. A review of the boundaries of this component to align with Hirkan National Park should also be undertaken in collaboration with local communities to ensure that rights are respected and access to traditional sustainable livelihoods maintained.

Dizmar East and Dizmar West (Iran)
Several settlements in the buffer zone continue the extensive use of grazing land and meadows outside the nominated component parts. Arable land in the buffer zone is under private ownership of local residents whereas grazing land is under the traditional ownership of both local residents and transhumant shepherds. The communication and cooperation with local residents by rangers patrolling the Dizmar Protected Area appears to be effective and based on mutual trust and respect. Subsidized natural gas to the settlements in the Dizmar Protected Area is a strategic approach by the central, provincial, and local governments to improve access to reliable energy and reduce or eliminate the dependence of local communities on forests resources for energy supply. Traditional vernacular architecture and ways of life of the area are values of national importance. A network of 10 environmental NGOs in East Azerbaijan province, Iran, provided a letter of support for the nomination.

Overall, and based on the information provided to IUCN and evident to the field mission, traditional rights by communities appear to be accommodated, a point which is also underlined in supplementary information. The field mission concluded there was broad based

support for the nomination and no voices of community opposition were noted.

4.5 Threats

Dangyaband, Khanbulan and İstisuchay Valley (Azerbaijan)
In general, the national park is well-protected and managed, and it appears there are very few threats. People living in the mountains within the national park belong to the ethnic group Talish. They do not practice hunting, and rarely cut trees. However, the rather low level of dead wood in the forest could indicate that in former times removal of dead wood had been taking place in some parts of the forest. Poaching is nearly non-existent. Local people accept that they may occasionally lose cattle and sheep through predation by wildlife. Tourism is very restricted, and is at present at levels which do not threaten the nominated component areas. Tourist trails for hiking have been established within the buffer zones.

Dizmar East and Dizmar West (Iran)
Wildfires were mentioned during the field mission as the most important threat to natural values of the nominated component parts. Poaching, illegal tree cutting and disturbance of wildlife in both the nominated component parts and their buffer zone were not considered significant. Overgrazing was presented as a challenge during the migration of the transhumant shepherds in spring and autumn to and from the grazing lands outside the Dizmar Protected Area. Urbanization, including paving of the roads and development of public infrastructure as well as development of mining operations in the buffer zone were listed as the most important potential or future threats. Illegal cutting and collection of dead wood in the buffer zone does not appear to be an issue as a result of law enforcement but also due to the support of the government in meeting the local energy demands by gasification and more recently the promotion of solar energy.

In summary, IUCN considers that the threat levels for all nominated component parts are currently low, though the potential future threat of mining in the buffer zone of Dizmar East and Dizmar West (Iran) would be of concern. The boundaries and protection status of Dangyaband and İstisuchay Valley (Azerbaijan) and Dizmar East and Dizmar West (Iran) are appropriate; however, the boundaries for Khanbulan (Azerbaijan) would need to be revised to achieve an adequate protection status and more manageable property design.

IUCN considers that the integrity requirements and protection and management requirements of the *Operational Guidelines* are only partially met, however fully met by the nominated component parts of Dangyaband and İstisuchay Valley (Azerbaijan).

5. ADDITIONAL COMMENTS

5.1 Consideration in relation to serial properties

a) What is the justification for the serial approach?

A serial approach is necessary to relate all the story of the Hyrcanian broadleaf forest which spreads over approximately one thousand kilometers from Southern Azerbaijan to the west, to the eastern limit of Iran. This is the only way to tell the story of this very wide forest mountain range and its ecotones, from semi-desertic areas to swamp forests and from sea level to the upper limit of the tree-line. This serial approach is also desirable to illustrate all environmental processes which drive evolutionary processes temporally and spatially. The selected component parts in Azerbaijan complete this array of ecosystems and species habitats illustrating the main biodiversity features and assets that can be met in the whole Hyrcanian Forest. A serial approach is thus fully justified and consistent with past World Heritage Committee decisions (decisions 30 COM 8B.24 and 43 COM 8B.4). However, as noted in section 3, Dizmar East and Dizmar West do not appear to contribute attributes that would clearly be representative of the Hyrcanian Forests, which mainly occur in the Caspian Sea's watershed.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the *Operational Guidelines*?

While not physically connected, all component parts – except Dizmar West and Dizmar East – may be considered as functionally linked. The key ecosystems and their distribution are widely spread over the whole forest range and represented in the nominated serial property. Thus, supporting the functional dynamics of the ecological processes which underpin the claims under criterion (ix).

Little evidence is provided on the existence on functional connectivity of Dizmar West and Dizmar East to Dangyaband, Khanbulan and İstisuchay Valley or the inscribed component parts. This is limited to the movement of large mammals, in particular the Persian leopard and some connectivity efforts, however, this alone does not, in IUCN's view, constitute a compelling case for the addition of the nominated component parts of Dizmar West and Dizmar East.

c) Is there an effective overall management framework for all the component parts of the nominated property?

All of the inscribed and nominated component parts have management plans. Iran has rules and regulations requiring new budgets be allocated to management of any property inscribed on the World Heritage List. High-level representatives of the States Parties committed to transboundary cooperation at the inscription in 2019. A draft "Agreement on Cooperation" towards joint management of the "Hyrcanian Forests" has been officially discussed, though no documents have yet been presented. IUCN notes the commendable level of

cooperation that has been fostered via this extension nomination within only three years. This should in IUCN's view serve as basis for a more explicit and detailed integrated management framework to harmonize management approaches across the whole transnational property.

6. APPLICATION OF CRITERIA

The **Hyrcanian Forests (Azerbaijan / Iran (Islamic Republic of))** have been nominated under natural criteria (ix) and (x).

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

The proposed component parts of *Dangyaband and İstisuchay Valley (Azerbaijan)* contain highly valuable ancient forests belonging to the Hyrcanian Forests and complement the 15 inscribed component parts in Iran. They belong to the same arch of forest straddling along the Caspian Sea. These two component parts are part of the Hirkan National Park, and interconnect with forests in the buffer zone. They comprise full ecosystems including top predators such as leopard, wolf and brown bear. The forest has a high degree of rare and endemic tree species. Dangyaband is mainly covered by *Querqus casteniefolia* and in some parts with *Parrotia persica, Alnus subcordata* and *Fagus orientalis*. In İstisuchay Valley, the forests are dominated by *Fagus orientalis* with some *Alnus subcordata* and *Acer pseudoplatanus*. The oldest trees seen were 300-400 years old, with some possibly up to 500 years.

The nominated component part of Khanbulan is also dominated by *Fagus orientalis* with some *Alnus subcordata* and *Acer pseudoplatanus*, including significant old-growth stands. However, the proposed boundaries include deforested areas outside the Hirkan National Park, which fall under the more permissive protection regime of the national park's buffer zone. Therefore, IUCN considers that the nominated component part of Khanbulan has the potential to meet this criterion following the revision of the boundaries to align with Hirkan National Park.

The nominated component parts of Dizmar East and Dizmar West in Iran were proposed as broadleaf mixed forests that represent a transition type between the Hyrcanian and the Colchic forests. They are dominated by *Carpinus betulus* and *Quercus petraea* subsp. *iberica* and are presented to be the westernmost representatives of the Hyrcanian Forests. The connection with the forests in the inscribed component parts is inferred from the petrified trunks of the Meshginshahr Fossil Forest, affected by past eruptions of the Sabalan Volcano, the extant *Fagus orieantalis* forests at Fandoghloo, near Ardabil, but also the forests in the neighbouring Arasbaran Biosphere Reserve. Taken together the two nominated components contain old growth stands at high altitudes (Dizmar West) and a series of succession and/or natural regeneration stages in the lower altitudes, due primarily to fire. These forests entirely lack the Hyrcanian (such as *Parrotia persica, Albizia julibrissin, Quercus castaneifolia, Tilia hyrcana, Pyrus mazandaranica*, etc.) and many of the Hyrcanian-Euxinian forest elements (such as *Zelkova carpinifolia, Pterocarya fraxinifolia,* and *Fagus orientalis*). They have a different species composition from other "Hyrcanian Forests" in the property. Therefore, IUCN considers that the nominated component parts of Dizmar West and Dizmar East do not substantially add value to the existing series and are thus not recommended for consideration as an extension.

IUCN considers that the nominated component parts of Dangyaband and İstisuchay Valley meet this criterion.

Criterion (x): Biodiversity and threatened species

Decision 43 COM 8B.4, which inscribed 15 component parts in Iran on the basis of criterion (ix) and took "note of the potential for this property to also meet criterion (x)". This decision recommended further analysis of species inventories to confirm species composition and population conservation status to ascertain the relevant values are sufficient to meet criterion (x)." IUCN notes that this species specific information is still largely lacking within each of the existing and newly nominated component parts—including requested precise distribution data on strictly restricted endemics and globally threatened species. In Supplementary Information, the States Parties acknowledged that this information "remains limited to this day."

Based on the information presented in the nomination file for the existing property and recent research, there are at least 34 species of vascular plants occurring within the 15 components of the existing property or their buffer zone which are range-restricted endemics. In addition, there are seven globally threatened species of flora and fauna whose presence within the 15 components of the existing property or their buffer zone has been confirmed or is expected. Of these, only the Alborz viper or Armenian steppe viper (*Vipera eriwanensis* Reuss) occurs in the nominated Dizmar West and Dizmar East. Based on the presented information in the dossier, it is likely that the Dangyaband, Khanbulan and İstisuchay Valley could support criterion (x).

Additional evidence (more detailed spatial distribution and population status data) is needed to assess the importance of the inscribed – and some of the nominated – component parts for the conservation of critical habitats for these species.

IUCN considers that the nominated property has the potential to meet this criterion; however, further information and data are needed to clarify the presence or absence of species in each component and the conservation status of such species in order to strengthen the case under 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/22/45.COM/8B and WHC/22/45.COM/INF.8B2,

2. Recalling decisions **30 COM 8B.24** and **43 COM 8B.4** adopted at its 30th (Vilnius, 2006) and 43rd (Baku, 2019) sessions respectively,

3. Approves the significant boundary modification of the **Hyrcanian Forests, Islamic Republic of Iran,** to become **Hyrcanian Forests, Azerbaijan, Islamic Republic of Iran**, on the World Heritage List, on the basis of **criterion (ix),** through the addition of two component parts in Azerbaijan:

- *Dangyaband (Azerbaijan);*
- *İstisuchay Valley (Azerbaijan);*

4. Adopts the following Statement of Outstanding Universal Value for the property as a whole, including the newly added component parts outlined above:

Brief synthesis

The Hyrcanian Forests form a green arc of forest, separated from the Caucasus to the west and from semi-desert areas to the east: a unique forested massif that extends from south-eastern Azerbaijan eastwards to the Golestan Province, in Iran. The Hyrcanian Forests World Heritage property is situated in Azerbaijan and Iran, within the Caspian Hyrcanian mixed forests ecoregion. It stretches approximately one thousand kilometres along the southern and south-western coast of the Caspian Sea and covers around 7% of the remaining Hyrcanian forests in Iran.

The property is a serial site with 17 component parts shared across three Provinces (Gilan, Mazandaran and Golestan) in Iran and across two Districts (Lenkoran and Astara) in Azerbaijan and represents examples of the various stages and features of Hyrcanian forest ecosystems. Most of the ecological characteristics of the Caspian Hyrcanian mixed forests are represented in the property. A considerable part of the property is in inaccessible steep terrain. The property contains exceptional and ancient broad-leaved forests which were formerly much more extensive however, retreated during periods of glaciation and later expanded under milder climatic conditions. Due to this isolation, the property hosts many relict, endangered, and regionally and locally endemic species of flora, contributing to the high ecological value of the property and the Hyrcanian region in general.

Criterion (ix)

The property represents a remarkable series of sites conserving the natural forest ecosystems of the Hyrcanian Region. Its component parts contain exceptional broad-leaved forests with a history dating back 25 - 50 million years ago, when such forests covered most parts of the Northern Temperate region. These huge ancient forest areas retreated during Quaternary glaciations and later, during milder climate periods, expanded again from these refugia. The property covers most environmental features and ecological values of the Hyrcanian region and represents the most important and key environmental processes illustrating the genesis of those forests, including succession, evolution and speciation.

The floristic biodiversity of the Hyrcanian region is remarkable at the global level with over 3,200 vascular plants documented. Due to its isolation, the property hosts many relict, endangered, and regionally and locally endemic plant species, contributing to the ecological significance of the property, and the Hyrcanian region in general. Approximately 280 taxa are endemic and sub-endemic for the Hyrcanian region and about 500 plant species are Iranian endemics.

The ecosystems of the property support populations of many forest birds and mammals of the Hyrcanian region which are significant on national, regional and global scales. To date, 180 species of birds typical of broadleaved temperate forests have been recorded in the Hyrcanian region including Steppe Eagle, European Turtle Dove, Eastern Imperial Eagle, European Roller, Semicollared Flycatcher and Caspian Tit. Some 58 mammal species have been recorded across the region, including the iconic Persian Leopard and the threatened Wild Goat.

Integrity

The component parts of the property are functionally linked through the shared evolutionary history of the Caspian Hyrcanian mixed forest ecoregion and most have good ecological connectivity through the almost continuous forest belt in the whole Hyrcanian forest region. Khoshk-e-Daran, is the only component part that is isolated, however it still benefits from a high level of intactness and contributes to the overall value of the series. Each component part contributes distinctively to the property's Outstanding Universal Value and the component parts together sustain the long-term viability of the key species and ecosystems represented across the Hyrcanian region, as well as the evolutionary processes which continue to shape these forests over time.

Several component parts have suffered in the past from lack of legal protection, and continue to be negatively impacted to some extent by seasonal grazing and wood collection. The sustainable management of these uses is a critical issue for the long-term preservation of the site's integrity and it will require strong ongoing attention by the State Party.

Protection and management requirements

All component parts of the property are state owned and strictly protected by the respective national legislation in Azerbaijan and Iran. The two component parts in Azerbaijan are located within the boundaries of Hirkan National Park under the responsibility of the Ministry of Ecology and Natural Resources, and are subject to a strict protection regime. The 15 component parts in Iran are protected through the Nature Conservation Law and by the Heritage Law. It will be important to harmonize and streamline the management and protection regime

across the transnational property as a whole.

The management of the property's component parts in Azerbaijan is subject to the Management Plan of Hirkan National Park. The management is ensured by around 100 staff. The national park authority manages the component parts and their buffer zone in cooperation with local stakeholders, especially the Talish people living within the national park. The Talish people follow close to sustainable livelihoods, which has contributed to secure the preservation of the valuable forest until the present time. They have traditional rights to use the land within the buffer zone of the national park.

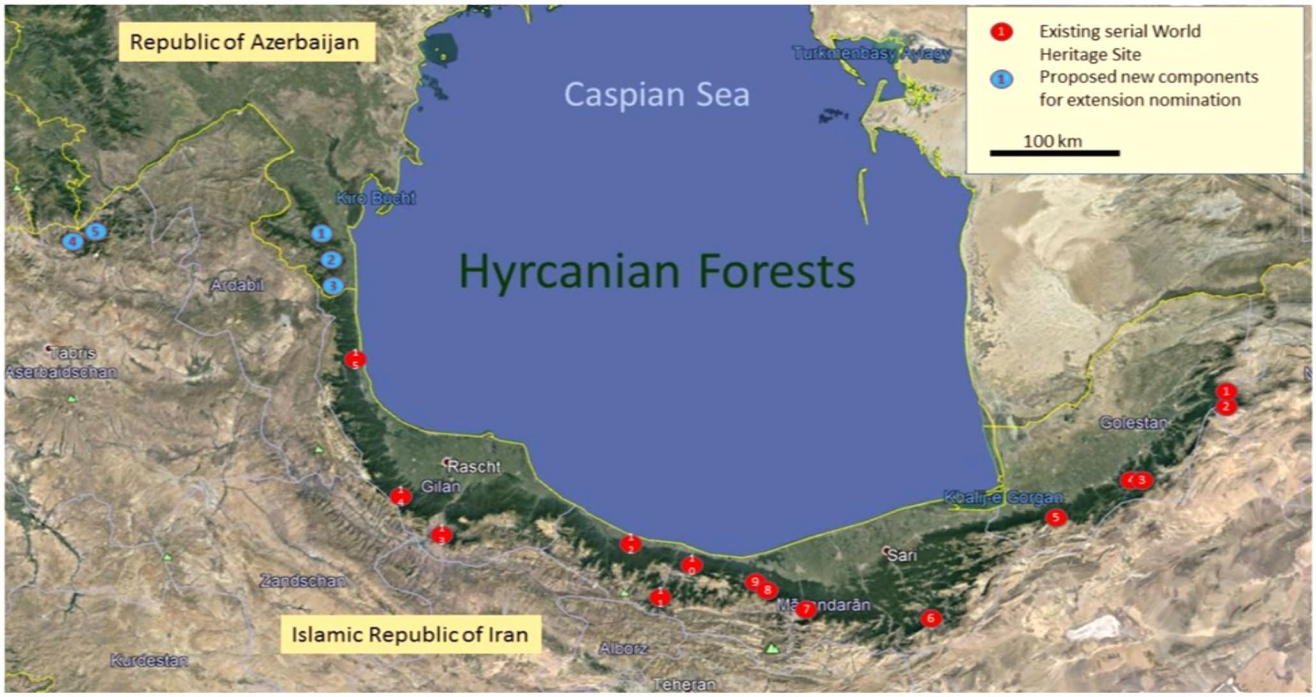
The management of the property's component parts in Iran is under the responsibility of three national agencies, the Iranian Forests, Range, Watershed and Management Organization (FRWO), Department of Environment (DoE) and the Cultural Heritage, Handicrafts and Tourism Organization (ICHHTO). A National Steering Committee is in place to ensure coordination across the series as a whole. This mechanism will need to be maintained in order to guarantee comprehensive management of the site into the future, based on a common vision and supported by adequate funding. Each component part has a management plan however, a transnational "Master Management Plan" for the whole property is also a long term requirement. The national and component-specific plans should be maintained, developed and updated regularly together by the responsible management institutions, in cooperation with ministries, universities and NGOs across both States Parties.

Public access and use of the area is legally regulated and logging, grazing, hunting and most other uses that may potentially impact the property are strictly prohibited within all component parts. Vehicle access and other uses and activities that may potentially impact the property are also either forbidden or strictly regulated. However, enforcement of access and use regulations is not always effective and requires strengthening. Particular attention is required to maintain and enhance where possible, ecological connectivity between component parts and to ensure effective regulation of seasonal grazing and wood collection, in consultation with local communities.

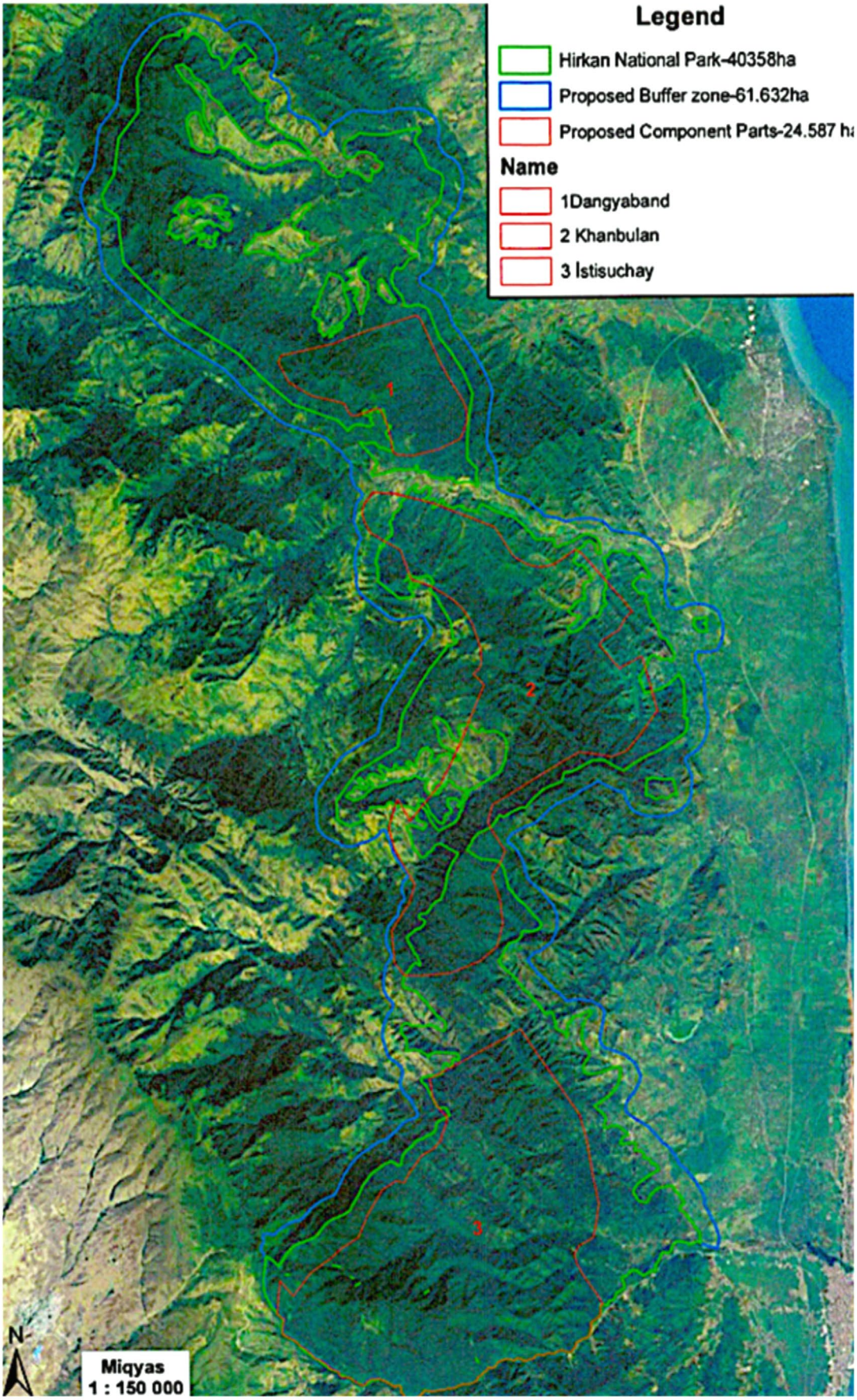
5. Taking note of the potential for *Khanbulan (Azerbaijan)* as an additional component part for this series, encourages the State Party of Azerbaijan before considering potential resubmission of this component part to align the boundaries of the *Khanbulan (Azerbaijan)* nominated component part with the boundaries of the Hirkan National Park, in consultation with local communities;

6. Takes note again of the potential for this property to also meet criterion (x), and recommends the State Parties of Azerbaijan and Islamic Republic of Iran to continue work to complete species inventories and confirm species composition and population conservation status within each of the component parts, and to consider submitting a re-nomination of the property if the further studies appear to confirm the relevant values are sufficient to meet criterion (x);

Map 1: Location of the proposed component parts (blue 1-5)



Map 2: Boundaries of nominated component parts in Azerbaijan



EUROPE / NORTH AMERICA

VOLCANOES AND FORESTS OF MOUNT PELÉE AND THE *PITONS* OF NORTHERN MARTINIQUE

FRANCE

Mont Pelée © IUCN / Wendy Strahm

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

VOLCANOES AND FORESTS OF MOUNT PELÉE AND THE *PITONS* OF NORTHERN MARTINIQUE (FRANCE) – ID N° 1657

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To defer the nomination under natural criteria (viii) and (x)

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

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2021

b) Additional information officially requested from and provided by the States Parties: Following the first session of the IUCN World Heritage Panel, a progress report was sent to the State Party on 17 December 2021. This letter advised on the status of the evaluation process and requested supplementary information, including a comparative analysis for criterion (viii), justifications for the boundaries as proposed and the legal protection of the nominated property. The supplementary information provided by the States Parties in response covered all requests by the Panel and included a slight modification to the boundaries to exclude areas subject to forestry.

c) Additional literature consulted: Various sources, including: Acevedo-Rodriguez, P. and M.T. Strong (n.d.). *Flora of the West Indies*. Smithsonian Institute. https://naturalhistory2.si.edu/botany/WestIndies/;
Andru J.-C., Le Roy M., J.-P. Rançon (2015). *Curiosités géologiques de la Martinique.* BRGM Éditions et Éditions Orphie; Biotope (2020). *Parc éolien de GRESS sur la commune de Grand'Rivière (Martinique), Rapport environnemental*. NWEnergy; Boudon, G. and H. Balcone-Boissard (2021). Volcanological evolution of Montagne Pelée (Martinique): A textbook case of alternating Plinian and dome-forming eruptions. *Earth-Science Reviews*, 221, 103754.
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Maréchal, P. (2011). *Araignées des Antilles*. PLB Editions; McKeever, P.J. and G.M. Narbonne (2021). *Geological World Heritage: a revised global framework for the application of criterion (viii) of the World Heritage Convention*. IUCN, Gland, Switzerland; WWF (2002). *Ecoregions. Southern Caribbean: Islands of Martinique, Dominica, Grenada, Saint Lucia, Saint Vincent and the Grenadines*. https://www.worldwildlife.org/ecoregions/nt0179

d) Consultations: 7 desk reviews received. The mission was able to meet with Martiniquais government representatives, including the President and Vice-President of the Martinique Government and mayors of the 19 communes concerned; directors and representatives of the Department of Environment (DEAL); Forestry Department (ONF); Regional Nature Park (PNRM); Volcano Observatory (OVSM); Botanic Garden (CBMQ); Hunting Association; and local enterprises.

e) Field Visit: Wendy Strahm and José Brilha, 18 to 24 October 2021

f) Date of IUCN approval of this report: April 2022

2. SUMMARY OF NATURAL VALUES

The "Volcans et forêts de la Montagne Pelée et des pitons du nord de la Martinique" (Volcanoes and Forests of Mount Pelée and the *Pitons* of Northern Martinique) are nominated under criteria (viii) and (x). Martinique is an island in the southern Lesser Antilles of the Caribbean, approximately 40 km south of Dominica and 34 km north of St Lucia. This serial nomination of two component parts consists of two major geomorphological components of volcanic origin in northern Martinique: the massif of Piton Mount Conil associated with the recent volcanic system of Mount Pelée; and the massif of Morne Jacob and the Pitons du Carbet. A single buffer zone surrounds the two component parts and reaches down to the seashore. The total area of the nominated property and buffer zone combined corresponds to about 38% of the whole area of the island.

Name	Area (ha)	Buffer zone (ha)
Massifs of Mount Pelée and Mount Conil	4,736	28,826
Massifs of Pitons du Carbet and of Morne Jacob	9,244	
Total	**13,980**	**28,826**

Table 1: Areas of the nominated property and buffer zone, following a minor adjustment to the boundaries in supplementary information by the State Party.

Regarding criterion (viii), the Pitons du Carbet and Mount Pelée are internationally renowned examples of volcanic morphologies and processes related with volcanic islands in a subduction zone context (Lesser Antilles arc). The Pitons du Carbet count 12 peaks and are shaped by lava domes, which are very prominent due to the high viscosity of the magmas from which they originated.

Mount Pelée (which is partly included in the nominated property) is an iconic volcano, remarkable for its eruptive style related to high viscosity lava domes and laterally directed explosions. From 550,000 years ago, Mount Pélée has evolved over four phases of volcanism, with the current phase (13,500 to present) being marked by a high number of eruptions. The most recent eruptions occurred in 1300, 1902-1905 and 1929. The 1902-1905 eruption of mount Pelée is considered the deadliest volcanic event in the 20th century, resulting in a tragic death toll of 28,000 people. This natural disaster triggered the building of one of the first volcanological observatories in the world and the peculiar type of eruption raised a lot of attention all over the world. The impacts of the eruption in the lives and infrastructures of St. Pierre's inhabitants is part of the local cultural heritage. During this eruption, seven successive explosions occurred, and the eruption created a 350 m high rock "needle", the highest known dome eruption structure. This needle collapsed a few weeks later after the eruption, but some remaining fragments are still visible inside the crater of Mount Pelée. This eruption is a world reference in the history of volcanology, having made it possible to describe one of the major types of volcanic eruptions: termed the Peléan type, which is marked by alternating dome-forming and Plinian eruptions, characterized by the formation of convective eruption columns.

Regarding criterion (x), the major biodiversity values relate to the forests of Martinique, said to be the most diverse and least fragmented in the Lesser Antilles, with two impressive strips of contiguous forest extending from the coast to the volcanic summits. Composed of a mixture of primary and secondary forest and dwarf shrubland at higher altitudes, the nomination records 1,058 species of native vascular plants (816 flowering plants and 242 pteridophytes). Of these, 33 species (4% of the flowering plants in the nominated property) are endemic to Martinique. While much of the forest has been severely exploited in the past, it is recovering and is currently relatively unaffected by exotic species apart from patches of bamboo, mahogany plantations and some other species. Other notable biodiversity values include the presence of threatened species, such as an endemic bird (Martinique Oriole, *Icterus bonana*, VU), an endemic bat (Schwartz's Myotis, *Myotis martiniquensis*, NT), an endemic frog (Martinique Volcano Frog, *Allobates chalcopis*, CR), and an endemic snake (Martinique Lancehead, *Bothrops lanceolatus*, EN). Furthermore, there are 14 endemic land snails, 19 endemic Arachnida (with a number of new species awaiting description), and a number of insects only found in the nominated property.

3. COMPARISONS WITH OTHER AREAS

Mount Pelée has been referred to in four IUCN thematic studies. In 1982, it was described as one of the world's greatest natural areas, in 2009 as one of the most iconic volcanoes. In 2019, IUCN noted Mount Pelée as one of several iconic or world-renowned volcanoes that may have potential to demonstrate Outstanding Universal Value (OUV). The 2013 IUCN thematic study on terrestrial biodiversity identified Martinique as a potential candidate as well.

The nomination dossier refers to relevant IUCN studies and provides a detailed comparative analysis in relation to criterion (x), but includes only a brief account for criterion (viii). This analysis of criterion (viii) does not clearly demonstrate the comparison with the Pitons Management Area (Saint Lucia) and the Morne Trois Pitons National Park (Dominica) World Heritage properties. Following the IUCN Panel's request, the State Party provided a detailed comparative analysis for criterion (viii) in supplementary information. However, IUCN notes that this comparative analysis does not clearly identify the attributes constituting the potential OUV under criterion (viii) and that it includes comparisons with various active shield volcanoes based on a hot spot / mantle plume, which are

however fundamentally different from the subduction zone and stratovolcano type found on Martinique. To demonstrate global significance, the analysis would need to include a comparison with Plinian eruptions and similar dome-forming volcanoes. Excellent examples of volcanoes outside of the Lesser Antilles with volcanic domes, but not referred to in the comparative analysis, include Redoubt, Colima, Santiaguito, Lascar and Chaiten volcanoes in the Americas, as well as Mayon, Pinatubo, and Ruapehu volcanoes in Asia-Pacific, including major dome building eruptions, such as Merapi or Anak Ranakah volcanoes. Therefore, IUCN considers that although Mount Pelée is mentioned in the latest 2019 IUCN volcano study, the comparative analysis of the area included in the nomination does not make a convincing case for the global significance of the nominated property. The potential to demonstrate global significance under criterion (viii) is also compromised by major concerns regarding integrity requirements in terms of completeness, as described in section 4.2.

Regarding criterion (x), the nomination dossier compares the nominated property with the other islands in the Lesser Antilles, Puerto Rico and Jamaica in the Greater Antilles, and two protected areas in Cuba and Puerto Rico, in terms of numbers of plants endemic to each island, plants endemic to the Lesser Antilles, and the number of tree species on each island. It appears that Martinique has the longest continuous stretch of forest from the seashore to the volcanic summits, a feature which no longer exists on the other islands of the Lesser Antilles. Situated within the Caribbean biodiversity hotspot, Martinique is part of the Lesser Antillean Endemic Bird Area as well as the Lesser Antilles Islands, one of WWF's Global 200 priority ecoregions for global conservation.

IUCN, in collaboration with UNEP WCMC, has undertaken supplementary comparative analysis on the biodiversity values, concluding that the biodiversity that characterises the nominated property appears to be of global significance, based on spatial analyses and literature review. Criterion (x) is supported by a high number of endemic plant and animal species present in the nominated property, with some of them being strictly endemic to Martinique, such as the Aralie, *Sciodaphyllum urbanianum* (VU). Herpetofauna endemism is high as well and includes the Critically Endangered Lacépède's Ground Snake, *Erythrolamprus cursor* (CR), and Martinique Volcano Frog, *Allobates chalcopis* (CR). The nominated property overlaps with two Important Bird Areas and Key Biodiversity Areas, which are not currently represented on the World Heritage List, and with three protected areas considered to be amongst the most irreplaceable in the world for mammal, bird and amphibian conservation.

In conclusion, IUCN considers that the nominated property appears to demonstrate global significance under criterion (x). However, while IUCN's thematic studies confirm also potential under criterion (viii) for Mount Pelée, the analysis of the specific area included in the nomination dossier does not clearly identify the attributes under this criterion and the comparative analysis is incomplete.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The area of the nominated property is covered by a matrix of eleven different (and to a large extent overlapping) protected area designations and local zonation schemes. One fifth of the nominated area is privately owned. A regional protection designation, the Parc naturel regional de Martinique (Martinique Regional Nature Park) (PNRM) covers almost all of the nominated property and the majority of the buffer zone. However, the future of the PNRM depends on the renewal of the Regional Nature Park status every 15 years, and this is next due in 2027 with the current charter expiring in 2024. Given this complexity, IUCN requested supplementary information and maps showing all protected areas and protection regimes, including detailed information on the values that shall be protected.

Regarding criterion (viii), the maps provided by the State Party confirm that the current protection regime of the nominated property does not allow for mineral extraction, mining or constructions, which IUCN considers appropriate. However, the supplementary information provided also indicates that important geo-sites are located outside the nominated property (see section 4.2).

Regarding criterion (x), IUCN notes that the values of the nominated property are fragile given the high number of endemic and threatened species. In addition, the island setting limits the possible size of the nominated property. This reinforces the need for an effective and unambiguous protection regime focused on the limited natural areas remaining in a highly developed setting (see section 4.5). The supplementary information provided by the State Party clearly notes that the nominated property requires strict protection of these values. It further notes that most parts of the nominated area are subject to strict protection through the management plans for the RBIs and a Site Classé ("classified site"). However, there are notable areas which are not subject to an appropriately rigorous protection regime located inside the nominated property, as also confirmed in the maps provided in the nomination dossier and the supplementary information. The supplementary information further notes examples of important biodiversity values found in these areas that are not subject to a strict protection regime, such as the largest group of hygrophilous forests (forests adapted for growth in a wet or damp environment), which is both very rare on Martinique and which boasts the highest biomass and number of species. However, many of the relevant areas within the nominated property are only protected via references in urban panning regulations and risk prevention document. IUCN considers that these urban plans and risk prevention documents do not constitute an effective protected area status, capable of ensuring the

preservation of biodiversity. It therefore considers that the protection regime inside the nominated property is insufficient in relation to the application of criterion (x).

In summary, IUCN considers that:

a) while the legal protection of the nominated property may currently be sufficient for criterion (viii), there are important attributes that would need to be protected but are located outside the nominated property (see section 4.2) and
b) The level of legal protection is currently not adequate for criterion (x) as attributes of importance for biodiversity conservation are located in zones which do not have sufficient protection to assure their conservation. IUCN recommends that the protection status of the biodiversity attributes is reviewed, and strengthened where it is currently insufficient, possibly through the extension of the existing RBIs.

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 consists of two component parts encompassed by one overall buffer zone. The buffer zone of the nominated property links both component parts playing a connectivity function, and covers the slopes from the boundaries of the nominated property down to the coast.

Regarding criterion (viii), IUCN finds that the representation of geological attributes is clearly not complete. Recalling paragraph 93 of the *Operational Guidelines*, according to which properties nominated under criterion (viii) *"should contain all or most of the key interrelated and interdependent elements in their natural relationships"* and *"in the case of volcanoes, the magmatic series should be complete and all or most of the varieties of effusive rocks and types of eruptions be represented"*, IUCN notes that 13 out of 20 geo-sites identified as significant in the supplementary information are located in the buffer zone (and thus not included in the nominated property). Significant geo-sites providing evidence of the 1902-1905 eruption and previous eruptions in the last 13,500 years are not within the nominated property and only four identified geo-sites include formations from the most recent eruptions 1902-1905 and 1929. While high viscosity lava domes and the remains of the highest known dome eruption are found inside the nominated property, sites recording laterally directed explosions and dome-collapse pyroclastic flows as well as coastal sites are only partially covered. Coastal geo-sites exhibit outcrops that are particularly important as many evidences of the 1902-1905 eruption are hidden under dense vegetation and forest, which is typical of geo-sites in a tropical warm and humid climate. Conversely, the supplementary information refers to geo-sites located inside the nominated property that are not necessarily relevant to the dome-forming and Plinian eruptions.

Regarding criterion (x), it was reported to the field evaluation mission that some valuable natural areas have not been included in the nominated property. In response, the State Party provided detailed information on species composition and abundance within the nominated property compared to the PNRM and the entire island indicating that the biodiversity values are represented in the revised boundaries, with the exception of bird biodiversity. In conclusion, IUCN considers that the revised boundaries appear to be adequate for the representation of criterion (x).

IUCN concludes that while the boundaries of the nominated property can be considered appropriate in respect of criterion (x), the nominated property is clearly incomplete in relation to integrity requirements under criterion (viii). The boundaries of the nominated property would need to be significantly revised through an extension and/or additional component part(s) to cover the key geo-sites that have, taken together, the potential to demonstrate global significance under criterion (viii).

IUCN considers that the boundaries of the nominated property and buffer zones meet the requirements of the *Operational Guidelines* for criterion (x), but clearly not for criterion (viii).

4.3 Management

The nominated property has a management plan covering both component parts and the surrounding buffer zone. The plan covers five broad themes: conserving OUV; developing knowledge; raising awareness using cultural values; developing the buffer zone harmonious with the nominated property; and promoting international cooperation with other nearby islands. However, IUCN notes that the management plan focusses mainly on biodiversity values and with inadequate content on geological values.

The management plan of the nominated property foresees a reinforcement of protection measures in the areas that are not covered by protected areas yet. This will involve the acquisition of private lands, and the extension of the RBI by 2,000 ha is also considered. Nevertheless, IUCN notes that these measures have not been implemented at the time of this evaluation. IUCN concurs with these aspirations of the management plan and considers that these objectives should be achieved before the nominated property is inscribed on the World Heritage List, so as to ensure a sufficient and coherent protection regime in respect of criterion (x), prior to inscription.

The management structure of the nominated property will be led by the National Forest Office (ONF), responsible for 80% of the nominated area. The joint association of the management of the PNRM will be responsible for the buffer zone. IUCN notes that the overall management structure for the nominated property appears to be complex, and that the two main

management bodies cover both much broader areas than the nominated property. The separate designation as UNESCO Biosphere Reserve with a zoning not matching the boundaries of the nominated property adds to this complexity.

In terms of funding, the PNRM and ONF appear to be sufficiently financed within its current term of operation. The financing of the Management Plan is foreseen at over EUR 17.5 million for five years (2021-2026). 34% of the budget will be used for the acquisition of private land inside the nominated property. Notwithstanding the notable capacity in terms of biodiversity expertise, IUCN notes that the coverage of geological expertise appears to be underrepresented in the management of the nominated property as there is only one full-time geologist on the management team, with other geologists only brought in "upon request", according to supplementary information.

The buffer zone of the nominated property includes a number of villages and towns inhabited by a total of 159,100 people, which is 42% of the total population of Martinique. The area also includes an electric power station, a wind farm with (currently) seven wind turbines. The buffer zone also contains several active quarries, farmlands, including a large area of intensive banana production, and it overlaps in the south with the development zone of the newly designated Biosphere Reserve.

The rationale for including a large but highly used buffer zone is to have more control over the area surrounding the nominated property is explained in the supplementary information. The 2012-2027 charter of the PNRM includes a zoning system for the buffer zone, but this is not guaranteed in the long term as it depends on the charter going forward from 2027. The Schéma d'Aménagement régional ("Regional Development Scheme") includes areas for future urban development adjacent to the southern component part of the nominated property. In addition, IUCN notes that there is a small part of the proposed buffer zone that does not fall within the PNRM boundaries. Based on this, IUCN considers that the buffer zone does not appear to provide an *"added layer of protection"* to the nominated property, in line with paragraph 104 of the *Operational Guidelines*.

In conclusion, IUCN considers that an increased management capacity for the protection and management of geological values would be needed for the nominated property, along with a buffer zone management regime that demonstrates threats to the potential OUV of the nominated property are addressed.

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

4.4 Community

The nominated property and its buffer zone are almost entirely located within the boundaries of the PNRM, which has a 15-year charter developed in consultation with all of the 19 communes. The local population appears to be well-informed and representatives met by the field evaluation mission strongly support the nomination project, though the consultations for the potential World Heritage site all take place in the context of the PNRM. The field evaluation mission observed no sign of local people being against the nomination with the exception of sport hunters, and a quarry owner, expressing their concern about no longer being able to continue with their activities as a result of World Heritage listing. While the nominated property is not inhabited, the buffer zone hosts a significant population of 159,100 people on an area of 28,826 ha.

4.5 Threats

Natural processes can impact geological values. The tropical climate accelerates weathering and erosion, including through landslides and rockfalls that may locally affect important geological features. Vegetation can also affect geological sites by destroying or obscuring fragile features. Thus urgent and continued recording of geo-sites that still exist today and protect and manage them following the best practices of geoconservation.

In the buffer zone, urban developments, infrastructure and quarrying affect geo-sites. Many of these geo-sites have the potential to support the case for criterion (viii), but are at risk of being impacted as land use has clearly increased over the last decades, according to the nomination dossier. Some of the vulnerable geo-sites are located in areas of the buffer zone where high-intensity use is present. A case in point is a geo-site in an active quarry on private land, which is important for the tephrochronology and the eruption history of the nominated property because it includes pyroclastic formations reflecting the past 25.000 years.

In relation to threats to biodiversity values, IUCN notes that the following threats require particular attention: deforestation and forestry operations; hunting; windfarms; invasive species; and tourism.

The nomination dossier notes deforestation and habitat degradation as significant threats in the c.20% of the nominated property that is under private ownership, though these threats are considered to be reducing. The IUCN evaluation mission noted that the boundaries as initially submitted contained areas subject to active hunting and forestry. In response to the IUCN Panel requesting a justification for this, the State Party has confirmed hunting is not permitted in the nominated property and moved areas subject to forestry from the nominated property into the buffer zone, by slightly revising the boundaries of the nominated property. IUCN welcomes the avoidance of hunting and logging inside the nominated property, whilst noting that even though they take place only within the buffer zone, the impacts may still indirectly affect the remaining nominated area. This is for instance the case for birds which are not confined to

the nominated area and may well be hunted in the buffer zone. Birds on the "near threatened" list presented in the nomination dossier figure also on the list of birds allowed to be hunted. Research on Mount Pelée has also noted hunting as a stress factor for birds.

The buffer zone also currently contains a windfarm with seven wind turbines affecting viewsheds, with feasibility studies to expand this wind farm underway. An impact study of the existing development shows that while bird loss was low, 5 of the 10 bat species in the nominated property were affected. This has resulted in a ban on operating wind turbines by night.

Invasive alien species include, *inter alia*, black rats, cats, mice, mongoose, racoons, opossum, and possibly the colonisation of the Shiny Cowbird, *Molothrus bonariensis* (LC), which predates the nest of Martinique's only endemic bird on the island, the Martinique Oriole, *Icterus bonana* (VU). Most invasive plant control effort currently seems to be made on Bush Currant, *Miconia calvescens* (LC), in the buffer zone, which could cause severe problems if it moved into the nominated property. There is much awareness about the threats by invasive species and every organisation involved in this nomination have staff attributed to tackling this threat.

Tourism includes sporting activities such as canyoning in ravines and a major annual trail run crossing the nominated property. Tourism is intended to be increased on the northern part of Martinique as a result of World Heritage status. A steep increase in tourism would likely strain the protection and management of the nominated property as it would likely increase pressure on already eroded trails and exacerbate already existing issues related to trash.

IUCN considers that threats to the nominated property are understood and being managed, but there is a need for impacts stemming from the buffer zone need to be more thoroughly mitigated.

In summary, IUCN considers that the integrity requirements and protection and management requirements of the *Operational Guidelines* are not met.

5. ADDITIONAL COMMENTS

5.1 Consideration in relation to serial properties

a) What is the justification for the serial approach?

The nominated property consists of two component parts located at approximately c.2.5 km from each other. Both component parts correspond to the higher altitude forest areas of Martinique (above 400 m). The serial approach is justified as the values are present in distinct areas, separated by areas where the intensity of land-use does not currently support attributes of OUV. In addition, IUCN also notes existing efforts to develop a corridor between both component parts (see section 5.1b). Subject to the success of these efforts, both component parts could potentially be joined in a revised nomination, at some point in the future.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the *Operational Guidelines*?

From a geological point of view, the two component parts represent two different stages of island building, with linked volcanic characteristics. From a biological point of view, the older Pitons du Carbet served in the past as a source of species for the younger component part of Mount Pelée, and it is essential that genetic transfer between the two component parts can continue. It is therefore welcome that a plan on how corridors between the two component parts can be developed has been launched.

c) Is there an effective overall management framework for all the component parts of the nominated property?

The governance and management regime covers both component parts of the nominated property through the PNRM. DEAL and ONF have also responsibilities in each of the component parts. Both component parts are also inside a new Biosphere Reserve. While there is an overall management framework for both component parts, IUCN notes possibilities to improve their effectiveness (see section 4.3).

6. APPLICATION OF CRITERIA

The **Volcanoes and Forests of Mount Pelée and the *Pitons* of Northern Martinique (France)** has been nominated under natural criteria (viii) and (x).

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

The global significance of Mount Pelée and Pitons du Carbet is based on its representation of volcanic features, materials and processes, involving repetitive lateral explosions with the projection of pyroclastic flows, and the growth of domes due to high viscosity magmas that characterize Peléean volcanism. The 1902-1905 eruption is considered a key event for the history of volcanology causing a dramatic impact on St. Pierre town, resulting in a tragic loss of life, and a legacy that remains part of the culture of Martinique. The significance of Mount Pelée is also indicated in the last update of the IUCN Volcano Thematic Study, and in past thematic studies.

However, much of the important evidence of this volcanic evolution are located in the buffer zone and not inside the nominated property. The comparative analysis within the nomination has notable deficiencies, and significant analysis was only presented in the supplementary information. The analysis lacks a clear definition of attributes and a more complete comparison with Plinian eruptions and similar dome-forming volcanoes at global scale is required. The comparative analysis in a revised

nomination will have to demonstrate that the evidence in North Martinique, and in particular the geo-sites included in a revised nomination, provide a convincing basis to represent the potential OUV.

IUCN considers that the nominated property has the potential to meet this criterion, but that the boundaries of the nominated property need to be significantly revised through extension and/or the addition of component part(s) to include all geo-sites needed to convey the potential OUV in order to meet this criterion, and that a revised and complete comparative analysis is required.

Criterion (x): Biodiversity and threatened species

The nominated property hosts 1,058 species of native vascular plants out of which 33 species are reported as endemic to Martinique. Various globally threatened species are home to the nominated property, including the Martinique Volcano Frog, *Allobates chalcopis* (CR), the Lacépède's Ground Snake, *Erythrolamprus cursor* (CR), the Martinique Lancehead, *Bothrops lanceolatus* (EN), and the endemic Martinique Oriole, *Icterus bonana* (VU) and Schwartz's Myotis, *Myotis martiniquensis* (NT). The nominated property overlaps with two Important Bird Areas and Key Biodiversity Areas and with protected areas considered to be amongst the most irreplaceable in the world for mammal, bird and amphibian conservation. The two stretches of native forest, from the coast up to the high volcanic summits, is exceptional for the Lesser Antilles as native lowland forest has been mostly lost elsewhere. The number of plants endemic to the island and the representation of plants endemic to the Lesser Antilles, is probably also richer than on other islands in the chain. Situated within the Caribbean biodiversity hotspot, Martinique is part of the Lesser Antillean Endemic Bird Area as well as the Lesser Antilles Islands, and is one of WWF's Global 200 priority ecoregions for global conservation.

However, IUCN considers that the protection regime is not adequate to ensure the effective protection and management of these biodiversity values, and needs to be consolidated to provide a more rigorous and consistent level of protection, aligned with the boundaries of the nominated property. Furthermore the buffer zone's function as an added layer of protection needs to be strengthened.

IUCN considers that the nominated property has the potential to meet this criterion, but that the protection and management arrangements require strengthening to meet requirements for the conservation of the potential OUV for biodiversity.

7. RECOMMENDATIONS

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

The World Heritage Committee,

1. Having examined Documents WHC/22/45.COM/8B and WHC/22/45.COM/INF.8B2,

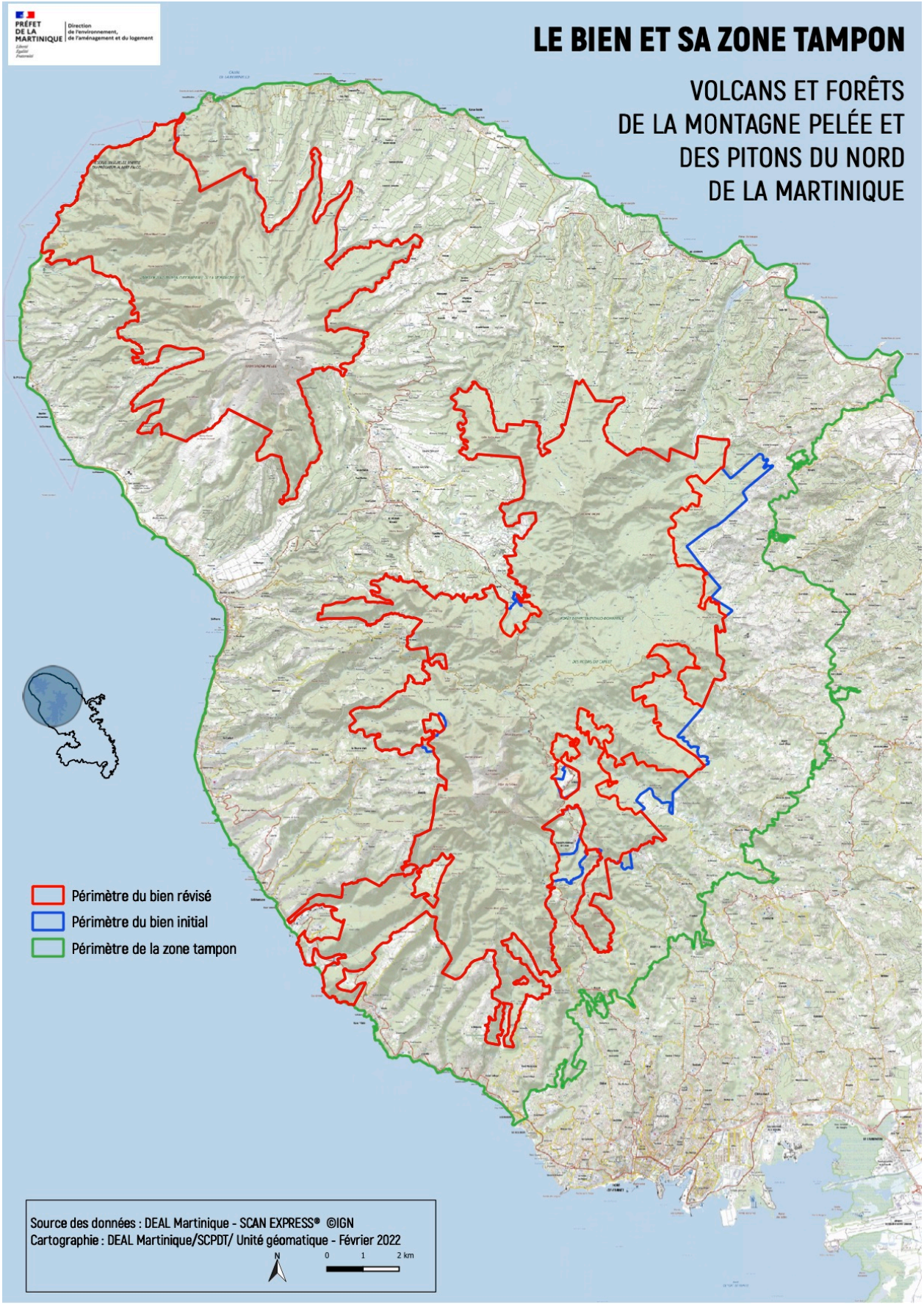
2. Defers the nomination of **Volcanoes and Forests of Mount Pelée and the *Pitons* of Northern Martinique, France**, taking note of the potential of a revised proposal to demonstrate Outstanding Universal Value (OUV) under criteria (viii) and (x), in order to allow the State Party to prepare a revised nomination taking account of the need to:

a) revise the nominated property to demonstrate Outstanding Universal Value under criterion (viii) in terms of values, integrity and protection and management requirements, including:
    1) a revision of boundaries to include within the property all geo-sites that are relevant to the potential Outstanding Universal Value under criterion (viii), possibly through an extension of the current boundaries and/or additional component parts,
    2) a clear identification of attributes of Outstanding Universal Value supported by a thorough global comparative analysis, including a comparison of Plinian eruptions and dome-forming volcanoes at global level,
    3) a consistent and effective protection regime specific to all the significant geo-sites and an increased on-site management capacity for the protection and management of geological values;

b) revise the nomination to ensure the protection of potential Outstanding Universal Value under criterion (x), by strengthening protection and management arrangements, including:
    1) a rigorous and consistent protection status for the entire nominated property, possibly through an extension of the *Reserves Biologiques Intégrales* inside the nominated property,
    2) threats to the nominated property stemming from the buffer zone, in order to ensure that the buffer zone serves as an effective additional layer of protection, in line with the *Operational Guidelines*;

4. Recommends the State Party to establish a centralized approach to site management that includes strengthened geological expertise, and which can ensure the conservation of the entire nominated property and buffer zone.

Map 1: Location of the nominated property



A. NATURAL PROPERTIES

A3. MINOR BOUNDARY MODIFICATIONS OF NATURAL PROPERTIES

AFRICA

TAÏ NATIONAL PARK

CÔTE D'IVOIRE

WORLD HERITAGE MINOR BOUNDARY MODIFICATION PROPOSAL – IUCN TECHNICAL EVALUATION

TAÏ NATIONAL PARK (CÔTE D'IVOIRE) – ID No. 195Bis

1. BACKGROUND INFORMATION

Taï National Park was inscribed on the World Heritage List in 1982 under criteria (vii) and (x). The World Heritage property consists of a single area designated both as Biosphere Reserve and national park, totalling 330,000 ha at the time of inscription. The property has a buffer zone that has the legal status of a managed Fauna Reserve.

The World Heritage Committee has examined the state of conservation of the property on several occasions since 1984. Based on the 2006 joint World Heritage Centre/IUCN Reactive Monitoring mission and the State of Conservation report presented by the State Party in 2018, the Committee requested the State Party in 2020 to "*elaborate as soon as possible a boundary modification proposal to align the boundaries of the property with those of the national park, in consultation with the World Heritage Centre and IUCN regarding the appropriate format for such a modification*" (Decision 43 COM 7B.31). In response to decision 43 COM 7B.31 of the World Heritage Committee, the State Party submitted on 11 March 2021 a request for a minor boundary modification in accordance with Decree No. 2018-496 of 23 May 2018. This decree formalized the extension of the Taï National Park.

In its latest decision, the Committee also reiterated its recommendation to the States Party to "*integrate the EIA/HIA processes into legislation, planning mechanisms and management plans, and reiterates its recommendation to use these tools in assessing projects, including assessment of cumulative impacts on the Outstanding Universal Value of properties, as early as possible and before any final decision is taken"* (Decision 44 COM 7B.200).

The relevant documentation is available at http://whc.unesco.org/en/list/195/documents/.

2. SUMMARY OF PROPOSED BOUNDARY MODIFICATION

The minor boundary modification proposed by the State Party would consist of the addition of two adjacent areas to the property (see map 1):

Firstly, the modification proposes to add the managed Fauna Reserve to the inscribed property. This would result in widening the property by around 5 km at its western, southern and eastern limits. This would add 96,000 ha to the nominated property.

Secondly, the modification proposes the addition of more than two thirds of the "N'Zo Fauna Reserve" adjacent to the Northern border of the inscribed property. The reserve has thus far functioned as a buffer zone, though there is no formal World Heritage buffer zone.

IUCN notes that the State Party amended the Law 2013-864 of 23 December 2013 to allow the government to modify by Decree the boundaries of national parks and natural reserves and that the proposed boundary modification of Taï National Park approved (by Decree 2018-496 of 23 May 2018) the inclusion of both the N'Zo Fauna Reserve and the managed Fauna Reserve. The new boundaries would add a part of the Haut Dodo classified forest in the south-west and a part of the Rapides Grah classified forest in the south-eastern and eastern part of the national park.

Overall, the property's area would increase by 178,186 ha (53.99%) to 508,186 ha.

3. IMPACT ON OUTSTANDING UNIVERSAL VALUE

IUCN notes that the proposed minor boundary modification adds a significant part of two adjacent areas that have been subject to strong conservation efforts in past years. Even though the managed Fauna Reserve and the N'Zo Fauna Reserve have served as a Peripheral Protection Zone and a Partial Fauna Reserve, respectively, until May 2018, they have, for 40 years, both been functioning as quasi-buffer zones preserving Taï National Park as one of the last major remnants of primary tropical forest in West Africa. The values contained in these areas would in IUCN's view clearly add attributes to the OUV of the property. The integrity of the property would also be improved in terms of completeness if these areas would be included in the property.

Furthermore, the boundary modification proposal responds to a World Heritage Centre and IUCN recommendation made in 2020, and based on the Committee's Decision 43 COM 7B.3, IUCN also notes that the extension provides a wider area of protected habitat for threatened mammal species that are a key attribute of the OUV. These include the Pygmy Hippopotamus, *Choeropsis liberiensis* (EN), and 11 species of monkeys preserved within the park. In addition, the proposed modification would align the boundaries of the property with the current boundaries of the national park facilitating more streamlined management.

Therefore, IUCN concludes that the proposed minor boundary modification represents a clear improvement of the conservation of the property's OUV.

Based on the 2019 State of Conservation Report, IUCN acknowledges the progress made by the State Party to reduce illegal activities, including poaching and artisanal gold mining. Therefore, IUCN reiterates the importance to continue these efforts to eliminate the threats posed by illegal activities, to continue identifying effective measures to prevent the above mentioned risks within the property, and to report on these as applicable and in accordance with Paragraph 172 of the *Operational Guidelines.*

4. RECOMMENDATION

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

The World Heritage Committee,

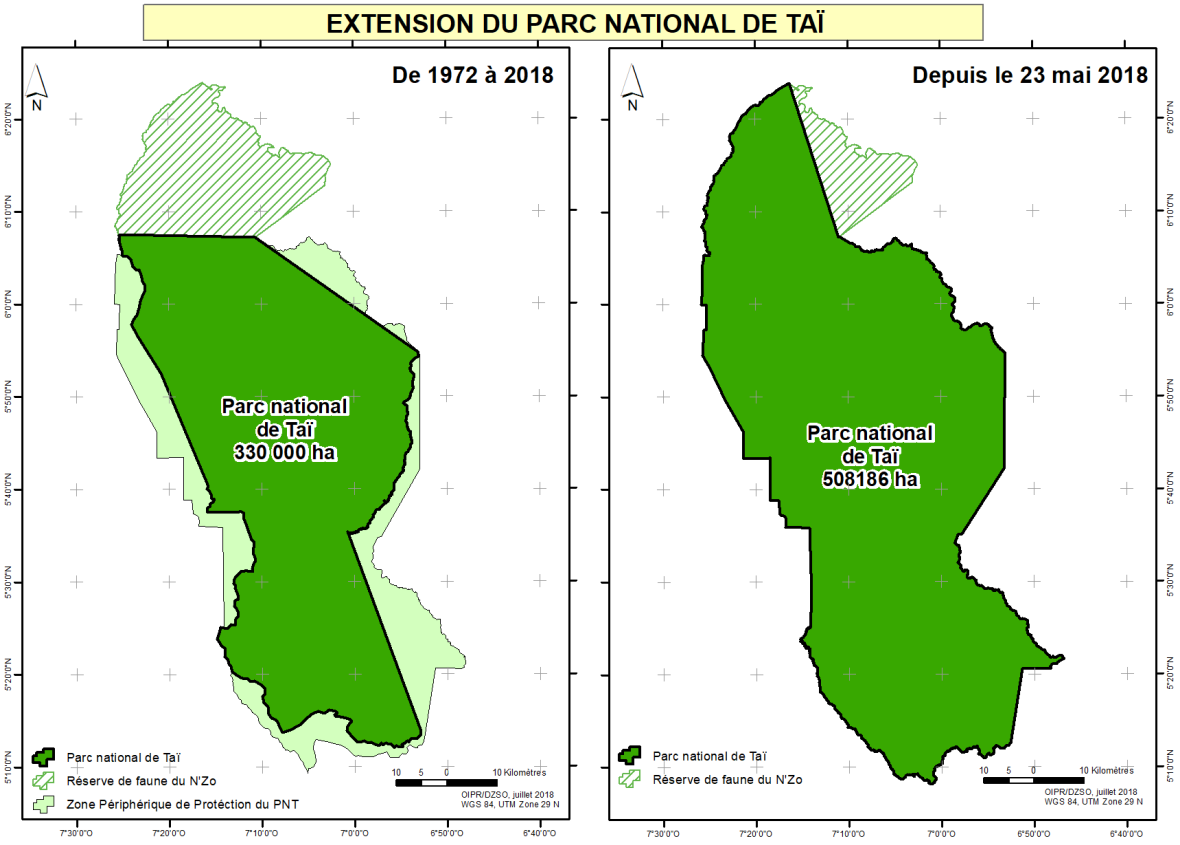
1. Having examined Documents WHC/22/45.COM/8B.ADD and WHC/22/45.COM/INF.8B2.ADD,

2. Recalling Decisions **06 COM VIII.20**, **43 COM 7B.31** and **44 COM 7B.200** adopted at its 6th (UNESCO, Paris, 1982), 43rd (Baku, 2019) and 44th (Fuzhou/online, 2021) sessions respectively,

3. Approves the minor boundary modification request for **Taï National Park, Côte d'Ivoire**;

4. Welcomes the progress made by the State Party to address threats to the property, underlines the importance of continuing efforts to eliminate those threats posed to the property by illegal activities, and encourages the State Party to report on any development of threats as applicable and in conformity with Paragraph 172 of the *Operational Guidelines,* including on any potential impacts on the integrity of the property and the newly added areas.

Map 1: World Heritage property and proposed minor boundary modification



AFRICA

COMOÉ NATIONAL PARK

CÔTE D'IVOIRE

WORLD HERITAGE MINOR BOUNDARY MODIFICATION PROPOSAL – IUCN TECHNICAL EVALUATION

COMOÉ NATIONAL PARK (CÔTE D'IVOIRE) – ID NO. 227BIS

1. BACKGROUND INFORMATION

Comoé National Park was inscribed on the World Heritage List in 1983 (Decision 07 COM VIII) with the boundaries of the national park as delineated in 1968. This delineation covered an area of 1,150,000 ha. The property has been subject to the Reactive Monitoring process since 1999 and on the List of World Heritage in Danger from 2003 to 2017. Following successful action on enhancing management capacities, improving monitoring and surveillance, and addressing pressures from mining and transhumance, the Reactive Monitoring was suspended in 2021 (Decision 44 COM 7B.200).

In its 2018 State of Conservation report, the State Party noted that the boundaries of Comoé National Park have been changed, reducing the area from 1,150,000 ha to 1,148,756 ha as a result of a participatory process initiated in 2014. Consequently, the Committee requested the State Party to "*provide fuller information on the revised boundaries, and in particular maps clearly showing the changes in respect of the boundaries of the inscribed property*" (Decision 43 COM 7B.32).

The relevant documentation is available at http://whc.unesco.org/en/list/227/documents/.

2. SUMMARY OF PROPOSED BOUNDARY MODIFICATION.

The minor boundary modification proposal consists of a narrow excision at the northern boundary of the property, and two small excisions and two small additions in the southwest of the property (see map 1).

The boundaries as inscribed in 1983 did not take into account that the boundaries of the national park had been changed in 1977, having reduced the area to 1,149,150 ha through the excision at the northern limit of the national park in 1977. In 2018, the State Party modified the national park boundaries again, slightly reducing the area in its south-western part whilst adding areas in the Mount Gorowi mountain range. According to the State Party, this second modification was motivated by concerns raised by local communities about the need for additional land for agriculture.

Comparing the original 1968 delineation of the national park boundaries as inscribed in 1983 with the 2018 delineation, IUCN notes that the entire boundary is slightly different, apparently as a result of improved precision, whilst noting that this also results in the excision of a small area in the north-western part and at the south-western tip of the property.

3. IMPACT ON OUTSTANDING UNIVERSAL VALUE

IUCN notes that the proposed minor boundary modification consists, firstly, of a correction of the boundaries to align with the national park boundaries as established prior to inscription in 1977; secondly, to improve the precision of the boundary delineation of the entire national park; and thirdly of a land swap agreed with local communities.

First, regarding the correction of the boundaries, IUCN notes that this would result in a reduction of the property by 850 ha from 1,150,000 ha to 1,149,150 ha, excising the area located in the department of Tehini in the northern part of the property (see map 1). In 2010, the State Party noted the error at the time of inscription in the process of establishing the retrospective Statement of Outstanding Universal Value (rSOUV) for the property. The Committee adopted the rSOUV at its 34th session considering that the property comprises an area of 1,149,150 ha (Decision 34 COM 8E). IUCN considers that this correction is fully justified as this change would reflect the boundaries of the national park at the time of inscription and be in line with the rSOUV as adopted.

Second, regarding the precision of the boundaries, IUCN notes that the boundary definition tools used in 2018 are more accurate than those used back in 1977. The specified boundaries largely follow the original boundaries and do not result in the excision of significant areas. Therefore, IUCN considers that this precision of boundaries is acceptable.

Third, regarding the land swap, IUCN recalls that at the time of inscription, the Committee recommended the State Party consider extending the national park to include Mounts Gorowi and Kongoli to enhance the value of the property (Decision 07 COM VIII). The 2018 modification of the national park boundaries would include parts of this area around Mount Gorowi. IUCN welcomes this proposed addition, as this would enhance the integrity of the property.

IUCN further notes that in response to the Committee's Decision 43 COM 7B.32, efforts have been undertaken to address intrusion of livestock inside the property; to rehabilitate degraded areas; and to improve income for local communities, and thus limit the extension of cashew plantations whilst addressing conflicts with farmers and livestock breeders. The results of aerial inventories undertaken in 2014, 2016 and 2019 confirm that improved control of pressures has resulted in an increase of populations of large fauna and the gradual recolonization of the entire property by animal species representative of the park.

Furthermore, the facilitation throughlocal committees to manage agro-pastoralism has contributed to improving the participatory management of the natural resources on the periphery of the property. Based on a participatory process launched in 2014, the State Party agreed with local communities to include a part of Gorowi Mountain in the national park in exchange for additional land for agriculture to be excised from the national park. This would improve the food security for local communities. The new consensual boundaries were formalised through Decree n°2018-497 of 23 May 2018. While IUCN considers that boundaries of the protected area underpinning a World Heritage property should not be changed before the submission and adoption of a boundary modification request, IUCN welcomes the participatory process that has resulted in the addition of an important area to the existing property whilst ensuring the livelihoods of local communities are respected.

Based on the information available, IUCN also considers that this minor boundary modification would not appear to affect the Outstanding Universal Value of the property. Nevertheless, to ensure the integrity of the property in future, IUCN considers that the national park and the World Heritage property should not be subject to any further net reductions in area. IUCN recommends that the newly defined boundaries of the property should progressively be demarcated in the field through a participatory process. Finally, IUCN also notes that further areas could be considered for future extensions of the property to fully include Mount Gorowi and Mount Kongoli into the property as recommended by the Committee in 1983 if such an extension received the free, prior and informed consent by local communities.

In conclusion, IUCN considers that the minor correction, the boundary precision and the slight adjustment of boundaries in the southwest of the property, as agreed with local communities, and as presented on map 1, would appear to improve the protection of the property's OUV, based on the information available, and is therefore acceptable.

However, while IUCN considers the boundaries as shown on map 1 acceptable, IUCN notes an inconsistency in area figures provided, which requires further clarification:
IUCN notes that the State Party reports a total reduction in area of 1,244 ha compared to the inscribed property. The reduction of 1,244 ha consists of the reduction by 850 ha in 1977, from 1,150,000 ha to 1,149,150 ha, and of a net reduction by 394 ha in 2018, from 1,149,150 ha to 1,148,756 ha. However, the State Party reports at the same time that the 2018 modification would consist of an excision of 68 km^2 and an addition of 24 km^2, hence a net reduction of 44 km^2, i.e. 4,400 ha and not 394 ha. While the boundaries as presented on map 1 are acceptable in the view of IUCN, it is recommended that the Committee request the State Party to clarify the reasons for this inconsistency and confirm that the modified boundaries comprise 1,148,756 ha.

4. RECOMMENDATION

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

The World Heritage Committee,

1. Having examined Documents WHC/22/45.COM/8B.ADD and WHC/22/45.COM/INF.8B2.ADD;

2. Recalling decisions 07 COM VIII, 34 COM 8E, 43 COM 7B.32 and 44 COM 7B.200 taken at its 7th (Florence, 1983), 34th (Brasília, 2010), 43rd (Baku, 2019) and 44th (Fuzhou/Online, 2021) sessions respectively,

3. Approves the minor boundary modification request for **Comoé National Park (Côte d'Ivoire)**;

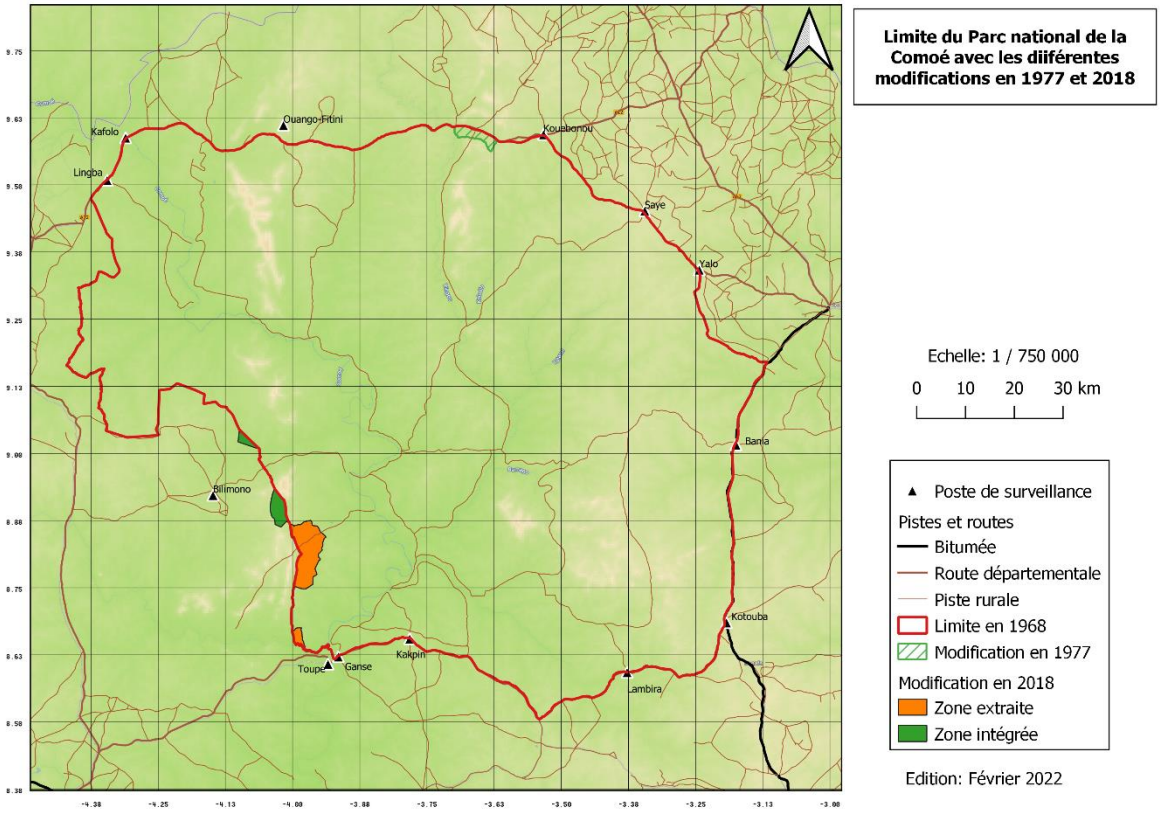
4. Welcomes the successful conservation action undertaken by the State Party to date and encourages the State Party to continue implementing effective protection measures based on the modified boundaries of Comoé National Park;

5. Also encourages the State Party to proceed progressively, and through a participatory process, to a physical demarcation of the boundaries of the property;

6. Considers that the property should not be subject to any further net reductions in area, and invites the State Party to consider a future extension of the property, in consultation with local communities, to fully include Mount Gorowi and Mount Kongoli into the property as recommended by the Committee in its Decision **07 COM VIII**;

7. Requests the State Party to confirm that the modified boundaries of the property comprise 1,148,756 ha and to clarify the reasons for inconsistent area figures being reported.

Map 1: World Heritage property and proposed minor boundary modification



EUROPE / NORTH AMERICA

ANCIENT AND PRIMEVAL BEECH FORESTS OF THE CARPATHIANS AND OTHER REGIONS OF EUROPE

AUSTRIA / CROATIA

WORLD HERITAGE MINOR BOUNDARY MODIFICATION PROPOSAL – IUCN TECHNICAL EVALUATION

ANCIENT AND PRIMEVAL BEECH FORESTS OF THE CARPATHIANS AND OTHER REGIONS OF EUROPE (ALBANIA, AUSTRIA, BELGIUM, BOSNIA AND HERZEGOVINA, BULGARIA, CROATIA, CZECHIA, FRANCE, GERMANY, ITALY, NORTH MACEDONIA, POLAND, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWITZERLAND, UKRAINE) – ID No. 1133QUINQUIES

1. BACKGROUND INFORMATION

The Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe are a transnational serial property counting 94 component parts spanning 18 countries. The combined area of these component parts totals 97,945 ha with buffer zones totalling 294.909 ha.

The property was first inscribed in 2007 (Decision 31 COM 8B.16) with component parts in Slovakia and Ukraine, and extended in 2010 to include further component parts in Germany. In 2016, eleven States Parties submitted another transnational extension nominating 67 additional component parts, which were approved by the World Heritage Committee in 2017 (Decision 41 COM 8B.7). A third extension was approved by the Committee in 2021, modifying the boundaries of existing component parts in Slovakia and expanding the property to its current extent (Decision 44 COM 8B.32). IUCN's previous evaluations can be found in documents WHC-04/28.COM/INF.14B; WHC-07/31.COM/INF.8B.2; WHC-11/35.COM/INF.8B2, WHC/17/41.COM/INF.8B2 and WHC/17/44.COM/INF.8B2, which contain relevant analyses.

The current inscribed site is also to be considered in relation to State of Conservation issues under item 7B of the agenda of the same Committee meeting at which this minor boundary modification proposal is tabled.

The relevant documentation is available at http://whc.unesco.org/en/list/1133/documents/.

2. SUMMARY OF PROPOSED BOUNDARY MODIFICATION

Austria and Croatia submitted a minor boundary modification proposing a change of boundaries of three existing component parts located in two different areas (see maps 1-3).

Firstly, Austria proposes to enlarge the *Dürrenstein* component part by adding *Lassingtal*, doubling the size of the component part from 1,867.45 ha to 3,685.27 ha and its buffer zone from 1,545.05 ha to 3,089.78 ha. *Dürrenstein* is located in the Northern Limestone Alps, on a mountain ridge stretching from southwest to northeast, enlarging the component part to include the south and south-eastern facing slopes of the ridge.

Secondly, Croatia proposes to merge the component parts of *Paklenica National Park – Suva draga-Klimenta* and *Paklenica National Park – Oglavinovac-Javornik* to become one single component called *Paklenica National Park*. Currently, the two component parts total 2,031.78 ha with two separate buffer zones of 810.11 ha. The area of the consolidated component part would slightly increase to 2,036.81 ha with a buffer zone of 824.86 ha.

The intention to revise these boundaries was forecast by the State Party reporting on the state of conservation of the property in 2018 and 2019, and noted by the Committee in its Decision 43 COM 7B.

3. IMPACT ON OUTSTANDING UNIVERSAL VALUE

Regarding the enlargement of the *Dürrenstein* component part (Austria), IUCN notes that the newly proposed area in *Lassingtal* would add further ecological values and ecotypes of Beech Forest, which are not represented within the current boundaries. This includes especially dry beech forest communities from the phytosociological order of the *Cephalanthero-Fagion*. The proposed area would also cover the ecological gradient from the mountain ridge to the streams of Lassingbach and Salza, extending over an altitudinal range from 600 m a.s.l. to 1,800 m a.s.l. Around half of the forest stands are older than 180 years, which is rare on the European continent. Avalanche disturbance on the south-facing slopes plays an important role in the newly proposed area. The disturbance regime is different from the north-facing slopes within the current boundaries.

The proposed addition is located within the wider Wildalpener Salztal Nature Reserve (IUCN Category V) and within a Natura 2000 site. A strict non-intervention regime applies inside the proposed enlarged component part, which is designated as Wilderness Area. Both the component part and buffer zone are subject to an IUCN Category Ib protection regime. While *Lassingtal* is located in a different federal state (Styria), the management body responsible for *Dürrenstein* will also be managing the proposed *Lassingtal* area.

The buffer zone is designed according to a zonation approach that is being progressively implemented across the entire transnational property. A mostly narrow zone of strict protection (non-intervention regime) borders the nominated area. The remaining

part of the buffer zone has no active management and natural processes are enabled in more than 75% of this zone, according to the nomination dossier. However, limited traditional use rights exist for timber in the buffer zone, however the nomination dossier notes that these rights are only rarely being used and the use for timber is generally retreating. As all parts of the buffer zone serve as an important corridor given the curved shape of the nominated component part, IUCN recommends that the phasing-out of timber use in the buffer zone should be formalised in the near future.

Overall, IUCN considers that the significant extension across the ridge to also include the south-facing slopes clearly adds value to the existing area improving its integrity and being subject to the same protection regime.

Regarding the modification of the two component parts located in *Paklenica National Park* (Croatia), IUCN notes that the proposed modification would combine the *Suva draga-Klimenta* and *Oglavinovac-Javornik* by connecting them likewise across a ridge line. This proposal is intended to improve connectivity and thereby strengthen the integrity of the merged component part. Furthermore, the boundary change is intended to correct the current buffer zone, which includes areas outside the national park, and thereby achieve more accurate zoning. The mismatch between the current buffer zone and the national park boundaries is due to different spatial references used in the 2017 extension nomination.

The proposed modification of the boundaries would ensure that not only the component area but also the entire buffer zone is subject to the protection regime of the wider Paklenica National Park (IUCN Category II) area and the overlapping Natura 2000 site. A strict non-intervention regime would be applied in the component area, ensured by the same management body, i.e. Paklenica National Park Public Institution. The modification would also result in an excision of small areas from the property and buffer zone, in order to exclude a mountain hamlet. This hamlet is being used to accommodate tourists. As these used areas are located in the vicinity of the component area, IUCN recommends the State Party of Croatia ensure that the areas excluded from the current component areas and buffer zone are not be subject to increased use, especially if such use results in a negative impact on the Outstanding Universal Value of the transnational serial property.

The proposed buffer zone would envelop the consolidated component part at a width of at least 150m. The entire buffer zone would be subject to the same non-intervention regime as the component part itself. In addition, IUCN notes that the entire area of the national park is not subject to forest management. The proposed component part would thus benefit from more than 6,500 ha of strict protection surrounding the component part. Therefore, IUCN recommends considering an extension of the buffer zone to align with the boundaries of the national park.

Overall, IUCN considers that merging the currently separate component parts of *Paklenica National Park – Suva draga-Klimenta* and *Paklenica National Park – Oglavinovac-Javornik* would clearly improve connectivity and hence the integrity of the component area whilst remaining subject to the same protection regime.

In conclusion, IUCN considers that the minor boundary modification would appear to result in positive outcomes for the protection of the OUV of the transnational serial property, adding values and enhancing the property's integrity. Therefore, this minor boundary modification would also address some of the existing property's shortcomings identified by IUCN in its 2017 evaluation report (see document WHC/17/41.COM/INF.8B2) in the case of two component parts. While welcoming this proposed improvement of the existing property, IUCN recommends that the protection of the modified component parts would be further strengthened by (a) phasing-out completely any remaining use of timber in the *Dürrenstein-Lassingtal* (Austria) buffer zone to fully leverage the corridor function of the entire buffer zone; (b) ensuring that the small areas excised from the current component parts and buffer zones in *Paklenica National Park* (Croatia) will not be subject to increased use, especially not if such use could have a negative impact on the Outstanding Universal Value of the transnational serial property; and by (c) considering an extension of the buffer zone to align with the boundaries of *Paklenica National Park* (Croatia). Based on this, IUCN recommends that the State Party is requested to submit further information on these three points by 1 December 2023 as part of the State Party state of conservation report.

4. RECOMMENDATION

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

The World Heritage Committee,

1. Having examined documents WHC/22/45.COM/8B.ADD and WHC/22/45.COM/INF.8B2.ADD,

2. Recalling Decision **31 COM 8B.16, 35 COM 8B.13, 41 COM 8B.7, 44 COM 7B.99, 44 COM 8B.32**, adopted at its 31st (Christchurch, 2007), 35th (UNESCO, Paris, 2011), 41st (Kraków, 2017) and 44th (Fuzhou/online, 2021) sessions respectively,

3. Approves the proposed minor boundary modification for the **Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe, Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, France, Germany, Italy, North Macedonia, Poland, Romania, Slovakia, Slovenia, Spain, Switzerland, Ukraine,** enlarging the *Dürrenstein* component part (Austria) to become *Dürrenstein-Lassingtal*, and merging the component parts *Paklenica National Park – Suva draga-Klimenta* and *Paklenica National Park – Oglavinovac-Javornik* (Croatia) to become *Paklenica National Park* component part;

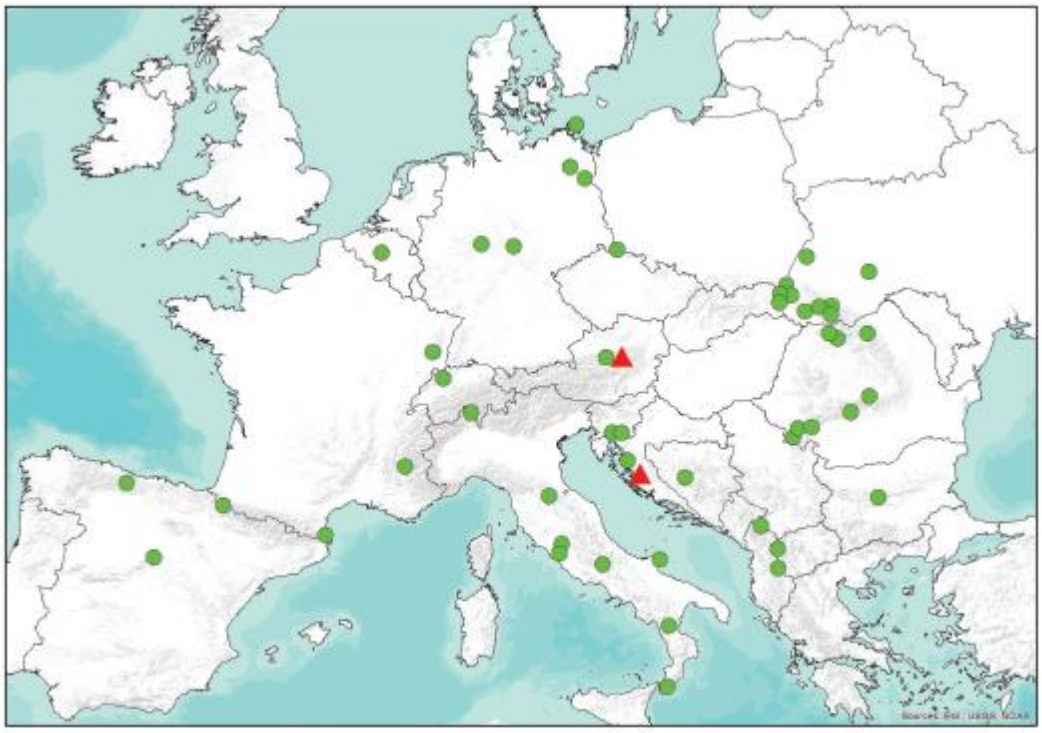
4. Recommends the State Party of Austria to further strengthen the protection of the enlarged component part of *Dürrenstein-Lassingtal* by phasing-out completely any remaining use of timber in the buffer zone to optimize the corridor function of the entire buffer zone;

5. Also recommends the State Party of Croatia to

a) ensure that the small areas excised from the component parts and buffer zones in *Paklenica National Park* will not be subject to increased use, especially if such use could result in a negative impact on the Outstanding Universal Value of the transnational serial property, and
b) consider an extension of the buffer zone to align with the boundaries of *Paklenica National Park*.

5. Requests the States Parties of Austria and Croatia to submit further information to the World Heritage Centre in response to above recommendations by **1 December 2024** as part of the State Party state of conservation report.

Maps 1-3: World Heritage property and proposed minor boundary modification



Overview of the Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe; green=existing sites, red=suggested minor boundary modifications

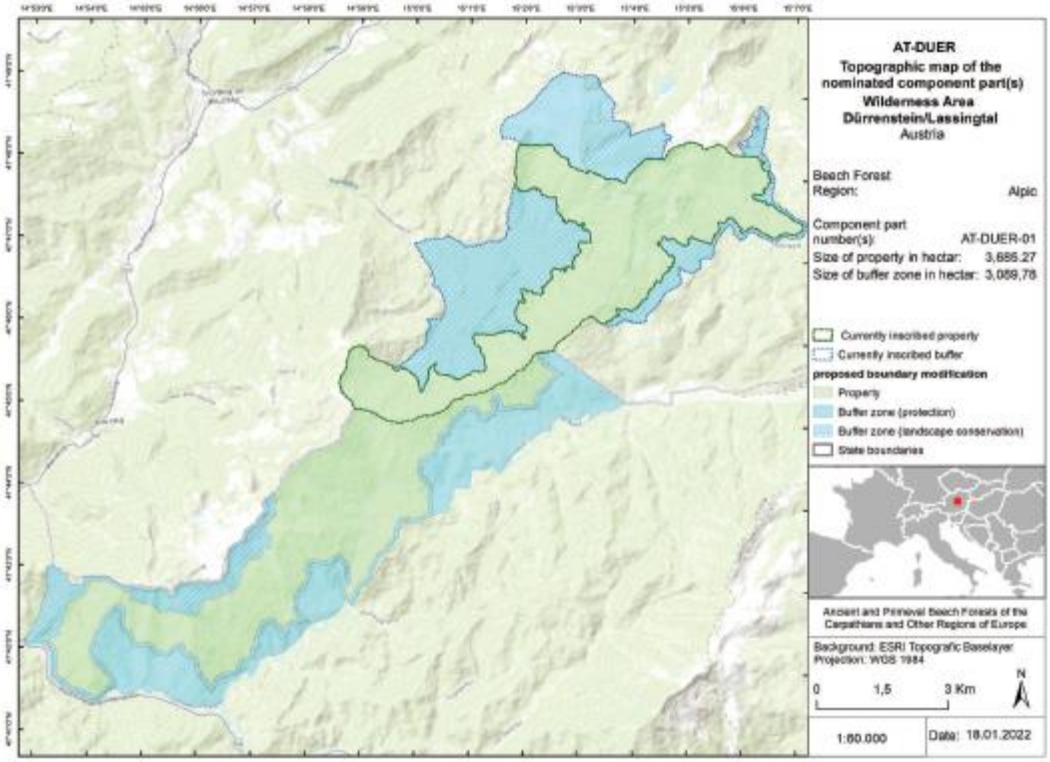


Figure 2: Original and proposed revision of the delimitations of component part and buffer zones of the Dürrenstein-Lassingtal Wilderness Area (AT)

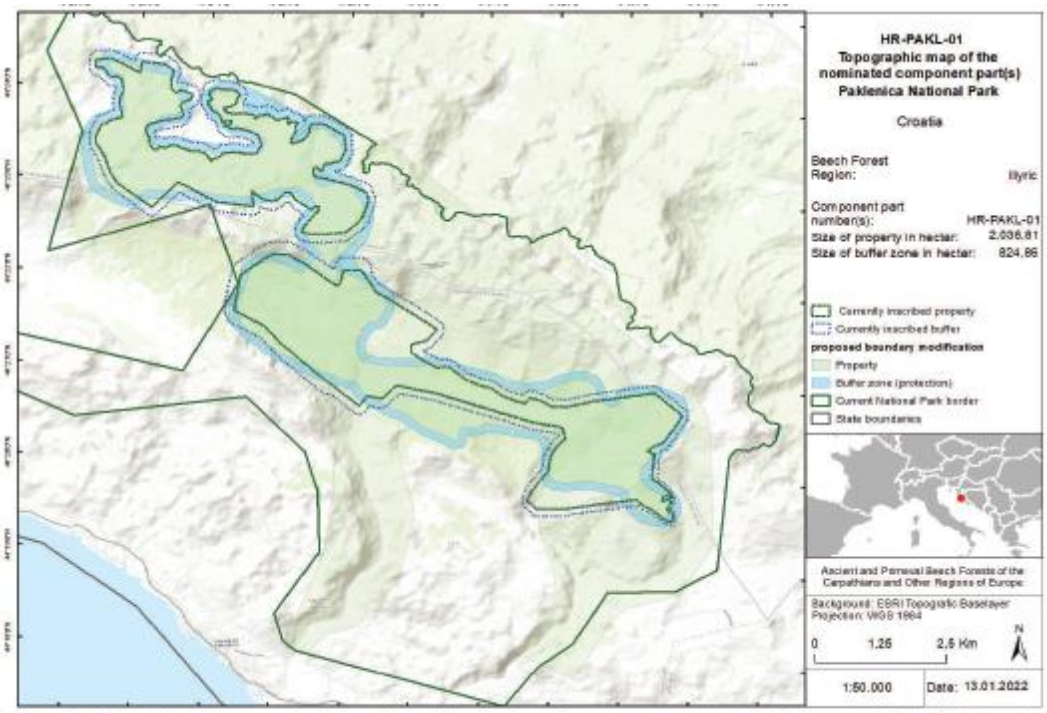


Figure 4: Original and proposed revision of the delimitations of component part and buffer zones of the Dürrenstein-Lassingtal Wilderness Area (AT)

C. CULTURAL PROPERTIES

C1. NEW NOMINATIONS OF CULTURAL PROPERTIES

AFRICA

KOUTAMMAKOU, LE PAYS DES BATAMMARIBA

BENIN

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

KOUTAMMAKOU, LE PAYS DES BATAMMARIBA (BENIN)

The IUCN World Heritage Panel considered this cultural landscape nomination based on a desk review of the nomination dossier and a wide range of studies to provide these comments to ICOMOS on the natural values of this nominated property.

The boundaries of the nominated property extend the already inscribed World Heritage property in Togo, inscribed in 2004, and correspond to the boundaries of the territory of the Batammariba. The nominated property is located ten kilometres from the buffer zone of La Pendjari Hunting zone (IUCN category VI), which is part of the World Heritage Site W-Arly-Pendjari Complex. There does not appear to be any other protected area or conserved area (OECM - Other Effective area-based Conservation Measures) overlapping within the nominated property.

The nominated property is a living and evolving cultural landscape. According to the nomination dossier, the natural environment of Koutammakou is an example of the inter-relationship between humans and nature, and crucial for understanding the synergetic life that the Batammariba have designed around the Atacora massif. IUCN notes that nature and natural resources form a very important basis of the Batammariba livelihoods. Their livelihoods are based on hunting, fishing, basketry, harvesting and collecting honey, fruits and nuts, as well as herbs, leaves, barks, roots and seeds for traditional medicine. IUCN also notes that the area includes sacred forests; however, the dossier does not include the number, extent, and location of such forests.

According to the nomination dossier, the cultural landscape hosts many species of flora and fauna. These include carnivores such as Lion (*Panthera leo)* and Leopard (*Panthera pardus),* which have migrated to conservation areas such as the W-Arly-Pendjari Complex. Critically Endangered species include the Slender-snouted Crocodile (*Mecistops cataphractus),* various vultures (*Gyps africanus; Trigonoceps occipitalis; Necrosyrtes monachus; Gyps rueppelli),* African Forest Elephant (*Loxodonta cyclotis)* and the Nubian Flapshell Turtle (*Cyclanorbis elegans).* The Black Rhino (*Diceros bicornis*) is now believed to be extinct in the area. Other species are Endangered, such as Kosso (*Pterocarpus erinaceus),* Bateleur (*Terathopius ecaudatus),* Martial Eagle (*Polemaetus bellicosus),* Secretary Bird (*Sagittarius serpentarius*), Lappet-faced Vulture (*Torgos tracheliotos)* as well as the Egyptian Vulture (*Neophron percnopterus*). Major threats to the fauna include residential and commercial developments, agriculture and aquaculture, invasive species, and climate change, among others. Concerning the flora of the area, the nomination dossier notes deforestation as one of the main threats, which has been accentuated as a result of several threats principally the charcoal trade, and the sale of planks. The nomination dossier also notes the resurgence of transhumance activity, bringing thousands of oxen from the Sahel every year in search of pasture.

In terms of the protection and management of the nominated property, IUCN notes the Communal Development Plans (CDP), the 2021-2025 management plan as well as the 2012 national law for the sustainable management, legal recognition, and integration of sacred forests as protected areas that collectively support the conservation and management of the landscape and its natural values. The Batammariba are the owners of their land, which they manage traditionally through inter-clan land use and management ensuring the fair distribution of the harvested products, thereby avoiding conflicts and overuse.

IUCN recommends ICOMOS consider in its evaluation the possibility of establishing an integrated management structure covering both the cultural and natural values of the nominated property and ensuring the inclusion of suitably qualified staff dedicated to conserving the natural values. This would ensure attention is given to inventorying, monitoring and protecting important biodiversity values, notably to ensure adequate conservation measures for endangered species, whilst fostering appropriate fire regimes and fishing practices that maintain the nominated property's natural values.

AFRICA

THE GEDEO CULTURAL LANDSCAPE

ETHIOPIA

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

THE GEDEO CULTURAL LANDSCAPE (ETHIOPIA, THE FEDERAL REPUBLIC OF)

IUCN provides the following comments to ICOMOS based on a review of the nomination dossier and two external desk reviews. Located within the vast Gedeo traditional agroforestry system, the nominated property encompasses 29,620 ha. The Gedeo Cultural Landscape is found in the vicinity of Bore-Anferara (national forest priority area) and Loka-Abaya (national park, IUCN category II), but it does not overlap with either of these protected areas.

The wider area is home to a population of over 1.5 million people, making it the most densely populated zone in the country. The Gedeo's unique sense of identity has been preserved and is related to their dependence on the natural resources within their rugged landscape. Agroforestry covers 94% of the nominated area whilst a small area of 27 ha (0.09 %) is covered by sacred forests under traditional protection. The Gedeo have adopted diverse livelihood strategies, supported by rich agroforestry practices adapted to natural and social conditions. The fertile soils and the sharp altitudinal gradient create varied ecozones that favour a rich and diverse biodiversity. IUCN therefore notes that the Gedeo Cultural Landscape includes important natural values. Gedeo is part of a larger region considered to be a domestication area for Coffee (*Coffea arabica*) and Enset (*Ensete ventricosum*). Ethiopia has been suggested to be the origin of these crops and others like Teff (*Eragrostis tef*), Noug (*Guizotia abyssinica*), and Anchote (*Coccinia abyssinica*), as they were or still are found in nature. In addition to their spiritual and cultural value, the four sacred forests play an important role as refuges for traditional medicinal plants and indigenous floral diversity hosting endemic and threatened plants. The nomination lists 107 tree and shrub species in these four forests, out of which 22 are species for medicinal use. The nomination dossier and management plan note the presence of threatened species within the wider Gedeo region. IUCN notes the presence of Critically Endangered species such as the White-headed Vulture (*Trigonoceps occipitalis)*, and the White-backed Vulture *(Gyps africanus)*. Endangered species with decreasing population trends include the Lappet-faced Vulture *(Torgos tracheliotos)*, the Steppe Eagle *(Aquila nipalensis)*, and the Egyptian Vulture (*Neophron percnopterus)*.

The relationship that the Gedeo have with their land as explained in the nomination file is symbiotic. However impressive this traditional relationship has been between the Gedeo and their land, including the effectiveness of their traditional natural resource management strategies, the resilience of the entire agroforestry system has limits imposed by space, environmental conditions and biological constraints. With the highest rural population in Africa relying on finite resources, the sustainability of this agroforestry system is in question. Populations are increasing which has been identified as key driver for threats to the nominated area. Farming activities are even expanded into the sacred forests as a result of population pressures and changing cultural practices. While the nomination suggests that traditional knowledge has helped to mitigate the effects of climate change, IUCN notes the sustainability of the livelihoods based on agroforestry and associated biodiversity may further erode in future.

The natural values of the nominated property are managed by federal and regional laws, as well as proclamations specific to the Gedeo cultural landscape. For example, trees in these forests cannot be cut without the permission of Songo leaders. A management plan has been developed as part of the nomination process with local and traditional committees included into the management. The acceptance from local administrators, elders, traditional leaders, women and youth representatives that all these threats are affecting the cultural landscape is an important and welcome step in finding solutions to address them. However, funds for the protection of the agricultural landscapes depends on individual landholders and elders as well as ritual leaders with zonal administrative institutions supporting as needs arise. IUCN also notes that there is a tourism plan and regulation under implementation.

IUCN recommends that ICOMOS in its evaluation raise with the State Party the urgent need for a coherent strategy including monitoring plans to address the major threats affecting the natural values of the nominated property. The strategy should be designed and implemented with the Gedeo people in respect of their traditional knowledge and livelihoods. To safeguard the natural values and traditional livelihoods of this cultural landscape, an integrated and sustainably funded effort is needed that involves all the landscape's stakeholders and ensures biodiversity in sacred forest areas and the agricultural systems in the larger landscape is monitored and conserved and that the tourism plan and its regulation consider the carrying capacity of the agroforestry systems.

EUROPE / NORTH AMERICA

ŽATEC AND THE LANDSCAPE OF SAAZ HOPS

CZECHIA

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

ŽATEC AND THE LANDSCAPE OF SAAZ HOPS (CZECHIA)

IUCN considered this cultural landscape based on the review of the dossier and the comments from one external desk reviewer to provide inputs to ICOMOS on the natural values of this nominated property.

The nominated property is located in the North Bohemian Basin flanked to the north by the Central and Eastern Ohře Mountains and the Rakovnik Highlands to the south. The Basin holds large deposits of lignite. Besides agriculture, the surrounding landscape has been heavily modified by lignite opencast mining with several sites still in operation, and post-mining landscapes where excavations have ceased. In contrast, the approximately 594 ha of the nominated property and its immediate surroundings are primarily shaped by agriculture and the settlements included in the nominated area.

Based on the World Database of Protected Areas, IUCN notes that the buffer zone overlaps with the Žatec Nature Monument (IUCN Category IV) whilst the Ohře River, a Natura 2000 site, intersects the nominated property. The Ohře River partly plays a corridor function between the nearby Nádrž vodního díla Nechranice and Doupovské hory Natura 2000 sites, an Important Bird Area (IBA) supporting large numbers of forest and grassland species, and the Protected Landscape Area of České Středohoří (IUCN Category V). However, the river habitats are mostly very narrow strips along the watercourses, which are flanked by intensive agriculture, including the monoculture hops plantations.

The nomination dossier limits the presentation of natural values to the diversity of hop breeds and to the fact that hop fields would provide shelter to very common species. There is no information provided on the identification, abundance or vulnerability and conservation status of any species using the tall hop trellises noting that hop is a wind-pollinated species. In terms of agricultural biodiversity related to the nominated property, there is no evidence of conservation efforts directed towards the presence or conservation of the wild relatives of Saaz Hop. There is no indication as to any management capacities regarding the conservation of wild species and natural attributes in the small nominated area. IUCN notes that a Hop Research Institute ensures ex-situ preservation of the world's hop varieties.

IUCN recommends that ICOMOS in its evaluation considers whether the corridor function of the overlapping Natura 2000 designations could possibly be improved through various measures such as modifying boundaries, and/or regulating less intensive use in the adjacent areas including the production of organic hops.

EUROPE / NORTH AMERICA

THE CULTURAL LANDSCAPE OF CIVITA DI BAGNOREGIO

ITALY

WITHDRAWN

EUROPE / NORTH AMERICA

TALAYOTIC MENORCA, A CYCLOPEAN ISLAND ODYSSEY

SPAIN

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

TALAYOTIC MENORCA, A CYCLOPEAN ISLAND ODYSSEY (SPAIN)

IUCN considered this cultural landscape nomination based on a desk review of the nomination dossier and a wide range of studies to provide inputs to ICOMOS on the site's natural values. The nominated property is located on the island of Menorca, the eastern most island in the Balearic archipelago, and contains nine components parts totalling 3,527 ha. The component parts are embedded within two buffer zones covering almost one third of the entire island.

The cultural landscape of the nominated property combines cultural, spiritual, aesthetic and natural values. The mosaic landscape of prehistoric times is relatively similar to the landscape that nowadays includes the cyclopean buildings. Menorca hosts a rich bio- and geodiversity, including 35 geo-sites. It is marked by two distinct geological and geomorphological regions – the Tramuntana in the north shaped by predominantly siliceous rock, the oldest bedrock in the Balearic archipelago, showing a high geodiversity; and the Migjorn in the south, with a relatively flat topographical layout that slopes gradually toward the coast. According to the nomination dossier, the different geological formations of the area and its geomorphological and edaphic configuration provide keys to understanding the process of occupation and selective use of the territory, as well as the organisation of the system of settlements throughout the island's prehistory. Ravines in the south have served as reservoirs for biodiversity due to their limited accessibility.

The nominated property overlaps with the Menorca Biosphere Reserve (MBR), which was designated in 1993. Except for one component part the nominated property is located inside the Reserve's buffer and transition zones. The Menorca Biosphere Reserve is part of one of the primary hotspots for biodiversity in the Mediterranean, and as an insular ecosystem, some of this biodiversity is exclusive to the island. Menorca boasts over 1,400 taxa of vascular plants, out of which 89 are endemics. These include the Critically Endangered Vessa (*Vicia bifoliolata*) the Endangered *Halictus microcardia* and Dafne menorquí (*Daphne rodriguezii*), as well as the Vulnerable *Thymelaea velutina*. The Endangered Lilford's wall lizard (*Podarcis lilfordi*) went extinct on the main island due to introduced species. It has only survived on the islets that surround Menorca, undergoing a process of evolutionary radiation that has divided the species into several subspecies. Important insects include the Critically Endangered Apid den Bermejo (*Apium bermejoi*), the Endangered *Neoascia balearensis,* and the Vulnerable Balearic Saddle Bush-cricket (*Parasteropleurus balearicus*). The Biosphere Reserve also hosts substantial populations of birds of prey, seabirds and waterbirds, as well as a wide variety of passerine bird species. Consequently, three Important Bird Areas (IBAs) are located on Menorca Island hosting the Critically Endangered Balearic Shearwater (*Puffinus mauretanicus*) the Endangered Egyptian Vulture (*Neophron percnopterus*), and the Audouin's Gull (*Larus audouinii*).

The two most common types of permanent forests on Menorca are holm oak and wild olive. Balearic holm oak forest (*Cyclamini-Quercetum ilicis*) is considered an endemic variation. The holm oak forests on Menorca show singular characteristics due to the presence of certain endemisms (*Cyclamen balearicum, Paeonia cambessedesii*) and the frequency of other species that are rare in other regions. Permanent forests of wild olive (*Olea europaea* var. *sylvestris*) have developed their own variant (*Prasio-Oleetum sylvestris*). The nomination dossier sees the survival of wild olive forests in Menorca is a top priority on both an ecological and a landscape level, given that these forest communities have been destroyed in large parts of the European Mediterranean.

Most of the monumental structures and archaeological sites on Menorca have been declared Properties of Cultural Interest (BIC) which is the highest level of protection under Spanish national and regional legislation. Most of the archaeological sites included in the nominated property are privately owned. 65% of the nominated property overlap with various designations for nature conservation, such as Natural Parks, Nature Areas of Special Interest (ANEI) and the Natura 2000 Network. Apart from protected areas, the land of the nominated property (both components and buffer zones) is classified as rural or undeveloped, and therefore new residential, tourist, industrial, logistics and urban facilities and services are prohibited. Nevertheless, threats to IBAs include human intrusions and disturbance, invasive species, and residential and commercial developments, besides general threats to the property posed by climate change, increasing tourism and livestock grazing.

The nominated property appears to benefit from an effective Management Plan and Management System, consolidated through the nomination process. A Monitoring program has also been implemented for the Menorca Biosphere Reserve.

WHC/23/45.COM/INF.8B

IUCN World Heritage Evaluations 2023

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

IUCN REPORT FOR THE WORLD HERITAGE COMMITTEE, EXT. 45TH SESSION, RIYADH, KINGDOM OF SAUDI ARABIA, 10-25 SEPT. 2023

United Nations Educational, Scientific and Cultural Organization

World Heritage Convention

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

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DISCLAIMER

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EXECUTIVE SUMMARY TABLE OF IUCN EVALUATIONS TO THE WORLD HERITAGE COMMITTEE

State Party	Name of the property (ID number)	Note	OUTSTANDING UNIVERSAL VALUE											Further mission required	IUCN Recommendation
			Meets one or more natural criteria				Meets conditions of integrity				Meets protection and management requirements				
			Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	Integrity	Boundaries	Threats addressed	Justification of serial approach	Protection status	Management	Buffer zone/ Protection in surrounding area		
Paragraphs of the Operational Guidelines for the Implementation of the World Heritage Convention			77	77	77	77	78, 87-95	99-102	78, 98	137	78, 132.4	78, 108-118, 132.4, 135	103-107		
Ethiopia	Bale Mountains National Park (111Rev)		yes	–	–	yes	yes	yes	yes	–	yes	yes	yes	no	I
Rwanda	Nyungwe National Park (1697)		–	–	no	yes	yes	part	yes	yes	yes	no	part	no	R
Saudi Arabia	'Uruq Bani Ma'arid (1699)		yes	–	yes	no	yes	yes	yes	–	yes	yes	yes	no	I
Tajikistan	Tugay Forests of the Tigrovaya Balka Nature Reserve (1685)		–	–	yes	no	yes	yes	yes	–	yes	yes	yes	no	I
Kazakhstan Turkmenistan Uzbekistan	Cold Winter Deserts of Turan (1693)		–	–	yes (for 10 cpts.)	yes (for 10 cpts.)	yes (for 10 cpts.)	yes (for 10 cpts.)	yes (for 10 cpts.)	yes (for 10 cpts.)	yes	yes	yes (for 10 cpts.)	no	I (for 10 cpts.)
Canada	Anticosti (1686)		–	yes	–	–	yes	yes	yes	–	yes	yes	yes	no	I
Italy	Evaporitic Karst and Caves of Northern Apennines (1692)		–	yes	–	–	part	part	part	yes	part	part	part	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**			
Mongolia	Highlands of the Mongolian Altai (1672)	mixed site	–	–	–	no	part	part	part	yes	yes	no	part		yes	D
Greece	Zagori Cultural Landscape (1695)	mixed site	–	no	–	part	no	no	part	–	no	no	no		yes	D

KEYS

yes	met
part	partially met
no	not met
–	not applicable
I	inscribe / approve
N	non inscribe / approve
R	refer
D	defer
cpts.	nominated component parts

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Mongolia	1672	Highlands of the Mongolian Altai	231
Rwanda	1697	Nyungwe National Park	135
Saudi Arabia	1699	'Uruq Bani Ma'arid	147
Tajikistan	1685	Tugay Forests of the Tigrovaya Balka Nature Reserve	161

IUCN FIELD EVALUATORS

Site	Name
Anticosti	Sophie Justice
Bale Mountains National Park	John Zulu
Zagori Cultural Landscape	Tarek Abulhawa
Evaporitic Karst and Caves of Northern Apennines	Gordana Beltram
Cold Winter Deserts of Turan	Oliver Avramoski, Matthew Emslie-Smith, Rolf Hogan
Highlands of the Mongolian Altai	Sonali Ghosh (IUCN), Kai Weise (ICOMOS)
Nyungwe National Park	Inza Koné, Wendy Strahm
'Uruq Bani Ma'arid	Maher Mahjoub
Tugay Forests of the Tigrovaya Balka Nature Reserve	Chimed-Ochir Bazarsad

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, where available; 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 2023

1. INTRODUCTION

This technical evaluation report of natural and mixed properties nominated for inclusion on the World Heritage List has been conducted by IUCN (International Union for Conservation of Nature) through its World Heritage specialists within the Heritage and Culture Team within IUCN's Centre of Society and Governance. The World Heritage staff members of this Team coordinate IUCN's input to the World Heritage Convention in close cooperation with the IUCN Protected and Conserved Areas Team (PCAT, formerly GPAP – the Global Protected Areas Programme) and other teams of IUCN both at headquarters and in the regions. The work is undertaken in close cooperation 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 diversity 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 is a network of over 2,500 protected area managers and specialists from 140 countries . In addition, the Heritage and Culture Team calls on relevant experts from IUCN's other six Commissions (Species Survival, Environmental Law, Education and Communication, Ecosystem Management, and Environmental, Economic and Social Policy, Climate Crisis); 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 final technical evaluation reports, which are presented in this document, 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 is regularly reported at the sessions of the World Heritage Committee under Item 9B, where IUCN and ICOMOS exchange and coordinate 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 to optimize dialogue opportunities with nominating States Parties.

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 nominated property or its natural values, including members of WCPA, other IUCN specialist Commissions and scientific networks or NGOs working in the region. IUCN received almost 100 50 external reviews in relation to the properties examined in 2022 / 2023.

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. IUCN endeavours, where possible, to ensure mission experts have knowledge and experience in the relevant region. 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 April / May for distribution to the members of the World Heritage Committee.

4. **Comparative Analysis**. IUCN commissions UNEP-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, and responds to any questions. The World Heritage Committee makes the final decision on whether to inscribe, refer, defer or not to inscribe the nominated 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, 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/January).** IUCN continues its practice of ongoing communication with the nominating State/s Party/ies following its Panel meeting. In line with Annex 6 of the *Operational Guidelines,* this communication comprises an interim report to the States Parties on the status of the evaluation, sent by the end of January. If the Panel finds that 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 these letters well before the requested deadline of 31st January. In the present cycle, the last letter was sent on 25 January 2023 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 field evaluators and the States Parties during the mission may provide valuable feedback, they do not substitute the formal requests for supplementary information outlined above. 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 Headquarter in Switzerland, and conference calls.

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 contrasts 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 (KBAs) (www.keybiodiversityareas.org), 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. IUCN in partnership with UNEP-WCMC continues to explore the use of new comparative analyses. The decisive principle is that World Heritage properties are only exceptional 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.

In regard to communities, 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/library/resrec/search. 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 an expert advisor supporting the IUCN World Heritage Panel.

In 2013, IUCN updated its format for field evaluation reports to include specific questions on communities and to clarify a range of questions and expectations on feedback from evaluators to ensure consistency of reports from field missions. This material is all publicly available at the following web address: https://www.iucn.org/theme/world-heritage/our-work/advisor-world-heritage/nominations.

IUCN has also been actively supporting processes under the mandate of the Ad Hoc Working Group (Decision 44 COM 11). IUCN welcomes this constructive dialogue to evolve the working methods of the Convention and considers the work of the Ad Hoc Working Group provides a good model for possible continued dialogue towards effective new procedures for the evaluation process. IUCN has also actively contributed to the nomination reform process and the introduction of Preliminary Assessments.

IUCN notes that reform of the evaluation process is constrained fundamentally by the current calendar, and that many of the expectations 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*. Given the interlinkages between various processes, IUCN considers it essential that a fully integrated package of reforms is agreed as a central priority, and continued 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/January. Provisional recommendations are made at this meeting of the Panel and reviewed at a second meeting or conference call the following March. 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, any supplementary information from States Parties, the UN Environment WCMC Comparative Analysis, comments from external reviewers and other material. This material is then used 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). The Panel 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 Head of the Heritage and Culture Team. 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. IUCN strives to ensure diversity within its Panel to reflect the necessary experience, skills and global perspectives to undertake its advisory work. The membership of the Panel comprises:

- The Director, Head of the Heritage and Culture Team (Chair – non-voting)
- Senior Programme Coordinator World Heritage, IUCN Heritage and Culture Team (Non-voting)
- At least one and a maximum of two staff of the IUCN Protected and Conserved Areas Team (PCAT)
- 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
- 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 / 2018 one position for a specialist in geological heritage, appointed by IUCN following consultation with the International Union of Geological Sciences (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 application process to fill vacancies for technical advisors when they arise.

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 (TOR) 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 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 meeting 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 protection, 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. In addition, 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 2022 / 2023

Nomination dossiers and minor boundary modifications examined by IUCN in the 2022 / 2023 cycle included:

- 7 natural property nominations
- 2 mixed site nominations (the evaluation of 2 mixed site nominations pending from previous cycles had to be postponed again);
- 6 cultural landscape nominations; all 6 were commented on by IUCN based on internal and external desktop reviews

6. COLLABORATION WITH INTERNATIONAL EARTH SCIENCE UNIONS

IUCN implements its consideration of earth science values within the World Heritage Convention through global thematic studies on Geological Heritage published in 2005 and 2021. In addition, collaboration agreements with 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 to IUCN in fulfilling its advisory role to the World Heritage Convention.

7. RECOMMENDATIONS TO THE WORLD HERITAGE COMMITTEE

In the 2022 / 2023 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 *Operational 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 2023, 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.

The finalisation of this IUCN evaluation report took place following the required calendar for evaluations, and was finalised on 3 May 2023. At the time of

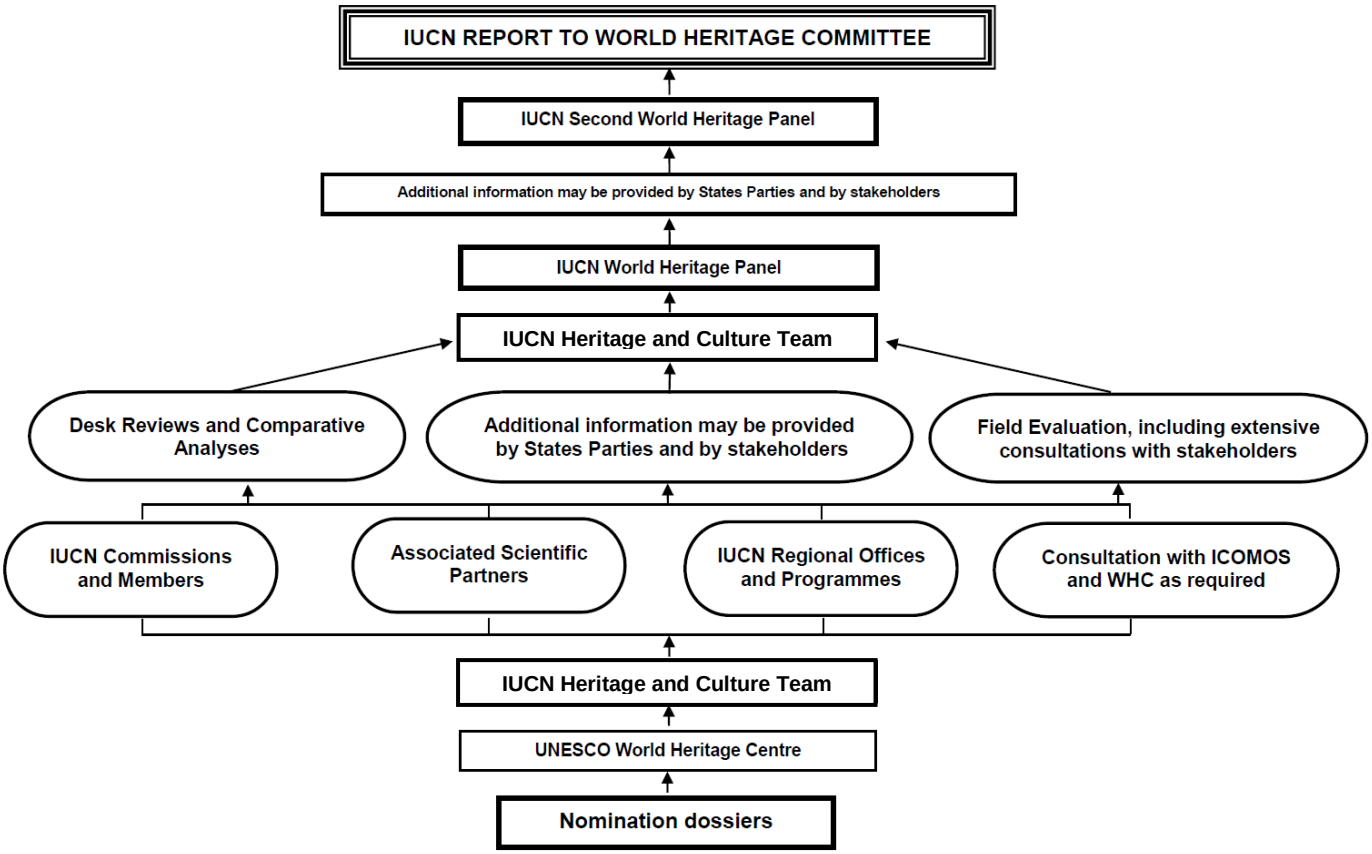
finalisation, the new dates of the Extended 45th Session of the World Heritage Committee had been announced, following its postponement communicated on 21 April 2022. The reports in this evaluation book shall be examined in the upcoming session of the Committee (Riyadh, Kingdom of Saudi Arabia, 10-25 September 2023) and were finalised based on the statutory deadline of 28 February 2023 for information supplied by the State Party, and thus all information that has been considered dates at the latest from the time of the second and final IUCN World Heritage Panel, held in March 2023.

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 as well as translators. Many others contributed inputs during field missions. This support is acknowledged with deep gratitude.

IUCN would also like to extend its thanks to all States Parties for the excellent collaboration and support provided to enable a timely and complete evaluation process.

Figure 1: IUCN Evaluation Process



A. NATURAL PROPERTIES

A1. NEW NOMINATIONS OF NATURAL PROPERTIES

AFRICA

BALE MOUNTAINS NATIONAL PARK

ETHIOPIA

Bale Mountains National Park © IUCN / John Zulu

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

BALE MOUNTAINS NATIONAL PARK (ETHIOPIA) – ID N° 111Rev

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To inscribe the nominated property under natural criteria (vii) and (x)

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

Background note: Bale Mountains National Park (BMNP) was nominated in 1979 and considered by the Bureau at its 2nd session in UNESCO/Paris, France (CC-79/CONF.005/6). The Bureau deferred its recommendation "in view of the lack of documentation and since IUCN considered it necessary to undertake a more thorough evaluation of the site". The World Heritage Committee at its 4th session in Paris, France, 1980, adopted a decision to defer the nomination in line with the Bureau recommendation (CONF 016 V.14). The BMNP nomination dossier was subsequently not revised or resubmitted for consideration by the Committee. In 2008, the State Party of Ethiopia placed BMNP on the Tentative List. The present nomination was originally submitted in 2021, but as two additional nominations were also submitted at the same time, the State Party advised by letter of 16 August 2021 that the BMNP nomination shall be considered in 2022. IUCN consequently conducted its evaluation in the 2022/2023 cycle.

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2022

b) Additional information officially requested from and provided by the States Parties: Following the session of the IUCN World Heritage Panel, a progress report was sent to the State Party on 25 January 2023. This letter advised on the status of the evaluation process and requested supplementary information regarding grazing and settlements in relation to the nominated property, and the envisaged relocation of people. The supplementary information was provided by the State Party on 27 February 2023.

c) Additional literature consulted: IUCN's evaluation consulted a wide array of relevant reference material for the biology, ecology, protection and management as well as the comparative values of the nominated property, including: Alem, W. (2007). Assessment of Land use Land cover Dynamics at Bale Mountains National Park Using GIS and Remote Sensing. MSc Thesis, Addis Ababa University; Amare, A. (2015). Wildlife Resources of Ethiopia: Opportunities, Challenges and Future Directions: From Ecotourism Perspective: A Review Paper. Natural Resources, 6, 405-422. Bale Mountain National Park (2018). Bale Eco-Regional Development Framework, SHARE- Bale Eco-Regional Project; Bale Mountain National Park (2022). Draft Fire Management Plan for the Bale Mountain National Park; Bertzky, B., Shi, Y., Hughes, A., Engels, B., Ali, M.K. and Badman, T. (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 UNESP-WCMC, Cambridge, UK; Ethiopian Wildlife Conservation Authority (2021). Environmental and Social Management Framework; Ethiopian Wildlife Conservation Authority (2022). Draft Community Grievance Mechanism Guidance Notes; Ethiopian Wildlife Conservation Authority (2022). Draft Law Enforcement Standards; Ethiopian Wildlife Conservation Authority (2022). Draft Security Risk Analysis and Management guidance note; Ethiopian Wildlife Conservation Authority (2022). Draft Vetting, Hiring Management of Ranger guidance notes; Howard, P. C. and Bertzky, B. (2020) Natural World Heritage in Africa: Progress and prospects. BIOPAMA Programme, IUCN Regional Office for Eastern and Southern Africa (ESARO), Nairobi, Kenya and IUCN Regional Office for West and Central Africa (PACO), Ouagadougou, Burkina Faso; Ethiopian Wildlife Conservation Authority (2022) draft weapons, firearm, ammunition management guidance; Friis, I., Sebsebe, D., Breugel, P., (2010). Atlas of the Potential Vegetation of Ethiopia. The Royal Danish Academy of Sciences and Letters;; Stephens, P.A., d'Sa, C.A., Sillero-Zubiri, C. and Leader-Williams, N. (2001). Impact of livestock and settlement on the large mammalian wildlife of Bale Mountains National Park, southern Ethiopia. Biological Conservation, 100, 3, 307−322; Vial F., Sillero-Zubiri, C., Marino, J., Haydon, D.T., Macdonald, D.W. (2011). An analysis of long-term trends in the abundance of domestic livestock and free-roaming dogs in the Bale Mountains National Park, Ethiopia; Williams, S. D., Vivero, J. L., Spawls, S., Shimelis, A. and Kelbessa, E. (2005). Ethiopian Highlands. In: Mittermeier, R. (ed). Hotspots revisited. Conservation International and Cemex; Yalden, D. and Largen, M. (1992). Endemic Mammals of Ethiopia. Mammal Review, 22, 115-150.

d) Consultations: 11 desk reviews received. The mission was able to meet with representatives from the Oromia Regional Government, Dinsho District, Ethiopian Wildlife Conservation Authority, Dinsho community, Goba Noreda and Rira Kebeles

communities, Dalo Mana Nareda community, Zonal Administrative Staff, Ethiopian Heritage Authority, international experts and NGOs, and Federal Tourism Authority.

e) Field Visit: John Zulu, 16 to 25 October 2022

f) Date of IUCN approval of this report: April 2023

2. SUMMARY OF NATURAL VALUES

Bale Mountains National Park (BMNP) is nominated under criteria (vii) and (x). It is part of the Bale-Arsi Massif, covering an area of 215,000 ha, and a surrounding buffer zone of 235,121 ha. The boundary of the nominated property fully aligns with Bale Mountains National Park, designated in 1969 and formally gazetted as a national park in 2014. The buffer zone includes areas of native forest and encompasses 29 neighbouring 'kebeles' – Ethiopia's smallest administrative units. Five major rivers originate within BMNP, which is estimated to supply water and support the livelihoods of millions of people in Ethiopia, Kenya and Somalia. The rivers also sustain many aquatic and riparian ecosystems. The nominated property includes the largest area of afro-alpine habitat above 3,000 m above sea level (a.s.l.) in Africa, and Tullu Dimtu, the second highest peak in Ethiopia at 4,377 m a.s.l. BMNP demonstrates a diverse range of largely intact ecosystems and habitats such as glacial lakes, wetlands, moorlands, grasslands and forests, including the Harenna Forest, which is the second largest moist tropical forest in Ethiopia. The nominated property features volcanic peaks and ridges, dramatic escarpments, deep gorges, and numerous waterfalls. It is this diverse landscape mosaic that is proposed under criterion (vii), recognising the stunning scenery of emblematic mountains and escarpments, contrasted with the flat Sanetti Plateau and combined with sweeping valleys and lush forests.

The nomination distinguishes three major ecological zones within the nominated property: the Gese Grasslands in the North; the afro-alpine Sanetti Plateau in the central part of the nominated property; and the escarpment housing the moist tropical 'Harenna' Forest in the South. The altitudinal gradient of almost 2,900 m within the nominated property and its associated climatic variations also give rise to the high habitat diversity. Consequently, the nominated property and its surrounding areas harbour large numbers of floral and faunal species including many threatened and endemic species across several taxa, proposed to be recognised under criterion (x). The nominated property also provides significant habitat for endemic species such as the Mountain Nyala (*Tragelaphus buxtoni,* EN), Bale Monkey (*Chlorocebus djamdjamensis*, VU), and the Menelik's Bushbuck (*Tragelaphus scriptus meneliki*), an endemic sub-species. The nominated property houses globally threatened species and conserves important large mammals, such as Lion (*Panthera leo,* VU) and the endangered African Wild Dog (*Lycaon pictus*, EN). The nominated property is also important for 363 recorded bird species, out of which 170 are migratory whilst six are endemic to Ethiopia. Thanks to the abundance of rodents, the nominated area is also important to migratory and resident raptors.

3. COMPARISONS WITH OTHER AREAS

The nomination dossier provides a comprehensive, complete and detailed comparison under criteria (vii) and (x). The comparative analysis strongly suggests global significance of the nominated property under both criteria.

Regarding criterion (vii), the nomination highlights the nominated property's rugged terrain and extensive altitudinal gradients. In contrast, the almost flat Sanetti Plateau adds to this landscape diversity. The nominated property is interspersed with completely distinct but linked vegetation types, providing for a great landscape diversity and scenic beauty. This landscape mosaic is shaped by the combination of previous glaciation, ancient lava outpourings, and the Great Rift Valley dissection. The relatively intact ecosystems and habitats, such as forests, grasslands, moorlands, wetlands and glacial lakes, including one of the largest afro-alpine and Afromontane forest habitats in the continent add to the spectacular scenery. Desk reviewers and the field evaluation mission unanimously supported the case for criterion (vii), noting the nominated property as area of unparalleled beauty.

Regarding criterion (x), the nomination highlights the nominated property as the site with one of the highest incidences of terrestrial animal endemicity in the world, with numerous species that cannot be found elsewhere. The Sanetti Plateau within the nominated property contains the largest area of afro-alpine vegetation in the world, according to the nomination dossier. More than 80% of all species found in the afro-montane habitat are reported to be endemic. The property also stands out due to the presence of the Harenna Shrew (*Crocidura harenna*, CR); the Giant Mole Rat (*Tachyoryctes macrocephalus*, EN); Malcolm's Ethiopian Toad (*Altiphrynoides malcolmi*, EN); the Bale Mountains Tree Frog (*Balebreviceps hillmani*, CR) and the Bale Mountains Frog (*Ericabatrachus baleensis*, CR), which are only found in the Bale Mountains, leading to the recognition as an Alliance for Zero Extinction site. The property also hosts an estimated two-thirds of the global population of the endemic and endangered Mountain Nyala (*Tragelaphus buxtoni*, EN). Furthermore, the nominated property scores highly on the irreplaceability index for all species, but particularly high for threatened species. It overlaps with two terrestrial ecoregions: the Ethiopian montane moorlands (57.4%) and the Ethiopian montane forests (39.2%), the latter of which is not yet represented on the World Heritage List. The Ethiopian montane moorland is only represented on the World Heritage List by Simien National Park (Ethiopia) and inscribed under the biodiversity criteria.

IUCN notes that according to the Centre for Plant Diversity, the nominated property is home to 1,660 species of flowering plants, 177 of which are endemic to Ethiopia, and of which 31 are exclusively found in the Bale Mountains. Of the 79 mammalian species recorded in BMNP, 23 are endemic. These include the endangered Mountain Nyala (*Tragelaphus buxtoni*, EN), which occurs only in Ethiopia, the Bale Monkey (*Chlorocebus djamdjamensis*, VU), which is also restricted to the highlands of Ethiopia, and the endangered Ethiopian Wolf (*Canis simensis*, EN), which is restricted to seven isolated mountain enclaves in the highlands of Ethiopia. An endemic Shrew (*Crocidura afeworkbekelei,* DD) discovered as recently as 2017 in BMNP demonstrates that further discoveries may await. Bird species richness includes approximately 363 bird species, 18 of which are endemic to Ethiopia. The Park houses globally threatened and important large mammals, such as Lion (*Panthera leo*, VU) and the endangered African Wild Dog (*Lycaon pictus*, EN) with a population living in the moist tropical forest of Harenna.

IUCN, in collaboration with UNEP-WCMC, has undertaken supplementary comparative analysis with regards to criteria (ix) and (x), based on spatial analyses and literature review. The UNEP-WCMC comparative analysis concluded that the nominated property appears to be of global significance, mainly with regard to criterion (x). The nominated property shows a very high level of biodiversity compared to other World Heritage properties and Tentative List sites found in the same Eastern Afromontane terrestrial biodiversity hotspot. Based on reported numbers, BMNP appears to have one of the highest numbers of plant species, high level of mammal diversity comparable to other existing sites in this biodiversity hotspots and one of the highest numbers of bird species. Endemism occurs at a particularly high rate, including some strict endemics to the Bale Mountains. Important mammal species include six primate species, as well as several carnivore species, and some endemic and/or globally threatened. In particular, it contains over half of the global population of the Ethiopian Wolf, one of the rarest and most endangered canids in the world, and of the Mountain Nyala, a rare antelope species. The site also hosts several endemic bird, amphibian, and reptile species. The nominated property overlaps with an Important Bird Area, a Key Biodiversity Area, and an Alliance for Zero Extinction site which are not currently represented on the World Heritage List. Most importantly, the nominated property is considered to be amongst the top 0.05% most irreplaceable protected area in the world for mammal, bird and amphibian conservation, especially for threatened species.

Furthermore, the nominated property has been subject to long-standing and extensive research and noted as a possible priority for new nominations to the World Heritage List, including in IUCN thematic studies for Africa. IUCN's 2013 global gap analysis noted the Bale Mountains as one of the 78 most irreplaceable protected areas for the conservation of the world's amphibian, bird and mammal species. A more recent analysis of 2020 specifically explored potential natural World Heritage candidate sites in Africa and BMNP emerged as one of the 16 priority candidate sites under natural criteria.

In conclusion, IUCN considers that the nominated property demonstrates global significance under both criteria (vii) and (x).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nominated property is protected under Proclamation No. 541/2007, which mandates the Ethiopian Wildlife Conservation Authority (EWCA) as the management authority to enforce laws concerning wildlife protection and human encroachment. Designated as a National Park in 1969, the nominated property is intended to conserve the exceptionally diverse and abundant wildlife, including rare and endemic species, such as the Mountain Nyala (*Tragelaphus buxtoni*) and the Ethiopian Wolf (*Canis simensis*). The nominated property is in line with IUCN Protected Area Category II. The National Park is also recognised for its important hydrological services for the region, especially in the context of climate change. The formal gazettement of the National Park only took place in 2014, which defined the National Park's current configuration.

The moist tropical rainforest in the Bale region is not restricted to the nominated property but covers more than 560,000 ha in the wider Bale Mountains. Much of the wider forested areas is reported to be subject to Participatory Forest Management schemes, which permits human habitation but does not allow conversion of forests to agricultural land, though enforcement is currently faced with challenges. Some of the areas surrounding the nominated property are also classed as Controlled Hunting Areas (CHAs) contributing to local benefit sharing mechanisms to support regulated hunting. Two CHAs are within the buffer zone of the nominated property.

In 2020, a functional buffer zone, delineated by the administrative boundaries of the kebeles surrounding the Park, was agreed between EWCA, the Oromia Environment, Forest and Climate Change Authority (OERCCA), Oromia Forest and Wildlife Enterprise (OFWE) and the local authorities and communities. Community-based natural resource management is reported by the State Party to be taking place in the buffer zone.

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 are congruent with the Bale Mountains National Park (BMNP). The nominated property captures the key

values proposed under criteria (vii) and (x) and discussed in sections 2 and 3. At 215,000 ha, the nominated property provides a sufficiently large area to effectively conserve its biodiversity value. The boundaries also fully cover key habitats for species survival. For instance, BMNP includes the highland bamboo forests serving as the only home in the world for the Endangered and range-restricted Bale Monkey (*Chlorocebus djamdjamensis*), which has specialized habitat requirements. The boundaries of the nominated property also include all elements of the landscape mosaic put forward under criterion (vii), with the peak of Tullu Dimtu and the high-mountain plain of Sanetti at the centre of the nominated property. Therefore, the nominated property is considered to be of adequate size to protect its values and attributes.

The buffer zone completely surrounds the nominated property, ranging between approximately 5 to 20 km from the boundary of the nominated property. The buffer zone creates a protective mechanism for the BMNP from pressures arising from outside the Park, though these threats remain (see section 4.5). The boundaries of BMNP and the buffer zone are reported to have been designed following a series of consultative meetings and careful planning by different key stakeholders including the communities living in and around the immediate areas of BMNP. Whilst threats remain (see section 4.5), the boundaries of the nominated property and the buffer zone can be considered to be adequate in size and configuration and appear to have been designated following appropriate procedures.

IUCN considers that the boundaries of the nominated property and buffer zones meet the requirements of the *Operational Guidelines*.

4.3 Management

The nominated property is managed by the Ethiopian Wildlife Conservation Authority (EWCA) using a Participatory Governance System, currently guided by the 2017-2027 General Management Plan (GMP). The GMP is split into five management programmes: park operations; tourism management; interim settlement and grazing management; outreach; and ecological management. A separate Tourism Development Plan aims to improve community benefits whilst also managing impacts from tourism. The nomination dossier states that the staff of BMNP have the necessary qualification, training and experience to carry out the wide range of tasks and duties, including wildlife management, park operations, law enforcement, research, education, monitoring and evaluation, protection and management.

However, capacity gaps remain and the field evaluation report highlights the need for more ranger posts to effectively manage the Park. Recent management effectiveness assessments of the National Park show average results. The nomination dossier states that efforts are underway to improve the critically important dialogue and cooperation with local communities, resource users and all levels of government. Mechanisms are emerging to more effectively incorporate park protection into local development strategies with an emphasis on addressing unsustainable practices putting pressure on the nature conservation values and ecosystem services of the nominated property, while fully taking into account local needs. For example, participatory agreements with communities on no-grazing zones and transitional grazing areas are currently being established as a strategy to reduce the livestock grazing pressure in the Park.

While these gaps remain, the State Party has reported considerable progress in advancing the development and implementation of relevant strategies and plans, which will strengthen the protection of the nominated property to and address pressures related to increasing human settlement within and around the park, including expansion of livestock grazing and agriculture. In spite of the existing threats (see section 4.5), the nominated property has retained a high degree of endemism across various taxa, intact assemblage of species as well as continuing to demonstrate large areas of intact ecosystems and habitats.

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

4.4 Community

There are three settlements located within the nominated property: Rira Keble village, and Cheffa-dhera and Geremba Goro sub-villages. The human population of these settlements as well as settlements outside of the nominated property is increasing. There is also an expansion of farming land through clearing of land within the nominated property. The nomination dossier referred to a plan to implement 'collaborative resettlement initiatives' that are guided by a task force comprising of all relevant actors including local communities, and through the implementation of a Livelihood Improvement Strategy. A relocation scheme is also under consideration. The overarching consideration for the relocation scheme is reported to be in view of safeguarding the significant ecosystem service provided by the nominated property to the people living in the downstream areas in Ethiopia, Kenya and Somalia.

According to supplementary information, the Federal Government and the Oromia National Regional Government are committed to ensuring social safeguards and human rights are protected in line with international best practices and applicable standards that go beyond Ethiopian Law. The development of a Relocation Action Plan is stated to include community consultation from the outset, with particular attention paid to under-represented groups such as women and youth. It is reported that the plan is informed by socioeconomic assessments, identifying relocation options with the affected communities, and clear planning of actions and resourcing with relevant partners and actors. The State Party in its

supplementary information also noted that free, effective, meaningful, and informed participation of individuals of the affected communities will be followed as part of this long-term relocation plan which will extend beyond the 10-year timeframe of the current GMP.

IUCN sought additional desk reviews from experts on rights-based approach specifically to review the material on the relocation scheme, including the supplementary information. Based on the conclusions of the expert desk reviewers, the State Party's commitments meet applicable standards, noting also that the implementation of the scheme will take many years. In this context, IUCN recalls five essential conditions which must be met and verified to consider a relocation acceptable: 1) all forced relocation is excluded; 2) relocation should be properly justified; 3) all communities concerned should agree in full to the relocation and its conditions, through proper consultative and fair process; 4) the communities should be better off after the relocation; and 5) all the above should be demonstrable, transparent and accountable.

According to the nomination dossier reconciling local needs and conservation objectives is creating a major dilemma. It appears however that the establishment of a buffer zone in 2020 through agreements between the various stakeholders including communities, contributes to the mutual understanding to safeguard the nominated property through community-based natural resource management schemes, including Participatory Forest Management, Participatory Rangeland Management and Community Hunting Areas.

4.5 Threats

The nominated property is faced with several threats, which the nomination dossier presents as having a declining trend on the attributes and integrity of the site. The major threats are from unsustainable practices linked to overgrazing by livestock, expansion of agriculture associated with the expansion of human settlements, which are described in the nomination dossier and the GMP as having arisen during a management vacuum in the past.

Livestock grazing is both a traditional local livelihood and a growing threat to the ecosystem and biodiversity of the nominated property due to its expansion. The nomination dossier reports the National Park to have recorded in 2017, an estimated 725,000 livestock which graze on the afro-alpine habitats and 25,000 livestock in the Harenna Forest in the peak seasons. The GMP's Interim Settlement and Grazing Management (ISGM) Programme and the Grazing Pressure Reduction Strategy (GPRS) for the nominated property aim to address the threats through reducing livestock to sustainable levels and gradually expanding no-grazing zones through a participatory process of relevant communities, collaborative resettlement initiatives for inhabitants within the Park involving a Livelihood Improvement Strategy. The supplementary information notes that to date, around a third of Community Based Organisations in the surrounding kebeles have entered into agreements with Bale Mountains National Park to implement the GPRS through a community-led approach.

The expansion of agriculture is accompanied by clearing of vegetation and afro-alpine forests, leading to habitat loss and habitat fragmentation. This is also in conjunction with unsustainable resource use, which is being addressed through the GMP. While ecosystem integrity through the above activities may be affecting the Ethiopian Wolf, the main factor affecting their population viability is reportedly from disease outbreak transmitted from domestic dogs. As unsustainable practices are being addressed, this threat may decline over time.

Other threats to the ecological integrity of the nominated property are reported in the nomination dossier to include the construction of roads, transmission lines and fires – either deliberate or wildfire –, which is preventing the natural regeneration of forests. Furthermore, most of the above factors will be further compounded by the effects of climate change, emphasizing the need to strengthen natural ecosystem resilience by reducing these other threats and efforts to address these multiple pressures will require long-term strategies, plans and actions beyond the lifetime of the current GMP.

The nominated property is therefore faced with a number of threats and integrity issues primarily driven through the factors explained above. The State Party has however demonstrated firm commitments and has made considerable progress in developing plans and strategies to address the pressures on the nominated property. In conclusion, while concerns remain, the nominated property does demonstrate a high level of integrity, and an intact assemblage of species. The State Party makes clear and firm commitments to continue addressing the threats whilst ensuring social safeguards and protection of human rights, in line with international best practices and applicable standards.

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

5. ADDITIONAL COMMENTS

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6. APPLICATION OF CRITERIA

The **Bale Mountains National Park (Ethiopia)** has been nominated under natural criteria (vii) and (x).

Criterion (vii): Superlative natural phenomena or natural beauty or aesthetic importance

The nominated property hosts the largest contiguous area of afro-alpine habitat above 3,000 m a.s.l. in all of Africa, and includes mountain peaks up to 4,377 m a.s.l. that are shaped by volcanic activity, glaciation

and erosion. The National Park includes a mosaic of diverse ecosystems and habitats across its impressive altitudinal gradient including northern grasslands and woodlands, afro-montane ericaceous forest, afro-alpine moorland and grassland, Harenna Forest, in addition to numerous lakes, wetlands and watercourses. The combination of completely distinct but linked vegetation types with dramatic escarpments, deep gorges, and numerous waterfalls provide for a highly significant landscape diversity and scenic beauty. The harsh, high altitude environment is aesthetically remarkable: amongst scattered wetlands and rocky outcrops, Giant Lobelias (*Lobelia rynchopetalum*) break the skyline above the otherwise stunted plant. The stunning scenery of emblematic mountains is contrasted with the flat Sanetti Plateau, sweeping valleys and lush forests.

IUCN considers that the nominated property meets this criterion.

Criterion (x): Biodiversity and threatened species

The nominated property contains a very high level of species richness and endemism across numerous taxonomic groups. 1,660 species of flowering plants have been recorded, 177 of which are endemic to Ethiopia, and of which 31 are exclusively found in the Bale Mountains. 23 of the 79 recorded mammalian species are endemic. The nominated property is also important for 363 recorded bird species, out of which 170 are migratory whilst six are endemic to Ethiopia. Thanks to the abundance of rodents, the nominated area is also important to migratory and resident raptors. According to the nomination dossier, the Sanetti Plateau within the nominated property contains the largest area of afro-alpine vegetation in the world, and more than 80% of all species found in the afro-montane habitat are endemic. The property is also distinguished by the presence of the Harenna Shrew (*Crocidura harenna*); the Giant Mole Rat (*Tachyoryctes macrocephalus*); Malcolm's Ethiopian Toad (*Altiphrynoides malcolmi*); the Bale Mountains Tree Frog (*Balebreviceps hillmani*) and the Bale Mountains Frog (*Ericabatrachus baleensis*), which are only found in the Bale Mountains, and which have led to the recognition as an Alliance for Zero Extinction site. The property also hosts an estimated two-thirds of the global population of the endemic and endangered Mountain Nyala (*Tragelaphus buxtoni*).

Furthermore, the nominated property houses globally threatened species and conserves important large mammals, such as Lion (*Panthera leo,* VU) and the endangered African Wild Dog (*Lycaon pictus*, EN) as well as the endangered Mountain Nyala (*Tragelaphus buxtoni*, EN), which occurs only in Ethiopia, the Bale Monkey (*Chlorocebus djamdjamensis*, VU), which is also restricted to the highlands of Ethiopia, and the endangered Ethiopian Wolf (*Canis simensis*, EN), which is restricted to seven isolated mountain enclaves in the highlands of Ethiopia.

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/23/45.COM/8B and WHC/23/45.COM/INF.8B2;

2. Inscribes **Bale Mountains National Park (Ethiopia)** on the World Heritage List under criteria (vii) and (x);

3. Adopts the following Statement of Outstanding Universal Value of the property:

Brief synthesis

Bale Mountains National Park (BMNP) boasts a spectacularly diverse landscape mosaic comprised of distinct ecosystems and habitats and associated biodiversity. The property covers an area of 215,000 ha in the heart of the Bale-Arsi Massif in the south-eastern Ethiopian Highlands in Oromia National Regional State. Building upon much earlier efforts, the National Park has been legally protected and demarcated since 2014. The property includes the Africa's largest area of afro-alpine habitat above 3,000 m above sea level (a.s.l.) with numerous glacial lakes, wetlands and moorlands. Volcanic ridges and peaks tower above the plateau, most prominently Tullu Dimtu, Ethiopia's second highest peak at 4,377 m a.s.l. Elsewhere in the park, extensive grasslands thrive next to various types of forests including tree heath, bamboo and juniper forests. Significantly, the southern slopes of the Bale Mountains descend dramatically into the famous Harenna Forest, the second largest moist tropical forest in Ethiopia, including patches of cloud forest.

As the origin of several important rivers, the ecosystems and habitats within BMNP and its surroundings regulate the supply of water for millions of people in and beyond Ethiopia. The park and its surroundings are home to an extraordinary fauna and flora with an exceptional degree of endemism and in several cases the only remaining populations of globally threatened species across numerous taxonomic groups. For example, Mountain Nyala and Bale Monkey are both endemic to this area, along with numerous endemic rodents and amphibians, as well as the most important remaining population of Ethiopian Wolf. It is important to understand, however, that at the time of inscription, the property's exceptional conservation values coincide with very high pressure on the ecosystems. Despite several threats and a continuing need to better reconcile local livelihoods with the conservation of biodiversity and ecosystem services, longstanding conservation efforts, partnerships and the natural protection granted by the rugged terrain have maintained a favourable conservation status and outlook by the standards of the afro-alpine and East Africa's moist tropical forests.

Criterion (vii)

The property protects a landscape mosaic of extraordinary beauty that is shaped by the combined

forces of ancient lava outpourings, glaciation and the dissection by the Great Rift Valley. It features volcanic peaks and ridges, dramatic escarpments, sweeping valleys, glacial lakes, lush forests, deep gorges and numerous waterfalls, creating an exceptional natural beauty. The altitudinal gradient of the park spans almost 2,900 metres from the highest peak standing at 4,377 m a.s.l. (Tullu Dimtu) down to approximately 1,500 m a.s.l. in the Harenna Forest. The altitudinal gradient not only creates vibrant changes in topography, soil, vegetation and species assemblages but constantly changing, breath-taking vistas. Amongst scattered wetlands and rocky outcrops, the iconic Giant Lobelias break the skyline above the otherwise stunted afro-alpine vegetation of the Sanetti Plateau, a harsh and aesthetically stunning high altitude environment. Unusual striations, or boulder grooves, mark the shallow hillsides, a natural phenomenon, which remains an enigma to geologists and glaciologists. Dropping from the plateau, the Harenna and the adjacent Mena Angetu form the second largest moist tropical forest in Ethiopia, transitioning in some areas into the country's only remaining patches of cloud forest. This, combined with the plateaus complete a unique, majestic landscape with an extraordinary natural aesthetic.

Criterion (x)

The property harbours diverse and unique biodiversity at ecosystem, species and genetic levels. The Sanetti Plateau and the slopes of the Bale Mountains National Park above 3,500 m a.s.l. encompass the largest intact and contiguous expanse of afro-alpine habitat in the world further adding to the importance of the property as a rare large-scale remnant of this habitat. Uniquely, the afro-alpine of the Bale Mountains continues to be intricately linked to intact and large-scale expanses of forest, wetland and grassland ecosystems and habitats. More than 80% of all species found in the afro-montane habitat are endemic.

Bale Mountains National Park is home to 1,660 documented species of flowering plants, 177 of which are endemic to Ethiopia and 31 exclusively to the Bale Mountains. The forests of the Bale Mountains serve as a genetic reservoir for Wild Forest Coffee and countless medicinal plant species. 79 mammal species have been recorded in the park; 23 of these are endemic, including eight rodent species. There are 363 documented bird species, including over 170 recorded migratory bird species, such as wintering and passing raptors, including the Greater Spotted Eagle. While the afro-alpine habitats are not conspicuously rich in terms of plant species, more than 80 % of all species found in this type of habitat are endemic, an extreme degree of endemism by any standard. The afro-alpine has been recognized as a globally significant place in literally all major global conservation priority-setting exercises.

At the time of inscription, the Harenna Shrew, the Giant Mole Rat the Malcolm's Ethiopian Toad, the Bale Mountains Tree Frog and the Bale Mountains Frog can only be found in the Bale Mountains. The property hosts an estimated two-thirds of the global population of the endemic Mountain Nyala, the most important population of the endemic Ethiopian Wolf and it is home to the Menelik's Bushbuck, an endemic subspecies. The Bale Monkey is endemic to the Ethiopia Highlands, east of the Rift Valley and is restricted to the bamboo belt of the Bale Mountains and the Sidamo Highlands.

Integrity

Covering 215,000 ha, the property serves as a meaningful and viable representation of afro-alpine and associated forests. The afro-alpine Sanetti Plateau is situated within the property in its entirety. At the foot of the southern escarpment lies the tropical moist Harenna Forest, one of Ethiopia's largest natural forests, granted protection in the national law with about 100,000 ha within BMNP and the adjacent areas. The forest cover in the park is almost continuous with a low level of fragmentation and degradation. The dense, green, misty jungle contains huge trees, moss draped branches, and impenetrable undergrowth wrapped in a tangle of creepers among which wild coffee and medicinal plants grow. Unlike most of the wider ecoregion, the land and resources protected by the national park are still in a relatively good state of conservation due to the longstanding conservation efforts, the remote location and the rugged terrain.

Nevertheless, pressures on the property's nature conservation values at the time of inscription are related to unsustainable practices linked to increasing human settlement within and around the park, including expansion of livestock grazing and agriculture. Although localized degradation has occurred, the full array of ecosystem and habitat diversity, hosting complete native species assemblages, continues to exist. Other threats to the integrity of BMNP requiring long-term attention include the existing road crossing the park's vulnerable key habitats. The road generates some direct disturbance and facilitates access to otherwise remote areas.

The property, with its clear, legally defined boundary, is of sufficient size to protect a large, particularly valuable and still remarkably intact example of the linked ecosystems and habitat mosaic of this area. The property has a recognized buffer zone comprising all 29 neighbouring kebeles (the smallest administrative unit in Ethiopia) surrounding the legally gazetted and demarcated park boundary as a key investment in the future integrity of the property. The buffer zone itself harbours very important conservation values, as well as securing landscape connectivity beyond the property.

Protection and management requirements

Bale Mountains National Park is managed by the Ethiopian Wildlife Conservation Authority (EWCA). EWCA is a self-governed body, created by Proclamation No. 575/2008 of the Federal Democratic Republic of Ethiopia and regulated by National Law of Wildlife Development, Conservation and Utilization (Proclamation No. 541/2007). The entire surface area of the property of 215,000 ha enjoys a high level of legal protection in line with IUCN Protected Area Category II. The national park is surrounded by an

officially recognized buffer zone of 235,121 ha, ranging between approximately 5 to 20 km from the boundaries of the park. The Oromia National Regional State acting through the local woreda (district authorities) and kebele committees are critically important partners in the management of the property and its buffer zone. Regulation 338/2014 includes the establishment of a statutory Park Advisory Committee (PAC) with representation of the park adjacent woredas. In each woreda, a Park Community Dialogue Forum (PCDF) has been established with representation from each of the park adjacent kebele. The PAC reports to the Bale Regional-Federal Coordination Committee which provides the policy direction with regard to addressing threats to the park.

In the buffer zone, Oromia National Regional State, the local government bodies and Oromia Forest and Wildlife Enterprise (OFWE) support more integrated and landscape scale governance of the Bale eco-region through Participatory Forest Management (PFM) cooperatives, Community Conservancies (CC) and Controlled Hunting Areas (CHA) linking to the park through bodies such as the PCDF. The Governance of the buffer zone promotes sustainable natural resource use by the park adjacent communities without compromising conservation and the ecosystem services of the property.

Managed by EWCA, the park has its own park administration office with additional ranger outposts and mobile camps. Park staff includes around 80 rangers at the time of inscription. The property's strategic and operational management is guided by a 10-year General Management Plans (GMP), which includes management programmes on Park Operations; Tourism Management; Interim Settlement & Grazing Management; Outreach and Ecological Management. In addition, a Tourism Development Plan guides the management actions to improve community benefits from tourism whilst managing the impact of visitors on the property. Threats to the property are actively being addressed through the General Management Plan's Interim Settlement Grazing Management Programme, a Grazing Pressure Reduction Strategy and a linked Livelihood Improvement Strategy, which include measures to reduce livestock to sustainable levels and gradually expand no-grazing zones through a participatory process with relevant communities. Strict adherence to a rights-based approach and to the principle of free, prior and informed consent of the affected communities are key requirements for the management of the property.

One challenge beyond the scope of EWCA and park management has been sporadic civil unrest but the situation is improving. Nonetheless, there is progress in terms of enhancing communication and collaboration with all stakeholders and rights-holders, a crucial long-term task. Efforts are underway to improve the critically important dialogue and cooperation with local communities, resource users and all levels of government. Mechanisms are emerging to more effectively incorporate park protection into local development strategies with an emphasis on addressing the issues of settlement and livestock grazing in the park, while fully taking into account local needs.

4. Requests the State Party to:

a) continue to address the threats to the OUV of the property through the appropriate implementation of the General Management Plan, including regarding unsustainable practices, such as overgrazing by livestock,
b) ensure that, in line with the State Party's continued commitments made in the nomination, any proposed relocation of people and communities from within the property follows a rights-based approach, ensuring the free, prior and informed consent of the affected communities and applying international best practices and applicable norms and standards;

5. Also requests the State Party to provide an update on the implementation of the above by 1 December 2024.

Map 1: Nominated property and buffer zone.

AFRICA

NYUNGWE NATIONAL PARK

RWANDA

L’Hoest‘s Monkey, *Allochrocebus lhoesti*, Nyungwe National Park © IUCN / Wendy Strahm

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

NYUNGWE NATIONAL PARK (RWANDA) – ID N° 1697

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To refer the nomination under natural criterion (x)

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

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2022

b) Additional information officially requested from and provided by the State Party: Following the session of the IUCN World Heritage Panel, a progress report was sent to the States Parties on 25 January 2023. This letter advised on the status of the evaluation process and requested supplementary information on research in relation to criterion (ix), species lists in relation to criterion (x), wildlife corridors, a road crossing the park, transboundary management and the management plan of the nominated property. The supplementary information was provided by the State Party on 27 February 2023.

c) Additional literature consulted: IUCN's evaluation consulted a wide array of relevant reference material for the biology, ecology, protection and management as well as the comparative values of the nominated property. References included: Akayezu, P. (2011). Impact of anthropogenic and environmental stresses on plant diversity. Case of the paved road in Nyungwe National Park, Rwanda. Retrieved November 5, 2022 from https://sites.google.com/a/aag.org/mycoe-servir/the-team/rwanda---nyungwe; Budowski, G. (1975). Synthèse des propositions concernant l'élaboration d'un programme de sauvegarde de la Forêt naturelle de Nyungwe. MAB, Kigali;
Chao, N., Rugyerinyange, L. and Scholte, P. (comps.) (2009). International Conference on the Impact of Sericostachys scandens on the Conservation of Nyungwe National Park, Rwanda. Protected Areas Biodiversity Project (PAB), REMA/GEF/UNDP; Easton, J. (2009). Feasibility report for the Re-introduction of African Elephants to Nyungwe National Park, Rwanda. WCS, REMA. REMA/GEF/UNDP. Retrieved November 10 from Wildife Conservation Society: http://www.wcs.org/; Howard, P. C. and Bertzky, B. (2020). Natural World Heritage in Africa: Progress and prospects. BIOPAMA Programme, IUCN Regional Office for Eastern and Southern Africa (ESARO), Nairobi, Kenya and IUCN Regional Office for West and Central Africa (PACO), Ouagadougou, Burkina Faso.; Moore, J., Mulindahabi, F., Gatorano, G., Niyigaba, P., Ndikubwimana, I., Cipolletta, C. and Masozera, M. (2018). Shifting through the forest: Home range, movement patterns, and diet of the eastern chimpanzee (Pan troglodytes schweinfurthii) in Nyungwe National Park, Rwanda. American Journal of Primatology, 80, e22897. 10.1002/ajp.22897; Plumptre, A.J., Masozera, M., Fashing, P.J., McNeilage, A., Ewangoa, C., Kaplan, B.A., and Liengola, I. (2002). Biodiversity surveys of the Nyungwe Forest Reserve in S.W. Rwanda. WCS Working Paper No. 19, July 2002; Plumptre, A.J., Davenport, T.R.B., Behanganac, M., Kityoc, R., Eiluc, G., Ssegawac, P., Ewangoa, C., Meirted, D., Kahindoc, Cl, Herremansd, M. Kerbis Peterhanse, J., Pilgrim, J.D., Wilson, M., Languyi, M. and Moyer, D. (2008). The biodiversity of the Albertine Rift. Biological Conservation 134, 178-194; Rwanda Environment Management Authority (2015). Study to establish a national list of threatened terrestrial ecosystems and species in need of protection in Rwanda. Kigali, Rwanda; White, L. and Vande weghe, J.P. (2008). Patrimoine mondial naturel d'Afrique central: Bien existants – Bien potentials. Rapport de l'atelier de Brazzaville du 12-14 mars 2008. UNESCO-CAWHFI Central Africa World Heritage Forest Initiative, Paris, France.

d) Consultations: 9 desk reviews received. The mission was able to meet with the Ministry of Environment; the Rwanda Cultural Heritage Academy; the Rwanda National Commission of for UNESCO; Rwanda Development Board; Nyungwe National Part site management and eco-guards; Albertine Rift Conservation Society (ARCOS); National Herbarium; Wildlife Conservation Society (WCS); two local communities; tea plantation representatives, among others.

e) Field Visit: Wendy Strahm and Inza Koné, 10 to 17 October 2022

f) Date of IUCN approval of this report: April 2023

2. SUMMARY OF NATURAL VALUES

Nyungwe National Park is located in the very biodiverse Albertine Rift Ecoregion and nominated under criteria (ix) and (x). It is composed of three nominated component parts – one principal block, the Nyungwe Natural Forest, and two small isolated forest patches, the Cyamudongo Natural Forest and the Gisakura Natural Forest. The nominated property presents three distinct altitudinal forest zones: low montane, middle montane, and upper montane. Vegetation types found in the nominated property include montane forests, bamboo forests, savanna grasslands, and high-altitude wetlands, such as the Kamiranzovu swamp with nearly 1,300 ha of peat bog. This is reported to be the largest peat bog in Africa preserving pollen archives of at least 200,000 to 300,000 years. The nominated property represents the largest remaining montane rainforest in the country and serves as a source of the Congo and Nile River basins.

	Nominated component part	Area (ha)	Buffer zone (ha)
1	Nyungwe Natural Forest	101,515.59	10,085.22
2	Cyamudongo Natural Forest	430.38	-
3	Gisakura Natural Forest	17.70	-
	Total:	**101,963.67**	**10,085.22**

Table 1 : Area of nominated property and buffer zone

The nominated component part of Nyungwe Natural Forest consists of montane rainforests, high altitude wetlands, tall ericaceous thickets and low ericaceous moorlands with an altitudinal range from 1,480 m to 2,950 m. The lowest, more humid parts are on the western side, which includes the Kamiranzovu Marsh at 1,950 m. The driest parts are north and east. Some patches of Bamboo forest occur in the south-east (Nshili).

The nominated property's flora includes 1,441 species of native vascular plants, including 256 Albertine Rift endemics of which 38 are endemic to Rwanda. The small Cyamudongo Forest has 628 species, 266 of which are not present in the much larger Nyungwe Natural Forest. Currently, the flagship species in the nominated property are its primates, with 14 different species listed in the nomination, of which four species (Chimpanzee, *Pan troglodytes*, EN, Angolan Colobus, *Colobus angolensis*, VU, L'Hoest's Monkey, *Allochrocebus lhoesti*, VU, and Blue Monkey, *Cercopithecus mitis*, LC) are habituated and serve as tourist attractions. Two other threatened primates, Owl-faced Monkey (*Cercopithecus hamlyni*, VU) and Golden Monkey (*Cercopithecus mitis ssp. kandti*, EN) are reported to occur in the nominated property. The Upland Horseshoe Bat, (*Rhinolophus hillorum*, CR) is endemic to the nominated property, although little is known about the distribution of this species. As for birds, the nomination notes 351 species, of which around 25-30 species are Albertine Rift endemics. The Grauer's Swamp-Warbler (*Bradypterus graueri*, VU) has probably its second largest population in the Kamiranzovu swamp, and the only large population in a protected area. A few other threatened birds are listed for the Park, including the Grey Parrot (*Psittacus erithacus*, VU). For the 32 species of amphibians, 22 are Albertine Rift endemics of which two are endemic to the nominated property. Of these, one amphibian (*Boulengerula fischeri*, VU) is only known from its type locality in the Cyamudongo Forest.

3. COMPARISONS WITH OTHER AREAS

The nominated property has been recognised by IUCN in thematic studies as a possible priority for new nominations to the World Heritage List, most recently in 2020. The nomination dossier presents a comparative analysis applying a multi-scale approach to both biodiversity criteria, criteria (ix) and (x). Following a discussion of tropical montane forests at the global level, the dossier analyses montane, sub-montane and lowland forest at continental scale, distinguishing the Albertine Rift, which covers significant eco-climatic gradients giving rise to very high levels of endemism and biodiversity with more than 5,800 plant species, representing approximately 14% of all vascular plant species in Africa, as well as 404 mammal species, representing 39% and 1,062 bird species representing 46% of the species recorded in Africa respectively.

At the scale of the Albertine Rift, the analysis proceeds to compare the nominated property with 13 sites within this region. In conclusion, the nomination considers the nominated property as one of the most biologically important Afromontane forests in Africa. Together with Kibira National Park in Burundi, with which the nominated property is contiguous, the landscape forms the largest remaining lower montane forest block in Africa. According to the nomination file, the nominated property is representative of the Albertine Rift montane forests and the dynamics that take place within them, preserving both the largest intact mountain forests of the Albertine Rift and an intact complex landscape of the central sector of the Albertine Rift. In particular, it protects the several plant successions taking place within the peat bogs and the colonisation process of moors and meadows, as well as the interactions between dense forests, bamboo thickets, and open-canopy forests.

IUCN, in collaboration with UNEP-WCMC, has undertaken supplementary comparative analysis with regards to criteria (ix) and (x). Based on the spatial analyses and literature review, the biodiversity that characterises the nominated property appears to be of global significance, particularly under criterion (x).

Regarding criterion (ix), the WCMC Comparative Analysis notes that the nominated property represents a key area for rainforest conservation in Central Africa thanks to its size and altitudinal gradient. It also overlaps with the Lake Tanganyika ecoregion, which is not yet represented. However, it overlaps with biogeographical areas, including a hotspot, Endemic Bird Area and priority ecoregion, already well represented on the World Heritage List. The Afrotropic Tropical and Subtropical Moist Broadleaf Forests

terrestrial biorealm, where the nominated property is found, is already very well represented on the World Heritage List, with 20 inscribed properties. The East African Woodland/Savanna Udvardy Province is also well represented on the World Heritage List with eight properties already. The nominated property does not appear to overlap with any Centres for Plant Diversity.

Based on the solid account provided in the nomination dossier and supplementary information, the input from the field evaluation mission, external desk reviews and the WCMC Comparative Analysis, IUCN notes the importance of the very complex mosaic of vegetation with numerous plant associations and of the Kamiranzovu swamp as the largest peat bog in Africa. However, the nomination also notes that the dynamism between closed-canopy and open-canopy forest, between the vast mountain bamboo thickets and the various types of surrounding forests, put forward as attributes under criterion (ix), is currently poorly understood. Regarding the fauna, IUCN notes that four keystone species recently became extinct within the nominated property: African Savanna Elephant (*Loxodonta Africana,* EN), Buffalo, Giant Forest Hog (*Hylochoerus meinertzhageni*, LC) and Leopard (*Panthera pardus*, VU). Whilst there is consideration of reintroducing these species, the absence of predators and large herbivores suggests an incomplete representation of the nominated property's ecosystem under criterion (ix), with the effects of the loss of keystone species unknown. It is likely though that the vegetation dynamics have changed as a result. IUCN took note of recent draft feasibility studies for the proposed reintroduction of Savannah Elephants and Grey Parrots along with biomonitoring report drafts provided in supplementary information. However, the supplementary material did not substantiate further the case for criterion (ix) as scientific attention focused on other fields of research. In this respect, it is welcome that the final draft of the Long-Term Sustainability Strategy (LTSS), provided in supplementary information prioritises closing key knowledge gaps. Based on the current level of knowledge, IUCN considers that the nominated property does not appear to demonstrate global significance under criterion (ix).

In contrast, there appears to be a strong case for global significance under criterion (x). The nominated property supports a wide variety of flora and fauna and is a key site for biodiversity conservation in the Albertine Rift region, with a particularly rich mammal and bird diversity. It generally shows a high level of biodiversity when compared to other World Heritage properties and Tentative List sites found in the same Eastern Afromontane terrestrial biodiversity hotspot, as well as in the same Rift Valley Lakes freshwater priority ecoregion and Albertine Rift Montane Forests terrestrial ecoregion. The flora of the site is very diverse with 1,468 plant species. There are 73 globally threatened plant species recorded within the nominated property, including two Critically Endangered (CR): *Capparis lucens* and *Polystachya erica-lanzae*; 32 Endangered (EN); and 39 Vulnerable (VU) species. The nominated property is reported to host 256 species of plants endemic to the Albertine Rift region, of which 37 are endemic to Rwanda.

Notably, it hosts 14 primate species, including some globally threatened species, such as the Chimpanzee and Golden Monkey. The nominated property is considered a primate hotspot due to the high number of primate species representing 20% of all African primate species. The nominated property is reported to host 12 species of globally threatened mammals and among resident and breeding bird species, there are seven threatened species. The endangered White-Bellied Pangolin (*Phataginus tricuspis*, EN) is also found within the nominated property. Several animal species are endemic or sub-endemic to the Albertine Rift, including several mammal, amphibian and reptile species. The nominated property also hosts 317 species of birds, making it one of the most important sites for bird conservation on the African continent after the Itombwe Mountains. Consequently, the nominated property is considered to be amongst the top 0.1% of most irreplaceable protected areas in the world for mammal, bird and amphibian conservation. The nominated property also overlaps with one Alliance for Zero Extinction site (AZE), an Important Bird Area and a Key Biodiversity Area which are not currently represented on the World Heritage List.

In conclusion, IUCN considers that the nominated property demonstrates global significance under criterion (x) whereas currently there does not appear to be a convincing case for criterion (ix).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nominated property has been formally protected since 1933 when it was designated as a forest reserve. In 2005, Nyungwe National Park was officially established by Law N° 22/2005. Article 2 of the law also establishes the buffer zone of the nominated property. Nyungwe National Park is legally owned by the State, including the buffer zones. The nominated property falls under IUCN Protected Area Category IV, although it could be argued that large areas of the nominated property fall under Category II as these areas are almost completely inaccessible. Law enforcement is ensured by the Law Enforcement Department comprising one Manager, two Heads of Zones (South and North), 80 rangers, 18 security guards, 35 posts' aids, 33 primate trackers, and one control room operator.

Regarding the buffer zone, IUCN notes that the law establishing the nominated property's buffer zone confirms under Article 3 that "the use and management of the buffer zone will be conducted in accordance with the laws in force, determining the use of land, environment and forests". However, the Management Plan 2012-2021 notes that other than this general provision, the law does not prescribe how the buffer zone will be managed and how the use of the area is regulated. In this respect, the Management Plan played an important role in ensuring that the buffer zone of the nominated property effectively functioned as an added layer of protection in line with

the *Operational Guidelines*, thanks to prescriptions provided in the plan. However, this is no longer the case as the Management Plan has expired (see section 4.3).

In December 2018, a procurement procedure was initiated in compliance with relevant domestic Public-Private-Partnership laws and guidelines to delegate the management and financing of Nyungwe National Park. As a result a contract was signed in October 2020 between the Rwanda Development Board (RDB) and African Parks Network, an organisation specialised in conservation, management and sustainable use of protected areas in Africa. The contract runs for 20 years and is renewable.

Overall, IUCN concludes that the protection requirements for the nominated property are met, but considers that the legal definition of the buffer zone would need to be strengthened so as to serve as an effective added layer of protection, also following the expiry of the management plan.

IUCN considers that the protection status of the nominated property meets the requirements of the *Operational Guidelines* but that the requirements are currently not met for the nominated property's buffer zone.

4.2 Boundaries

The nominated property is congruent with the boundaries of Nyungwe National Park whose boundaries are defined in great detail through Appendix 1 of before-mentioned law. The nominated property is surrounded by tea plantations and exotic forest plantations. Some small-scale farming borders the nominated property. Whilst the nomination dossier reports small incursions of previous Eucalyptus and Pine plantations, the nominated property maintains a very high level of integrity with intact natural forests and open-canopy formations, the latter hosting some of the most important endemic species.

The nominated property is part of the largest remaining lower montane forest block in Africa. Whilst the nominated property is relatively small compared to other Protected Areas in the region, the field evaluation found that it is of sufficient size to maintain the proposed Outstanding Universal Value (OUV). It deserves to be noted though that the nominated component parts of Cyamudongo Natural Forest (430 ha) and Gisakura Natural Forest (17 ha) are extremely small. Both Cyamudongo and Gisakura Natural Forests are completely disconnected from each other and from Nyungwe Natural Forest due to the presence of tea plantations and settlements hampering movement of wildlife. In this respect, IUCN welcomes the State Party's consideration noted in its supplementary information of the potential development of ecological corridors to improve the connectivity between the nominated component parts. Nevertheless, given this lack of connectivity, IUCN considers that the integrity requirements under criterion (ix) are currently not met. Regarding criterion (x), both Cyamudongo and Gisakura Forests play an important role in ensuring the nominated property's integrity in terms of completeness under criterion (x). Cyamudongo Forest hosts 35 important plant species not found in Nyungwe Natural Forest, including important endemics, amounting to almost 13% of the nominated property's important plants. Gisakura Natural Forest features a population of Angola Colobus (*Colobus angolensis,* VU).

The nominated property is subject to a zoning regime to achieve different management objectives in different parts of the protected area. Four main zones have been identified: Ecologically Sensitive Zone; Tourism High Use Zone; Wilderness Zone; and Buffer Zone. The nominated component part of Nyungwe Natural Forest is surrounded by a legally defined, discontinuous buffer zone totalling 10,085 ha, consisting mainly of exotic pine plantations. It provides a buffer for about 70% of the nominated component part. The south-western and southern end is bordered by Kibira National Park (Burundi). In other areas without a buffer zone, the nominated component part borders tea plantations with some small-scale agriculture, which provide a buffering function, even if they are not legally defined as buffer zone. The topography separates it clearly from heavily used lower-altitude areas surrounding the nominated property and its buffer zone. Cyamudongo Natural Forest, at an altitude of about 1,700-2,100 m has no buffer zone, but is mostly surrounded by plantations and farmland. Gisakura Natural Forest is entirely surrounded by tea plantations.

In conclusion, IUCN considers that the boundaries of the nominated property are appropriate, though improvements are recommended to consolidate the buffer zone and enhance the connectivity between the three nominated component parts.

IUCN considers that the boundaries of the nominated property and buffer zones partially meet the requirements of the *Operational Guidelines*.

4.3 Management

The nominated property transitioned from a traditional Government management system to a public-private partnership arrangement with African Parks. There is a Transition Protocol in place for the first 12 months of national park management, which also provides for the establishment of the Nyungwe Management Company (NMC). Starting in April 2021, NMC is charged with the management of the National Park on the ground.

The forestry plantations in the buffer zone of the nominated property fall under the management authority of the Rwanda National Forestry Authority (NAFA). In July 2011, the Ministry of Natural Resources and the Rwanda Development Board (RDB) signed a long-term management agreement for the buffer zone with a forestry company applying sustainable and socially responsible standards. The company now has responsibility for the management of the existing buffer zone forestry plantations as well

as for the replanting of denuded areas using enrichment planting regimes involving both indigenous hardwood trees as well as commercial forestry species such as pine.

A detailed and comprehensive Business Plan from 2022-2026 was included in the nomination. The Business Plan aspires to make the nominated property self-sustaining through a quality tourism approach. In the period from 2022 to 2026, the planned funded expenditure of the nominated property ranges from 2.8 to 3.9 million USD annually. The management system of the Park is documented in a management plan, which expired in 2021. A Long-Term Sustainability Strategy (LTSS) is expected to be approved in 2023 to succeed the expired management plan. The State Party provided the LTSS as part of its supplementary information submission. The LTSS is expected to guide the implementation of the Business Plan and the development of a future Management Plan as well as a Land Use Plan that will define the activities permitted in the different areas of the nominated property. Whilst the LTSS provides a commendable vision for the nominated property that is centered on community-inclusive conservation and the expansion of the ecosystem and connectivity, and creates a framework for the development of the next Management Plan, the LTSS does not replace it and therefore an updating of the expired 2012-2021 Management Plan is a pressing requirement. The updated Management Plan should contain the same level of detail and concrete action as the successfully implemented 2012-2021 Management Plan, and in particular specify how the proposed Outstanding Universal Value of the nominated property should be preserved.

Therefore, IUCN considers that the nominated property is currently not meeting management requirements in line with paragraph 108 of the *Operational Guidelines*, which requires each nominated property to have an appropriate management plan which must specify how the Outstanding Universal Value of the nominated property should be preserved.

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

4.4 Community

Whilst large areas of the nominated property are almost completely inaccessible, the nominated property overlaps with densely populated districts. Therefore, careful consultation with stakeholders and rights-holders including local communities and park management are required. The field evaluation mission found that stakeholders are regularly consulted and informed about management decisions and issues. The boundaries of the nominated property are known to stakeholders and rights-holders and cultural rights do not appear to be affected by the presence or management of the nominated property.

The Community Partnership Programme of Nyungwe National Park intends to ensure that communities benefit from the National Park. Several community-based cooperatives have been established in different zones to address specific issues: a surveillance cooperative as well as tea producing, milk producing and honey producing cooperatives. Local communities and private companies also contribute to enforcing the unauthorized access ban to the nominated property. The local communities met by the mission judged the revenue sharing scheme as promising. Human-wildlife conflict management mechanisms are in place and considered to be satisfactory by stakeholders. These include avoidance measures as well as compensation measures.

4.5 Threats

The nomination highlights roads traversing the nominated property and illegal mining as threats, among others. The international road crossing the nominated property is completely illuminated and used by heavy truck and bus traffic causing disturbance and risks of roadkill and pollution. At one point, the road was closed to traffic at night, but this regulation has not been maintained. The mission noted truck traffic is expected to decrease significantly once a road to the north of the nominated property is upgraded. In supplementary information, the State Party confirmed that this project is expected to be completed by mid-2024. There is a process underway to regulate the traffic through Nyungwe Natural Forest with the intention to reduce vehicle speed and noise. Mining inside the Park ceased in 2004 and the old mining areas are in the process of restoration through natural regeneration. Since designation as a National Park in 2005, pressures on the nominated property have been reduced and areas affected by fire are being restored.

The 10-year Management Plan, which expired in 2021, as well as the Nyungwe National Park Business Plan (2022-2026) address the threats to the nominated property, and significant progress has been made. However, it is regrettable that at the time of this evaluation a process to update the Management Plan had not been put in place to guarantee the continuation of the same level of successful action.

The field mission observed examples of the revenue-sharing scheme working successfully, benefitting local communities living in the vicinity of the nominated property. Forest fires have been prevented through awareness raising among communities. At the same time, the nomination notes that fire is also an important factor to maintain the nominated property's mosaic habitats, which will need to be carefully managed by the park authorities.

Several reintroduction projects to restore locally extinct fauna (Savannah Elephant, Buffalo, Giant Forest Hog and Leopard) and to reinforce the Grey Parrot population are being considered. These initiatives will require careful planning and evaluation to ensure translocation is undertaken in accordance with international best practice and to assess the suitability

and risks associated with such activities, including by addressing the root cause for their initial extinction within the nominated property.

Overall, IUCN considers that the nominated property exhibits a high level of integrity with adequate boundaries and protection levels. The management of the nominated property has been successfully guided by the 2012-2021 Management Plan and there is a promising vision in place for the nominated property, which may in future address concerns to improve the connectivity between the three nominated component parts and to strengthen the buffer zone arrangements of the nominated property. However, as there is currently no Management Plan in place that would ensure continuity at the same level as the previous 2012-2021 Management Plan, the management requirements are not met at the time of writing of this evaluation report. This also leaves a gap for the management of the buffer zone. It will be important to reinforce the legal status of the buffer zone, to ensure its functioning as added layer of protection.

In summary, IUCN considers that the integrity requirements and protection and management requirements of the *Operational Guidelines* are partially met.

5. ADDITIONAL COMMENTS

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5.1 Consideration in relation to serial properties

a) What is the justification for the serial approach?

Whilst very small and disconnected from the main forest block of Nyungwe Natural Forest, the nominated component parts of Cyamudongo Natural Forest and Gisakura Natural Forest are legally part of Nyungwe National Park. The inclusion of Cyamudongo Natural Forest and Gisakura Natural Forest ensures consistency of the boundaries of the nominated property with the boundaries of Nyungwe National Park. Each of the nominated component parts contains attributes not represented in the other nominated component parts. Therefore, each nominated component part is essential to fully represent the proposed Outstanding Universal Value of the nominated property.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the *Operational Guidelines*?

The nominated component parts are separated by tea plantations and settlements, which present a barrier to wildlife movement. However, all three nominated component parts contribute towards the completeness under criterion (x). All three nominated component parts contribute to the overall species richness of the nominated property and they should therefore not be excluded from the nominated property. In supplementary information, the State Party confirms its willingness to consider wildlife corridors to improve the connectivity between the three nominated component parts.

c) Is there an effective overall management framework for all the component parts of the nominated property?

The 2012-2021 Management Plan and the 2022-2026 Business Plan cover all of the nominated component parts, including the two small forest blocks. However, as noted in section 4, at the time of writing this evaluation report, it has not been demonstrated that the continuation of the effective management framework of the 2012-2021 Management Plan would be ensured if the nominated property would be inscribed now.

6. APPLICATION OF CRITERIA

The **Nyungwe National Park (Rwanda)** has been nominated under natural criteria (ix) and (x).

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

Nyungwe National Park represents an important area for rainforest conservation in Central Africa, thanks to its size and altitudinal gradient. Furthermore, the nomination and supplementary information highlights the importance of the dynamics between closed-canopy and open-canopy forest, between bamboo thickets and surrounding forests, but notes that scientific study of these dynamics is lacking. Whilst this complex mosaic of vegetation appears to be important further research would be needed to potentially confirm significance of the ecological processes of the nominated property at global level. The fact that keystone species went extinct recently does not demonstrate a complete representation of the nominated property's ecosystem under criterion (ix). The lack of connectivity between the three nominated component parts also calls into question the intactness of the nominated property under criterion (ix). In addition, the nominated property overlaps with biogeographical areas that are already well represented on the World Heritage List, including the Afrotropic Tropical and Subtropical Moist Broadleaf Forests terrestrial biorealm, which is already represented by 20 properties inscribed on the World Heritage List. As stand-alone site, the nominated property could not be considered a complete representation of the Albertine Rift.

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

Criterion (x): Biodiversity and threatened species

The nominated property boasts both intact forests and montane non-forest environments, including peat bogs, moors, thickets and grasslands, providing habitats to a highly diverse flora and fauna. Nyungwe

National Park has a very rich flora with 1,468 species of vascular plant species. The nominated property counts 73 globally threatened plant species, including two Critically Endangered, 32 Endangered and 39 Vulnerable species. It hosts one of the most species-rich montane rainforest primate communities in Africa. One fifth of Africa's primate species are present in the nominated property, including the globally threatened Eastern Chimpanzee and Golden Monkey. The nominated property also features the Albertine Rift population of the Angola Colobus as well as the l'Hoest's Monkey. There are 12 mammal and seven bird species that are globally threatened. With 317 species of birds recorded, Nyungwe National Park is one of the most important sites for bird conservation in Africa. The Grauer's Swamp-Warbler (VU) is estimated to have its second largest population in the Kamiranzovu swamp within the nominated property. Nyungwe National Park is an important site for endemism. There are 32 species of amphibians, 22 are Albertine Rift endemics of which two are endemic to the nominated property. The nomination reports at least 290 species of butterflies, out of which 47 are endemic to the Albertine Rift. The Critically Endangered Hills Horseshoe Bat is endemic to the nominated property. Therefore, the nominated property contains the most important and significant natural habitats for a number of species found nowhere else in the world.

IUCN considers that the nominated property meets this criterion.

7. RECOMMENDATIONS

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

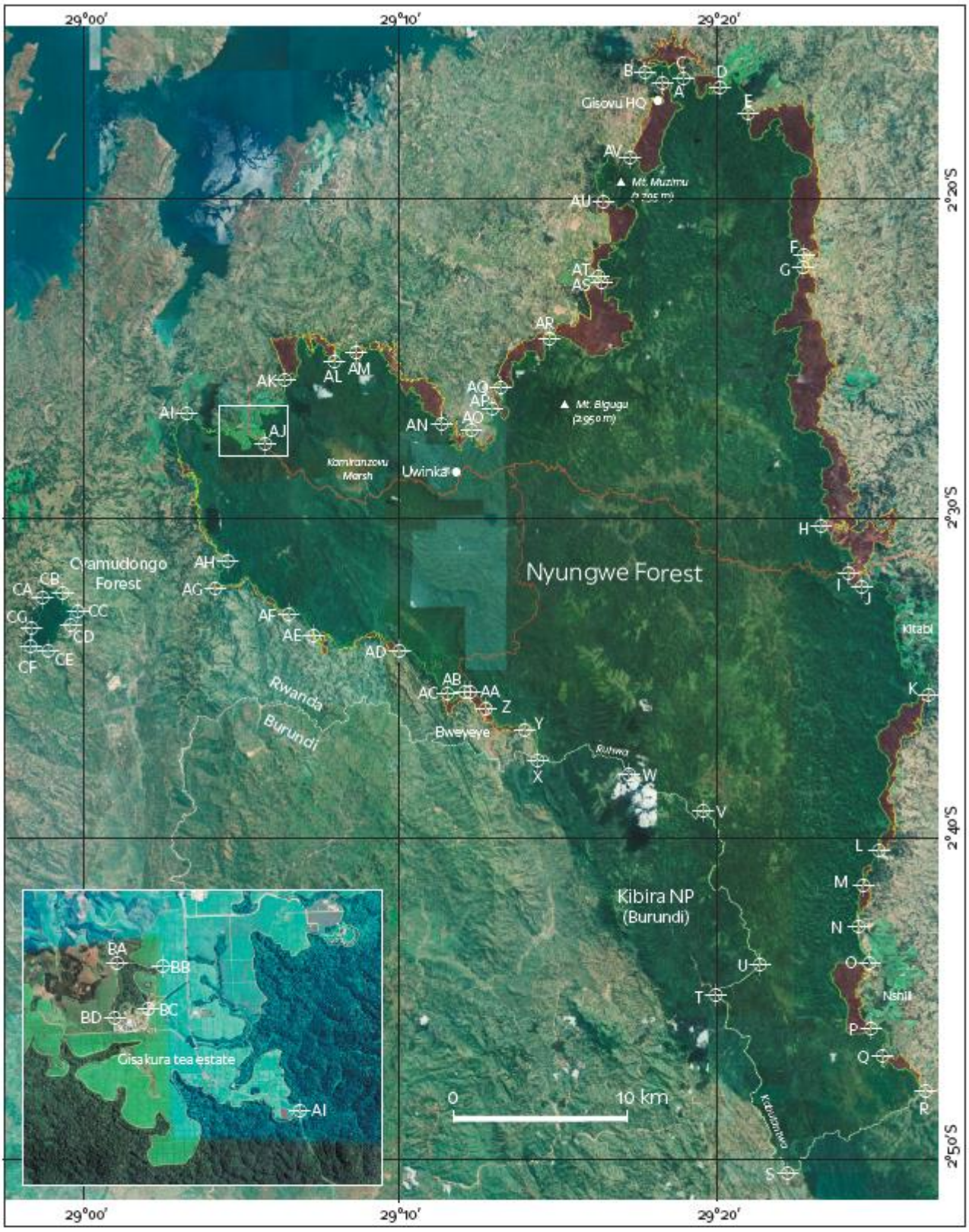
The World Heritage Committee,

1. Having examined Documents WHC/23/45.COM/8B and WHC/23/45.COM/INF.8B2;

2. Refers the nomination of **Nyungwe National Park, Rwanda**, back to the State Party, taking note of the potential of the nominated property to meet criterion (x), in order to allow it to complete protection and management arrangements to fully meet the requirements of the Operational Guidelines through the development and adoption of a new management plan, to follow the expired 2012-2021 Management Plan and based on the proposed Outstanding Universal Value of the nominated property, including the management system for the proposed buffer zone;

3. Recommends the State Party to:
   a) Extend the buffer zone of the nominated property in line with the recommendations in the IUCN evaluation report and to enhance the connectivity between the component parts,
   b) Ensure traffic on roads crossing the nominated property is reduced following the upgrade of an alternative road to the north of the nominated property.

Map 1: Nominated property and buffer zone.



2. Nyungwe NP with its boundaries, reference points (A-AV, BA-BD, CA-CG), border with Burundi and administrative posts of Gisovu, Gisakura and Uwinka. The Head Quarters will be moved to Gisakura.

Buffer zone (mainly pine plantations).

ARAB STATES

'URUQ BANI MA'ARID

SAUDI ARABIA

'Uruq Bani Ma'arid © IUCN / Maher Mahjoub

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

'URUQ BANI MA'ARID (SAUDI ARABIA) – ID N° 1699

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To inscribe the nomination under natural criteria (vii) and (ix)

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property meets World Heritage criteria (vii) and (ix), but not (x).
Paragraph 78: Nominated property meets integrity requirements and protection and management requirements.

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2022

b) Additional information officially requested from and provided by the States Parties: Following the session of the IUCN World Heritage Panel, a progress report was sent to the States Parties on 25 January 2023. This letter advised on the status of the evaluation process and requested supplementary information on the natural values proposed under criteria (vii), (ix) and (x). The supplementary information was provided by the States Parties on 27 February 2023.

c) Additional literature consulted: IUCN's evaluation consulted a wide array of relevant reference material for the geomorphology, biology, ecology, protection and management as well as the comparative values of the nominated property. Further references included: Albaqami, T. S. M. (2018). Impact of Natural Reserves on the Rehabilitation of the Arabian Oryx in the Protected Areas of Mahazat as-Sayd and Uruq Bani Ma'arid, Kingdom of Saudi Arabia from 1980 until 2011, Journal of humanities and social sciences, 2, 9; Aloufi, A.A., Amr, Z.S., Abu Baker, M.A., Hamidan, N. (2019). Diversity and conservation of terrestrial, freshwater, and marine reptiles and amphibians in Saudi Arabia. Amphibian & Reptile Conservation, 13, 181–202; Aloufi, A.A., Amr, Z.S. and Abu Baker, M.A. (2022). Reptiles from 'Uruq Bani Ma'arid and Harat al Harrah protected areas in Saudi Arabia. Herpetology Notes, 15, 483-491; Alwelaie, A.N. (1997). Bihar ar-Rimal fi 'l-Mamlakat al-'Arabiyat as-Sa'udiyah (Sand Seas in the Kingdom of Saudi Arabia). (In Arabic); Amin, R., Wacher, T., Bruce, T. and Barichievy, C. (2021). The status and ecology of the sand cat in the Uruq Bani Ma'arid Protected Area, Empty Quarter of Saudi Arabia. Mammalia, 85, 220–226; Boland, C.R.J., Burwell, B.O. (2021). Ranking and mapping Saudi Arabia's high conservation priority terrestrial vertebrates, Asian Journal of Conservation Biology, 10, 197–210; Cooke, R.U.; Warren, A.; Goudie, A.S. (1993). Desert Geomorphology. CRC Press London. pp. 395–396; Hall, M., Miller, A., Liewellyn, O., Al-Abbassi, T., Al-Harbi R., Al-Shammari, K. (2011). Important Plants Areas in the Arabian Peninsula: 3: 'Uruq Bani Ma'arid. Edinburgh Journal of Botany, 68, 2, 183-197, Doi: 10.1017/S0960428611000047; Kumar, A. and Abdullah, M.M. (2011). An overview of Origin, Morphology and Distribution of Desert Forms, Sabkhas and Playas of the Rub' al Khali Desert of the Southern Arabian Peninsula, Earth Science India, 4, III, 105-135; Mésochina, P., et al. (2003). Reintroducing antelopes into arid areas: lessons learnt from the oryx in Saudi Arabia, Comptes Rendus Biologies, 326, 158-165; Strauss, W. M. (2006). An ecological study of reintroduced Arabian oryx in the 'Uruq Bani Ma'arid protected area of the Kingdom of Saudi Arabia, University of Pretoria; Williams et al. (2012). Climate change and animals in Saudi Arabia. Saudi Journal of Biological Sciences, 19, 2.

d) Consultations: 9 desk reviews received. The mission was able to meet with the Ministry of Culture, National Heritage Commission, National Centre for Wildlife, the administrative region (*Imarah*) of Najran, municipality of Sultana as well as with local communities.

e) Field Visit: Maher Mahjoub, 22 to 27 October 2022

f) Date of IUCN approval of this report: April 2023

2. SUMMARY OF NATURAL VALUES

The nominated property of 'Uruq Bani Ma'arid, a Protected Area designated in 1996 by Royal Decree, is located in the south of Saudi Arabia, covering more than 1.27 million ha. 'Uruq Bani Ma'arid encompasses the western edge of the greatest expanse of windblown sand on Earth, called *Ar-Rub' al-Khali* (also referred to as the 'Empty Quarter' in the nomination), as well as the southern end of the thousand-kilometre-long Tuwayq limestone escarpment with its vegetated wadis, gravel plains, *sebkha* (salt flats) and inter-dune corridors. The nominated property covers a spectacular hyper-arid desert landscape and a wide range of wildlife habitats. It contains one of the world's largest longitudinal sand-dune systems (*'uruq*) overlying a dissected limestone plateau, part of the southern end of the Tuwayq Escarpment. The property is nominated under criteria (vii), (ix) and (x).

Under criterion (vii), the nomination dossier highlights the nominated property as one of the Earth’s most spectacular desert landscapes. 35 longitudinal sand dunes (‘uruq in Arabic) reach up to 200 km in length and rise up to 170 m in height. Their wavelength ranges between 2.5 and 4.5 km. Located at the southern end of Jabal Tuwayq, the interaction of the dunes with the Tuwayq limestone escarpment creates a topographic diversity that distinguishes the nominated property from the surrounding areas of the Ar-Rub' al-Khali. The aesthetic value is based on the combination of both gradual changes and stark contrasts of forms and colours. This is supported by the interplay of sand with rocks, and of iconic wildlife, including the white, long-horned Arabian Oryx and flowering plants and trees, against the large scale and dramatic backdrop of the hyper-arid environment.

The mosaic-like intersection and interplay of linear sand dunes, inter-dune corridors, the rock and gravel plains of the limestone escarpment and wadis carving the plateau also creates a greater diversity of habitats and species than in other areas of the Empty Quarter, which the nomination seeks to recognise under criteria (ix) and (x).

Regarding criterion (ix), the nomination highlights the nominated property’s importance for endemism (three species endemic to the nominated property, 24 species endemic to Saudi Arabia) and plant diversity (118 species), which has been recognised through an Important Plant Area (IPA). The nominated property is also the place where the Arabian Oryx (*Oryx leucoryx*) was last observed in the wild, in 1979. The State Party however started an Oryx reintroduction programme in the Imam Saud bin Abdul-Aziz Reserve in 1989, followed by the 'Uruq Bani Ma'arid Protected Area in 1993, which at that time was in the process of designation. Today, 150 Oryx are present in the nominated property, according to latest monitoring. At the global level, the Arabian Oryx is assessed as Vulnerable according to the IUCN Red List of Threatened Species. The Arabian Sand Gazelle (*Gazella marica*), also assessed as Vulnerable, and the Endangered Mountain Gazelle (*Gazella gazella*) have also been reintroduced to the site since 1995. These free-ranging populations serve as keystone species for the wider desert ecosystem and find refuge within the varied landscape of the nominated property during prolonged drought periods.

Building on these keystone species, the nomination also proposes 'Uruq Bani Ma'arid’s habitat and species diversity under criterion (x). The large-scale natural habitats are home to 526 species recorded, out of which 310 are insects, 118 plants, 53 birds, 21 reptiles, 20 mammals and 4 arachnids. The nomination notes the following animal species as nationally or regionally significant, among others: Afro-Asiatic Wildcat (*Felis lybica*), Sand Cat (*Felis margarita*), Honey Badger (*Mellivora capensis*), all listed as of Least Concern globally according to the IUCN Red List of Threatened Species. The Lappet-faced Vulture (*Torgos tracheliotos*) and Egyptian Vulture (*Neophron percnopterus*) are both Endangered whilst the Asian Houbara (*Chlamydotis macqueenii*) and the Egyptian Spiny–tailed Lizard (*Uromastyx aegyptica)* are assessed as Vulnerable. Among the 118 plant species, there are 30 species classified as threatened at the regional level. Plant communities are differentiated across the three topographical zones: (1) On the limestone plateau, the plant community is dominated by Acacia species; (2) Sand dunes constitute the largest plant habitat in the nominated property and are characterized by woody shrubs; (3) In inter-dune corridors, vegetation is sparse with dwarf shrubs, herbaceous species and the Umbrella Thorn Acacia, *Vachellia tortilis* (Least Concern), being the dominant tree species.

3. COMPARISONS WITH OTHER AREAS

The State Party currently has no natural World Heritage property. The closest existing natural properties to the nominated property are Sanganeb Marine National Park and Dungonab Bay - Mukkawar Island Marine National Park (Sudan), which is mostly a marine property inscribed under criteria (vii), (ix) and (x), and Simien National Park, in Ethiopia, inscribed under criteria (vii) and (x).

The nomination compares 'Uruq Bani Ma'arid with thirteen World Heritage properties, protected areas, and significant areas located within the same ecoregion, as well as a number of sites in other ecoregions with similar climatic and/or geomorphic characteristics. The parameters used for the global comparative analysis under criterion (ix) are the biological and ecological features and processes associated with hyper-arid sand dune deserts. The parameters used for comparison under criterion (x) include the faunal and floral diversity of hyper-arid sand dune deserts and key sites for the revival of key species. The comparative analysis also considered the nominated property’s integrity and protection level. While there is no comparison specifically for criterion (vii), field evaluation and reviews strongly support the application of criterion (vii), noting the nominated property stands out at the global level as one of the world’s most beautiful and varied desert landscapes. The IUCN World Heritage Panel has also requested supplementary photographic and other documentation from the State Party to underpin the case for criterion (vii).

The nominated property is part of the third-largest desert on earth (Arabian Desert) and of the *Ar-Rub' al-Khali,* Earth’s largest unbroken expanse of sand, representing desert wilderness of Arabia. The nominated property is part of the largest sea of wind-blown sand on Earth and contains the largest dunes on the Arabian Peninsula, which are one of the largest of this type worldwide. The natural beauty and aesthetic importance due to the vastness of this undisturbed sand sea has been highlighted by external reviewers.

Also in geomorphological terms, the strongest claim for global significance is that the nominated property represents a large tract of the world’s largest active sand sea. It contains excellent examples of some of

the world's largest linear dunes. Whilst these are broadly comparable to those of the Namib Sand Sea World Heritage property, the Great Sand Sea of the Libyan Desert, and of the Wahiba Sands in Oman, the nominated property is distinguished by the widespread presence of *Zibars*, which are particularly well-developed in the nominated area. *Zibars* are features that are generally of low relief, without well-formed slip faces, and composed of coarse and relatively poorly-sorted sand.

Regarding criteria (ix) and (x), the nomination puts a strong emphasis on the nominated property as the only place in the world where iconic desert animals, especially the Arabian Oryx, Arabian Sand Gazelle, and the Arabian Mountain Gazelle have successfully been reintroduced into their natural habitats after decades of extinction in the wild. The populations are completely free ranging in an area exhibiting a high level of ecological integrity. IUCN, in collaboration with UNEP-WCMC, has undertaken supplementary comparative analysis with regards to criteria (ix) and (x), based on spatial analyses and literature review.

Regarding criterion (ix), the IUCN/WCMC Comparative Analysis noted that the nominated property is found in the Arabian Desert terrestrial ecoregion, only represented on the World Heritage List with one site, the Ahwar of Southern Iraq: Refuge of Biodiversity and the Relict Landscape of the Mesopotamian Cities (Iraq), inscribed under biodiversity criteria. The nominated property also lies in the Arabian Interior freshwater ecoregion, which is only represented with the Wadi Rum Protected Area World Heritage property (Jordan). Endemism is relatively high in this freshwater region, which is an area that is comprised mainly of minor streams or wadis, small marshes, and springs. Similarly, the nominated property is situated in the Arabian Desert Udvardy Province, which is only represented by Wadi Rum Protected Area either. The former Arabian Oryx Sanctuary (Oman) was also found in this biogeographical province, but was removed from the World Heritage List in 2007.

IUCN therefore considers that a strong argument in favour of the nominated property is the fact that its inscription would be a starting point to address a significant gap on the World Heritage List under criterion (ix) as it would be the only property to represent the Arabian Desert Udvardy Province. At the same time, it deserves to be noted that the nominated property does not overlap with bio-realms and biogeographical regions not yet represented on the World Heritage List, and is not found in any biodiversity hotspot, high biodiversity wilderness area, or priority ecoregion. Nevertheless, the nominated property is considered an Important Plant Area in the Arabian Peninsula due to its importance of national endemic, near endemic, regional endemic and/or regional range-restricted taxa, and the exceptionally rich flora in the regional context in relation to its biogeographic zone. A total of 118 plant species were recorded in the nominated property, which makes it the richest area in the Empty Quarter. The area also hosts five reptile species endemic to Saudi Arabia. Furthermore, the nominated property would also fill a gap on the World Heritage List following the delisting of the Arabian Oryx Sanctuary World Heritage property (Oman).

The large size of the nominated property ensures that all ecological processes can evolve without disturbance. The supplementary information reinforced the case for criterion (ix) in that the nominated property has a notably high degree of integrity, due to the lack of pressures such as overgrazing and hunting. This allows a close-to-natural appreciation of the relatively young hyper-arid ecosystem of *Ar-Rub'al-Khali* which evolved over successive waves of aridity and humidity since the Late Quaternary period. Adaptation to the hostile environment can be observed, including species intercepting water from fog, such as *Zophosis migeanuxi*, a beetle species that forms water droplets via the tips and bumps of its wing scales.

Regarding criterion (x), the WCMC Comparative Analysis found that the nominated property shows a similar level of biodiversity as existing World Heritage properties in the same Palearctic Deserts and Xeric Shrublands biorealm. It is home to several plants, including several endemic and globally threatened species, and a diversity of mammal species, including three reintroduced globally threatened antelope species (Arabian Oryx, Arabian Sand Gazelle, and Arabian Gazelle). Some of the bird species found are globally threatened and some reptile species are endemic to the Arabian Peninsula. Whilst the desert landscape in the nominated property presents a biodiversity that is higher than any other part of the *Ar-Rub' Al-Khali*, the nominated property appears to have average numbers of plant, mammal and bird species. The nominated property does not overlap with any Alliance for Zero Extinction site, Important Bird Area or Key Biodiversity Area. Nevertheless, it does overlap with a protected area considered to be amongst the top 0.3% most irreplaceable in the world for mammal, bird and amphibian conservation, which is however solely due to the presence of the Arabian Oryx. It is noted that the Oryx is also found in other Arabian countries.

Whilst the supplementary information included a species list of commendable quality, the species present do not provide a compelling case for global significance under criterion (x). The current species count of 526 species for the vast area of 1,275,500 ha is low, even for a desert environment. There is also a low number of threatened species in the nominated property. Out of the 526 species listed, there are no Critically Endangered species and only three Endangered species. The Endangered species have a wide distribution range across the Middle East and Africa. Out of the six Vulnerable species, three species are the emblematic keystone species of the Arabian Oryx, Arabian Sand Gazelle and the Arabian Mountain Gazelle, each with 19%, 25% and 2% of its total worldwide population respectively within the nominated property. In IUCN's view, the doubtlessly important role of these keystone species as well as the endemic and threatened species would best be recognised under criterion (ix) alone, rather than criterion (x), as part of an intact and vast desert ecosystem.

In conclusion, whilst there does not appear to be a compelling case for global significance under criterion (x), IUCN considers that the nominated property demonstrates global significance under (ix). It is also a convincing case for global significance under criterion (vii).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

In 1996, 'Uruq Bani Ma'arid was designated a protected area by Royal Decree. As such, the nominated property enjoys the highest level of protection at the national level. Any harmful action is prohibited, including driving on non-designated roads and wildlife hunting. Activities within the nominated property are prohibited, unless a permit from NCW is granted. Grazing and farming is also not permitted, except in areas and periods strictly defined by NCW. The nominated property is entirely publicly owned.

The very recent Environment Protection Law, adopted in 2020, is the main legislative framework applying to the nominated property and its buffer zone. The Environment Protection Law mandates the National Centre for Wildlife (NCW) as the responsible authority in charge of proposing, managing, and supervising protected areas with the implementation of this Law. It is executed through several bylaws, including an updated protected areas bylaw, the Protected Areas Regulation, adopted by the Government in September 2021. This Regulation provides a legal framework for the protection and management of the States Party's protected areas. It is important to note that within protected areas the Protected Area Regulation supersedes any other regulations. The legal responsibility for historical monuments is vested in the Ministry of Cultural through its Heritage Committee.

Desk reviewers and the field mission noted that, overall, the protection and management of Uruq Bani Ma-arid is robust and the governance sound whilst taking into account the interests of local communities. The rules, plans, programmes, structure and organization of the managing body guarantee rigorous conservation of the potential Outstanding Universal Value and integrity of the nominated property. Therefore, there is a sufficiently strong legal basis and institution framework to ensure adequate protection of the property.

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 are congruent with those of the 'Uruq Bani Ma'arid Protected Area. At 1,275,500 ha, the nominated property covers a vast area of desert that supports its claim for integrity particularly under criteria (vii) and (ix). With respect to criteria (vii) and (ix), IUCN notes that the attributes present within the nominated property express the potential Outstanding Universal Value (OUV) under both criteria. Iconic desert animals, including the Arabian Oryx, Arabian Sand Gazelle, and Arabian Mountain Gazelle, have successfully been reintroduced into their natural habitats. It is also the only place where these animal populations are completely free ranging in an area with a high level of ecological integrity and underpinned by boundaries based on a strong legal framework for long-term protection. With respect to criterion (x) however, IUCN notes that only fractions of the distribution range of the key species would be covered.

The nominated property's zoning plan divides the area into four zones, with an additional buffer zone: Firstly, a Wilderness Zone (IUCN Category Ib) of 684,750 ha (54% of the nominated property) is designed to enclose the main area of the longitudinal sand dunes ('*uruq*), the limestone plateau, the inland wadis, the wide range of habitats and plants, and the habitats of the flagship species (Arabian Oryx, Sand Gazelle and Mountain Gazelle). Secondly, a Nature-Culture Ecotourism Zone (IUCN Category II) of 26,850 ha (2%) is located at the northern edge of the nominated property. Thirdly, a Sustainable Resource Use Zone (IUCN Category VI and V) 560,140 ha (44%) where sustainable camel grazing may be tested. Fourthly, a General Use Zone of 4,290 ha (less than 0.5%) is reserved for the management and visitor facilities of the main ranger station.

Finally, there is a buffer zone straddling along the western part of the nominated property taking account of the human interventions occurring along a north-south road connection from Riyadh to Najran. Within this 80,600 ha area, there are three types of land use adding up to 5% of the buffer zone area: (1) a former limestone quarry, which is planned to be rehabilitated, (2) small farms used by two families, and (3) the Najran Cement Factory with a license active since 2005. While these activities could pose a threat to the nominated property if expanded further, they currently occur only within a very small area of the buffer zone and do not pose a significant threat to the nominated property. The mission reviewed the overall zoning regime and considered the scheme is adequate for protection and management whilst ensuring an appropriate representation of the nominated property's values, a view which was also widely supported by desk reviewers.

In conclusion, IUCN considers that the boundaries of the nominated property encompasses a complete and intact representation of the wider desert ecosystem, with a buffer zone functioning as an added layer of protection at the western edge of the nominated property.

IUCN considers that the boundaries of the nominated property and buffer zone meet the requirements of the *Operational Guidelines*.

4.3 Management

The nominated property is managed by the National Centre for Wildlife (NCW), which is an independent entity both administratively and financially within the institutional framework of the Ministry of Environment, Water, and Agriculture (MEWA). The 'Uruq Bani Ma'arid Protected Area is divided almost equally between two administrative regions (*Imarah*): the *Imarah* of Riyadh covering 57% of the nominated property and the *Imarah* of Najran covering 43% of the nominated property. The day-to-day management is coordinated directly with the *Imarah* of Najran.

The State Party's Protected Areas Regulation requires NCW to implement a protected area management plan no longer than 90 days after the establishment of a protected area. This involves the creation of a site management team in charge of the implementation of the Management Plan, which also needs to allow for representation by researchers, local communities, NGOs and CBOs. NCW is also required to develop a conservation zoning plan, including regulation of visitor access and classification under IUCN Protected Area Categories (see previous chapter). The zoning plan represents a ten-year conservation vision for the protected area as a potential natural World Heritage property. The division of the nominated property into four distinctive zones seeks to balance conservation and sustainable development objectives.

A rapid protected area management effectiveness assessment was undertaken for the 'Uruq Bani Ma'arid Protected Area in 2018. This assessment recommended, *inter alia*, the development of a new management and zoning plan. Subsequently, a new management plan has been developed for 2021-2023 based on IUCN best practises and guidelines. The World Heritage nomination was one of the strategic outputs of the new management plan with the objective to guide the site's transition from a national protected area to a globally recognized area. The implementation started in 2021 and all required human, financial, and logistical resources have been allocated, along with national and international technical expertise. The 'Uruq Bani Ma'arid Protected Area is fully financed by the Government of Saudi Arabia along three main budget categories: (1) approximately USD 3.2 million are allocated to the 141 staff; (2) 400,000 USD cover management operations; and (3) USD 2.8 million fund currently eight conservation projects.

The field evaluation mission and desk reviewers found that this substantial annual budget available for the site supports effectively a well-staffed and well-trained management team. It was recommended to further strengthen the scientific team of the nominated property by appointing a permanent ecologist at the site level in charge of the scientific monitoring of the wildlife and biodiversity. The infrastructure and facilities for the management are also adequate. The management plan provides a clear diagnosis of the context and needs, and a set of priorities to be undertaken during the three years. The management plan includes an annual work plan with clear activities and goals to be attained by the management team. There are eight well-equipped ranger stations distributed across the nominated property. Thanks to patrolling and close cooperation with the local communities, it has been possible to make a measurable increase in the effectiveness of management.

In conclusion, IUCN considers that a strong and well-resourced management system is in place for the nominated property. IUCN also recommends that the State Party be requested to provide the subsequent management plan for 2024-2028, once it becomes available.

IUCN considers the management of the nominated property meet the requirements of the *Operational Guidelines*.

4.4 Community

The nominated property is entirely state-owned with no private lands or land claims within its boundaries. Traditionally, the area was shared by major tribes, namely, the Dawasir Tribe of the Riyadh Region, and the Yam Tribe of the Najran Region. Representatives of local communities participate in an advisory committee that has been established for the nominated property. All rangers of the nominated property have been hired from local communities. The mission observed that local communities met are supportive of the nomination and there appears to be a good partnership between the management team, the authorities and local people, which are regularly involved in decision-making processes.

4.5 Threats

Whilst the wider region has a long history of human habitation and commerce, the nominated property was not subject to human settlements or overgrazing in the past. Most human activity was limited to the periphery of the nominated property within or beyond the proposed buffer zone. Nevertheless, it has in the past been impacted by camel grazing and hunting, practiced by local communities. Desk reviewers also noted that the biodiversity values of the nominated property are extremely fragile, a vulnerability which is exacerbated by climate change as the main threat to the nominated property. The management team succeeded in reducing the impacts of grazing and

hunting through negotiations and regular communication with local communities. The recently established legal framework has considerably strengthened the management team's control over the area. Furthermore, NCW is working closely with the Environment Police and the Ministry of Interior to enforce the law, which led to a decrease of poaching activities during the last years.

Regarding tourism development, a Nature-Culture Ecotourism Zone (IUCN Category II) of 268.5 sq km (approximately 2% of the nominated property) has been agreed within the new zoning plan. This area is located in the north of the nominated property, close to the Al-Faw cultural area. A current strategy for ecotourism development, as part of a nation-wide program, is currently under preparation by NCW and as a result, it is expected that tourism activities and visitation will be increasing gradually in and around protected areas. The total number of visitors to the protected area since 2013 reached a total of 1,058 persons, which is low considering the vast nominated area. So far, visitator activity has not caused negative impacts on the nominated property.

As noted above, two closed quarry sites and one active cement factory are found in the buffer zone of the nominated property. There are plans being developed to rehabilitate the two former quarry sites and to reinforce the environmental monitoring on any impacts from the cement factory. The areas affected are minor in relation to the nominated property and its buffer zone. Local communities hold grazing rights in some areas of the buffer zone, although the vegetation cover is sparse.

In conclusion, IUCN considers that the threats to the nominated property are understood and being mitigated, and addressed via a strong and well-funded protection and management system. Noting the fragile nature of the nominated property and the prospect of climate change impacts, IUCN recommends the State Party to ensure that no further projects are developed in the buffer zone (and within the nominated area) that could negatively impact the proposed OUV of the nominated property; to rehabilitate the two quarrying sites inside the buffer zone, as planned by the State Party; to continue negotiations with the local communities as to how to retain camel grazing at sustainable levels; and to monitor and respond to any negative impacts from the cement factory.

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

5. ADDITIONAL COMMENTS

IUCN notes that the State Party has submitted a nomination of the Cultural Landscape of Al-Faw Archaeological Area under cultural criteria to be considered in the 2023/2024 evaluation cycle. The historic city of Al-Faw is located in the buffer zone at the north-western edge of the nominated property. The main archaeological site of Al-Faw is located outside the nominated property whilst there are further archeological artefacts inside the nominated area. There is coordination in place between the Heritage Commission responsible for the Al-Faw site and the nominated property's management team. The present evaluation report makes no conclusions regarding the newly submitted nomination.

6. APPLICATION OF CRITERIA

The **'Uruq Bani Ma'arid (Saudi Arabia)** has been nominated under natural criteria (vii), (ix) and (x).

Criterion (vii): Superlative natural phenomena or natural beauty or aesthetic importance

'Uruq Bani Ma'arid encompasses the western part of the greatest expanse of windblown sand on Earth, known as *Ar Rub' al-Khali* and conserves one of the Earth's most spectacular desert landscapes. The nominated property is characterised by the interplay of three types of dunes: complex longitudinal dunes; barchanoid dunes, and dome-shaped dunes called *zibar*s; all contributing to the nominated property's aesthetic value.

There are 35 giant longitudinal dunes (*'uruq*) which extend as much as to 200 km in length, with a wavelength between dune crests that ranges between 2.5 km and 4.5 km. The crests of the dunes rise to more than 160 meters in height. These are the largest linear sand dunes on the Arabian Peninsula and among the largest dunes of this type on Earth. Barchanoid dunes are small, oval dunes moving along the interdunal corridors and *Zibars* emerge on the flanks of the *'uruq* and in the interdunal corridors. Zibars are particularly well-developed in the nominated property and add to its geomorphological diversity.

The overlay between the vast longitudinal sand dunes and the Tuwayq Escarpment dissected by vegetated wadis, gravel plains, and inter-dune corridors adds to the aesthetic value of the nominated property, which is also based on the combination of both gradual changes and stark contrasts of forms and colours. This is supported by the interplay of sand with rocks, and of iconic wildlife, including the white, long-horned Arabian Oryx and flowering plants and trees, against large scale and dramatic backdrop of the hyper-arid environment.

IUCN considers that the nominated property meets this criterion.

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

The varied topography of the nominated property creates a wide range of wildlife habitats and niches, including ecological refuges to the Arabian Oryx, Arabian Sand and Arabian Mountain Gazelles. The nominated property is globally notable due to the reintroduction of iconic desert animals, including the Arabian Oryx, Arabian Sand Gazelle, and Arabian

Mountain Gazelle into their natural habitats after decades of extinction in the wild. The animal populations are completely free ranging in an area with a high level of ecological integrity and a strong framework for effective conservation and long-term protection. The Tuwayq Escarpment and its associated network of inland wadis play a vital role to support woody perennial plants, which are essential as feeding and shelter areas for the flagship species. Whilst low on biodiversity, the site may exhibit a high level of endemism, including two species endemic to the nominated property und currently under description, as well as five reptile species endemic to Arabia, among others. The mobile dunes provide an excellent and well-oxygenated habitat for sand-diving invertebrates and reptiles.

The vast area of the nominated property ensures representation of the hyper-arid desert ecosystem with all its elements covered and subject to undisturbed evolution. The trophic network is intact and in balance. Ingenious adaptations by plant and animal species to the hostile environment and speciation processes can be observed. The nominated property stands out due to its large size and high level of integrity with impacts from tree-cutting, overgrazing, hunting and other drivers of desertification largely being absent.

IUCN considers that the nominated property meets this criterion.

Criterion (x): Biodiversity and threatened species

The current species count of 526 species for the vast area of 1,275,500 ha is low, even for a desert environment. There is also a low number of threatened species in the nominated property. Out of the 526 species listed in supplementary information, there are only three species assessed as Endangered and six assessed as Vulnerable species on the IUCN Red List of Threatened Species. There are no species assessed as Critically Endangered present in the nominated property. Species noted as Endangered have a wide distribution range across the Middle East and Africa; thus, the nominated property alone would not appear to adequately represent these species. Out of the six species listed as Vulnerable, three species are the iconic keystone species of the Arabian Oryx, Arabian Sand Gazelle and the Arabian Mountain Gazelle, each having 19%, 25% and 2% respectively of its total worldwide population present within the nominated property. IUCN considers that the biodiversity values of the nominated property, whilst significant are not sufficient to meet criterion (x) and they would be more appropriately recognized under criterion (ix) as part of an intact desert ecosystem.

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/23/45.COM/8B and WHC/23/45.COM/INF.8B2,

2. Inscribes **'Uruq Bani Ma'arid, Saudi Arabia,** on the World Heritage List on the basis of **criteria (vii)** and **(ix)**;

3. Adopts the following Statement of Outstanding Universal Value:

Brief synthesis

'Uruq Bani Ma'arid is situated at the western edge of Ar-Rub' al-Khali, known to be the largest continuous sand sea on Earth. The property's hyper-arid desert represents iconic wilderness of Arabia and conserves one of the Earth's most spectacular desert landscapes with a wide variety of wildlife habitats. It harbours greater biological diversity than any other part of Ar-Rub' al-Khali and features one of the world's largest longitudinal sand dune systems overlying a dissected limestone plateau, and the southern end of the Tuwayq Escarpment with its vegetated wadis, gravel plains, and inter-dune corridors. The gradient of natural habitats embraced within the property forms the building blocks of a functioning ecological network of patterns and processes supporting the survival and viability of key plant and animal species of global importance, including successfully reintroduced species. 'Uruq Bani Ma'arid is the last place where Arabian Oryx were observed in the wild, and it is now the focus of an intensive and successful reintroduction program for Arabian Oryx and other keystone species, such as the Arabian Sand Gazelle, and the Arabian Mountain Gazelle.

Located at the southern end of the Jabal Tuwayq limestone escarpment, the area covered by the property exemplifies the interaction of Ar-Rub' al-Khali's dunes with the escarpment creating a topographic diversity that distinguishes the property from the surrounding areas of the Ar-Rub' al-Khali. Where the dynamic sand dunes witness the process of species adaptation to extreme physical environments, the more stable escarpment provides the sporadic refuge needed for the survival of the property's free-ranging species. In total, the property encompasses 1.27 million hectares of intact desert ecosystems with a buffer zone of 80,600 hectares.

Criterion (vii)

'Uruq Bani Ma'arid is an iconic hyper-arid sand desert representing the largest sand sea on Earth, Ar-Rub' al-Khali. Where the sands meet the Tuwayq escarpment, they form an extraordinary spectrum of juxtaposed contrasts and fusions of forms and colours. 35 longitudinal sand dunes ('uruq in Arabic) reach up to 200 km in length and rise up to 170 m in height. Their wavelength ranges between 2.5 and 4.5 km. The property is also distinguished by the widespread

presence of zibars, which are particularly well-developed in the property. Zibars are features that are generally of low relief, without well-formed slip faces, and composed of coarse and relatively poorly-sorted sand.

The property serves as an ecological refuge for iconic wildlife of the desert and offers a world-class panorama of the windblown sands of the Ar-Rub' al-Khali desert, with some of the world's highest longitudinal dune fields, and inter-dunal corridors, eastward-flowing high vegetation wadis, the Tuwayq Escarpment engulfed by westward flowing sands, and low sand plains to the west of the escarpment. A wide spectrum of colour harmonies derives from the resonance of contrasting hues of the sand grains in the ripples that cover the dunes. A true portrait of the desert where the light-coloured Arabian Oryx (or wudayhi, meaning clear in Arabic) contrasts against the large-scale and dramatic backdrop of the hyper-arid environment.

Criterion (ix)

The varied topography of the property creates a wide range of wildlife habitats and niches, including ecological refuges to the Arabian Oryx, Arabian Sand Gazelles and Arabian Mountain Gazelles, successfully reintroduced into their natural habitats after decades of extinction in the wild, with each having 19%, 25% and 2% respectively of their total worldwide population present within the property. The animal populations are completely free ranging in a huge area with a high level of ecological integrity. Ingenious adaptations by plant and animal species to the hostile environment and speciation processes can be observed. The Arabian Sand Gazelle is adapted to great extremes of temperature and drought and the Arabian Oryx is able to adapt to rising temperatures. The property counts 526 recorded species at the time of inscription, forming an intact ecosystem. The Tuwayq Escarpment and its associated network of inland wadis play a vital role to support woody perennial plants, which are essential as feeding and shelter areas for the flagship species.

Whilst low on biodiversity compared to other desert properties globally, 'Uruq Bani Ma'arid appears to exhibit the richest flora in the Ar-Rub' al-Khali with 118 plant species recorded and a high level of endemism. The area also hosts five reptile species endemic to Arabia and it is a critical site for plant conservation, with locally endemic, near-endemic, regionally endemic and/or regional range-restricted taxa.

Integrity

The property stands out due to its large size and high level of integrity with impacts from tree-cutting, overgrazing, hunting and other drivers of desertification largely being absent. The vast area of the property ensures representation of the hyper-arid desert ecosystem with all its elements covered and subject to undisturbed evolution. The trophic network is intact and in balance. However, it is important to note the fragile nature of the property's ecosystem, especially in the context of climate change.

The configuration of 'Uruq Bani Ma'arid, combining sand dune systems with an escarpment and incised plateau creates an exceptional "edge effect" for the survival of wildlife in a hyper-arid environment. Integrity is maintained thanks to the property's remoteness and long distance to major developments. A rugged terrain and harsh climate have deterred permanent human residence and large-scale resource use.

Protection and management requirements

The property is congruent with the 'Uruq Bani Ma'arid Protected Area, which effectively protects flagship species. It is important to maintain the high level of intactness of the property and to ensure the desert ecosystem remains undisturbed and will not be affected by camel grazing and illegal wildlife hunting. It is excluded from oil and gas exploration and extraction, which is confirmed by Royal endorsement. Requirements of environmental audit, rehabilitation of former quarry sites, and needs to monitor private farms in the vicinity of the protected area are receiving adequate attention at the time of inscription.

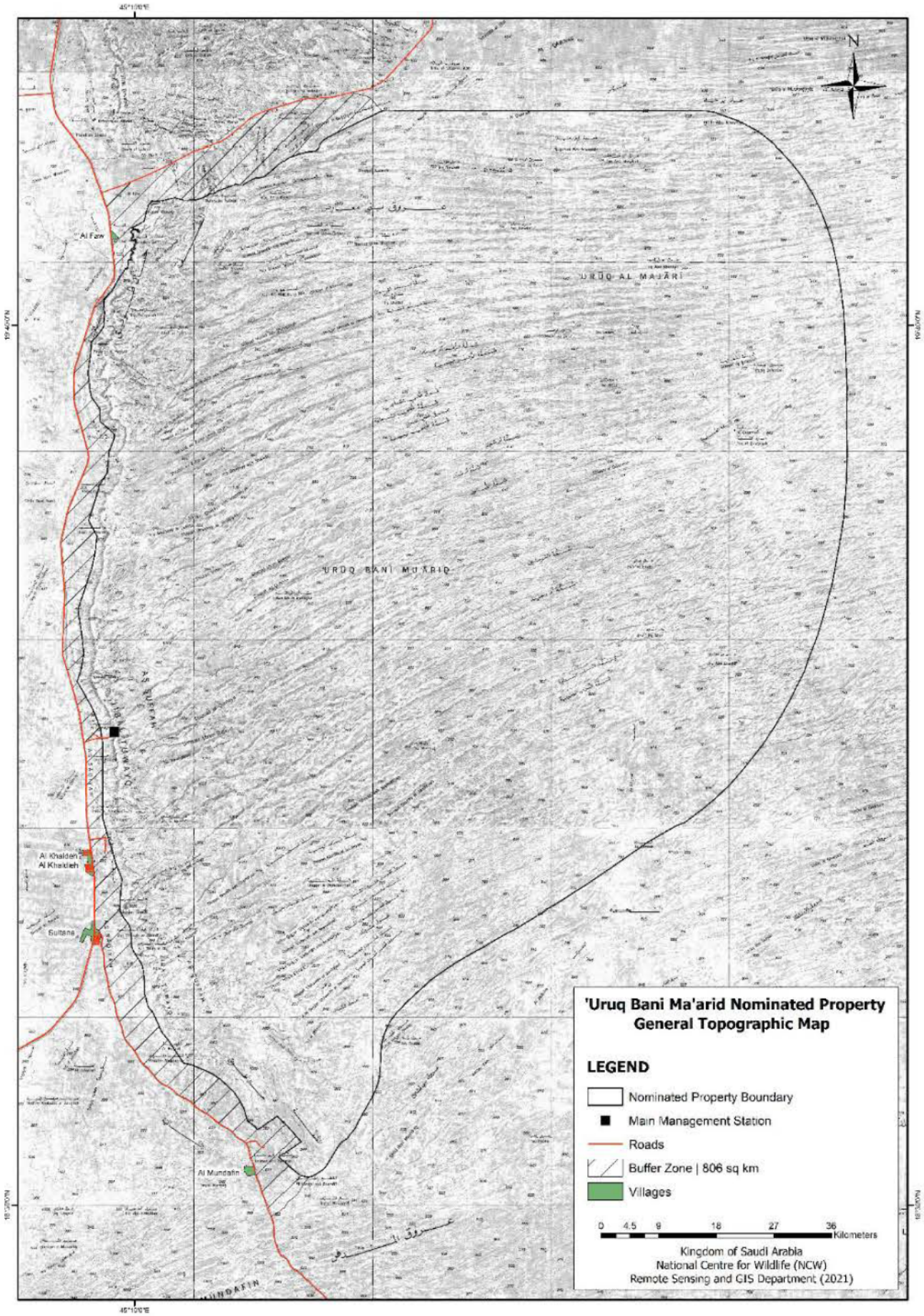
In 1996, 'Uruq Bani Ma'arid was designated a protected area by Royal Decree and it enjoys the highest level of protection at the national level. The property is entirely state-owned with no private lands or land claims within its boundaries. It is adequately protected by national legislation. The main legislative framework is the national environmental protection law of 2020, which represents a legal umbrella. It is executed through several bylaws, including an updated protected areas bylaw, ratified by the Government in September 2021, which is the main legislative instrument pertaining to protected areas. The National Centre for Wildlife is the national authority in charge of proposing, managing, and supervising protected areas. Other legislative frameworks regulate human activities primarily outside protected areas, including the national wildlife hunting regulation, wood cutting regulation, environmental violations and penalties regulation, environmental licensing for the construction and operation of development activities regulation, and the environmental rehabilitation and degraded and polluted sites regulation. Increased camel grazing, occurring in the sustainable resource use zone, and illegal wildlife hunting are the main activities that could become a concern. They are both adequately addressed by the management team at the time of inscription. A buffer zone to the west protects the property against environmental degradation from nearby development activities.

A three-year management plan guides the property's transition from a national protected area to a World Heritage property. Implementation started in 2021 and all required human, financial, and logistical resources have been allocated, along with national and international technical expertise. On-site management is guaranteed by more than 140 staff and sustainable funding is provided by the Government. In 2021, an updated zoning plan was developed, representing a ten-year conservation vision for the protected area as a natural World Heritage property. This will ensure the highest level of integrity and effective long-term protection of the property's natural values and

attributes. At the time of inscription, the property is divided into four distinctive zones balancing conservation and sustainable development objectives: wilderness zone (54%), nature-culture ecotourism zone (2%), sustainable resources use zone (44%), and the general use zone (less than 0.5%), in addition to a buffer zone of 80,600 hectares.

4. Requests the State Party to:
a) Ensure that no projects are developed in the buffer zone and/nor within the property area that could negatively impact the Outstanding Universal Value of the property,
b) Rehabilitate the two quarrying sites inside the buffer zone, as planned,
c) Continue consultations with the local communities to ensure camel grazing remains at sustainable levels,
d) Monitor and respond to any negative impacts from the established cement works located within the property’s buffer zone,
e) Submit the updated management plan for 2024-2028 to the World Heritage Centre, once it becomes available.

Map 1: Nominated property and buffer zone.



ASIA-PACIFIC

TUGAY FORESTS OF THE TIGROVAYA BALKA NATURE RESERVE

TAJIKISTAN

Tugay Forests of the Tigrovaya Balka Nature Reserve © IUCN / Chimed-Ochir Bazarsad

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

TUGAY FORESTS OF THE TIGROVAYA BALKA NATURE RESERVE (TAJIKISTAN) – ID N° 1685

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

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

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2022

b) Additional information officially requested from and provided by the State Party: Following the session of the IUCN World Heritage Panel, a progress report was sent to the State Party on 25 January 2023. This letter advised on the status of the evaluation process and requested supplementary information on the proposed buffer zone, including legal documentation of its protection status; the State Party's commitment and action to secure a hydrological regime in the nominated property, including regular water supply from the Vakhsh River; and an up-to-date list of species of plants and animals recorded at the nominated property, including global conservation status and distribution. The supplementary information was provided by the State Party on 21 February 2023.

c) Additional literature consulted: IUCN's evaluation consulted a wide array of relevant reference material for the biology, ecology, protection and management as well as the comparative values of the nominated property. References included: Bannikov, A. (1978). The present status of the Bactrian deer (Cervus elaphus bactrianus). In: Threatened Deer: Proceedings of a Working Meeting of the Deer Specialist Group of the Survival Service Commission on the IUCN Threatened Deer Programme and a Dossier on the Planning of Restoration Programmes for Threatened Mammals with Special Reference to Deer, Held at Longview, Washington State, USA, 26 September-1 October, 1977 (p. 159). IUCN.; BirdLife International (2023). Important Bird Areas factsheet: Tigrovaya Balka Nature Reserve. Downloaded from http://www.birdlife.org on 27/03/2023; Kotowski, M.A., Świerszcz, S., Khoury, C.K., Laldjebaev, M., Palavonshanbieva, B. and Nowak, A. (2022). The primal garden: Tajikistan as a biodiversity hotspot of food crop wild relatives. Agronomy for Sustainable Development, 42, 6, 1-14.; Jungius, H., (2012). Final evaluation report of the project Integrated River Basin Management and Nature Protection in the Tigrovaja Balka of Tajikistan Amudarya River Basin, WWF Russia; Lethier, H. (2020). World Heritage thematic study for Central Asia. Priority sites for World Heritage nomination under criteria (ix) and (x). Gland, Switzerland and Belgrade, Serbia: IUCN and IUCN ECARO. xii+103pp; Muratov, R.S. and Talbonov, K.M. (2022). The near-extirpation of the Great Bustard Otis tarda tarda as a wintering and breeding species in Tajikistan. Great Bustard Special Issue, p.80.; Nikol'skii, A.A., (2014). Ecological inheritance in the biological signal field of mammals. Russian Journal of Ecology, 45, 1, 76; Normatov, I.S., Muminov, A. and Normatov, P.I. (2016). The Impact of Water Reservoirs on Biodiversity and Food Security and the Creation of Adaptation Mechanisms. International Journal of Environmental and Ecological Engineering, 10, 5, 601-607; Treshkin, S.Y. (2001). The Tugai forests of floodplain of the Amudarya River: ecology, dynamics and their conservation. In: Sustainable land use in deserts, 95-102. Springer, Berlin, Heidelberg; Weichert, A. (2019) with contributions of Qumriya Vafodorova and Tobias Garstecki. The Report of feasibility mission in the framework of the "Ecosystem-based Adaptation to Climate Change in High Mountainous Regions of Central Asia" for the Tigrovaya Balka natural reserve, on behalf of the Michael Succow Foundation funded by GIZ/BMU; Zeng, Y., Zhao, C., Kundzewicz, Z.W. (2022). Distribution pattern of Tugai forests species diversity and their relationship to environmental factors in an arid area of China. PLoS One. 15,5, e0232907, doi: 10.1371/journal.pone.0232907; Zwahlen, R. (2022). Downstream Impacts. Assessing the Environmental Impacts of Hydropower Projects, 419-433.

d) Consultations: 9 desk reviews received. The mission was able to meet with the Committee for Environmental Protection, the Center for Biodiversity and Biosafety, the National Center for Environmental Protection, the Environmental Protection Agency of the District of Dusti, the Tigrovaya Balka Nature Reserve, local government officials, technical authorities, chief rangers and international experts.

e) Field Visit: Chimed-Ochir Bazarsad, 11-15 October 2022

f) Date of IUCN approval of this report: April 2023

2. SUMMARY OF NATURAL VALUES

The Tigrovaya Balka Nature Reserve is located in the interfluve of the Vakhsh and Panj rivers in southwestern

Tajikistan at the border of Afghanistan. The confluence continues as the Amu Darya, the largest river in Central Asia, running to the Aral Sea. The Reserve includes extensive riparian tugay ecosystems, the sandy Kashka-Kum desert, the Buritau peak, as well as the low (1,000-1,200 m.a.s.l.) mountains of the southern spurs of the Aruktau range – the Hodja-Kaziyon mountains. The area of the Tigrovaya Balka Nature Reserve is 49,786 hectares (ha) and its buffer zone is 17,672 ha.

The nominated property is composed of a series of floodplain terraces covered by alluvial soils, comprising tugay riverine forests with very specific biodiversity in the valley. There are several habitats in the reserve: tugay riverine forests, freshwater bodies and marshes, semi-deserts, takirs and solonchaks. Tugay are riparian woodlands – usually dominated by poplars, willows and tamarix – alternating with wet meadows and marshes and associated with fluvial areas in semi-arid and desert climates of Central Asia. Significantly, the nominated property preserves a natural Asiatic poplar tugay vegetation complex. The complex features water-resistant and thermophilic, salt-tolerant trees and shrubs such as the Asiatic Poplar or Blue Poplar (*Populus pruinosa*, NT), the Oleaster (*Elaesgnus angustifolia*, LC), and the Multiramose Tamarix (*Tamarix ramosissima*; LC), which provide habitat for rare and endangered animals such as the Bactrian Deer (*Cervus hanglu bactrianus*, a subspecies of the Tarim Red Deer, *Cervus hanglu*, LC), whose population in the reserve has grown to 300, Goitered Gazelle (*Gazella subgutturosa*, VU), Tajik Black-and-Gold Pheasant (*Phasianus colchicus bianchii*), and many migratory waterfowl birds. Reports vary of the occurrence of Caucasian Leopard (*Panthera pardus ciscaucasica*), a subspecies of the Persian Leopard (*Panthera pardus*, VU). The vegetation complex has evolved in response to particular climatic fluctuations.

The nomination dossier asserts that the 24,100 hectares of tugay forests in the reserve represent the largest and most intact tugay forest in Central Asia, and this is the only place in the world where the Asiatic poplar tugay ecosystem has been preserved in its original state over such a large area.

3. COMPARISONS WITH OTHER AREAS

The comparative analysis provided in the nomination dossier was based on values of Central Asian riparian woodlands and Bactrian Deer. Tugay is one of Central Asia's "keystone" aquatic ecosystems, which occurs only along the floodplains of Central Asian rivers and river deltas. Tugay is completely different in structure and dynamics and relatively independent from the surrounding environment. It represents the most diverse landscapes of Central Asia. The centre of the range of Tugay vegetation is the Tarim Basin in north-western China, where the Tarim Huyanglin nature reserve in the middle reaches of the Tarim River holds the largest total of intact Tugay forests, with an estimate of about 61% of the total. The Central Asian countries hold another 31%, with smaller areas remaining in the Middle East, Pakistan and the Caucasus. All of the ecosystems described have been greatly reduced and fragmented due to anthropogenic activities.

The comparative analysis lists major sites with the same or similar types of riparian forests. Key potential areas are listed, but some may be missing, e.g. remnants of riparian woodlands along the Tarim River in China. The comparison mainly refers to the aspects of size of the riparian woodlands where the declared size of such woodlands in Tigrovaya Balka indeed appears to be outstanding. All remaining riparian tugay ecosystems in Central Asia are influenced by upstream reservoirs and water withdrawal. However, it is not clear from the nomination document if these impacts are similar for all sites or if some sites may have better preserved riparian dynamics with their hydrological, pedological and geomorphological impacts. For instance, in the sites in Afghanistan natural river dynamics in the free-flowing Panj River are better preserved than in the nominated property, which is dependent on the regulated Vakhsh River. On the other hand, these sites do not harbour similar areas of Tugay forests.

In terms of Bactrian Deer, the nominated property is indeed the largest area with a native, i.e. not reintroduced, population. Thus the reserve is of particular value for the preservation of the genetic diversity of the subspecies. The largest population is now in Lower Amudarya Biosphere Reserve (core zone Baday Tugay), where the estimated population was 2,112 deer in 2019. However, this population originates from reintroductions and may thus be of lower genetic diversity and its number is clearly above the carrying capacity of the habitat, threatening the ecosystem and its own survival. The Caspian tiger (*Panthera tigris virgata*), which Tigrovaya Balka ("Tiger Gorge") was named after, is extinct and the nomination dossier suggests that the continued presence of Leopard (*Panthera pardus)* is doubtful as it has not been recorded in the Hodja-Kaziyon foothills for a long time. Typical predators in the tugay are jackel (*Canis aureu*) and Jungle cat (*Felis chaus*), but numbers are very low as a result of anthropogenic pressures.

An IUCN World Heritage thematic study for Central Asia identified the property as a gap in 2005. A follow-up study published in 2020 states that Tigrovaya Balka is considered the most important protected area in Tajikistan, in terms of ecosystem diversity and values for species. It is situated within the Global 200 Priority Ecoregion "Middle Asian Montane Woodlands and Steppes", represented on the World Heritage List only by Xinjiang Tianshan and Western Tien Shan. However, the nominated property bears features that are distinct from these two properties, and it contains, arguably, the largest and most intact tugay forest massif in Central Asia.

IUCN, in collaboration with UNEP-WCMC, has undertaken supplementary comparative analysis with regards to criteria (ix) and (x), based on spatial analyses and literature review. The WCMC Comparative Analysis supports the case for global significance under criterion (ix), which is deemed justified by uniqueness of the vegetation to Central Asia and lack of representation of the ecoregions in the World Heritage List. The

nominated property overlaps with the Hindu-Kush Highlands Udvardy biogeographical province, Badghyz and Karabil semi-desert terrestrial ecoregion, and Middle Amu Darya freshwater ecoregion, all of which are currently not represented on the World Heritage List.

Global significance under criterion (x) is considered in light of the presence of globally threatened mammal, bird, reptile and fish species and a high number of endemic or rare plant species. The WCMC analysis notes that whilst the nominated property is undoubtedly important for the conservation of mammal, bird and amphibians, it does not appear to stand out from other World Heritage properties in the Mountains of Central Asia biodiversity hotspot and/or Paleartic Temperate Grasslands, Savannas and Shrublands, and Deserts and Xeric Shrublands biorealms. The species numbers may be significant, but the number of threatened species appears to be lower than suggested in the nomination dossier. This is also confirmed through supplementary information from the State Party, which lists fewer numbers of threatened species than suggested in the nomination dossier. For instance, only nine globally threatened bird species are included in the species list of the supplementary information whereas the nomination dossier suggested the presence of 55 globally threatened birds. Unlike in the nomination dossier, the Tajikistan Even-fingered Gecko (*Alsophylax tadjikiensis*, CR) is not reported to be present according to the supplementary information. Therefore, IUCN considers that the currently available documentation does not adequately demonstrate the nominated property to contain the most important and significant habitats for in-situ conservation of threatened species.

Overall, IUCN considers that the nominated property demonstrates global significance under criterion (ix) but currently not under (x).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nominated property has the legal status of a Nature Reserve since its establishment in 1938. The Reserve is subject to the Law of the Republic of Tajikistan on Specially Protected Natural Areas of 2011, defining it as "a land or the water body withdrawn completely from economic activity, intended for preserving and studying of typical and unique natural complexes, gene pool of plants and animals, carrying out monitoring of dynamics of natural processes and the phenomena". Therefore, the nominated property adheres to IUCN Protected Area Category Ia. Local government authorities have no jurisdiction, except in the buffer zone (so-called "Protective Zone"). According to law, the purpose of the buffer zone of the nominated property is to prevent or mitigate negative impacts on the nominated property. Its size and management regime are determined by the authorized state body.

Therefore, the Protected Area administration and other relevant authorities responsible for protected areas have the legal authority to reduce and/or mitigate negative impacts that arise from outside the boundaries of the reserve, including from irrigation. A 2021 order allows for "limited agricultural activities" but prohibits most other land uses in the buffer zone of the nominated property. Supplementary information provided by the State Party confirms the legal status of the buffer zone and its effective functioning as added 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 located in the districts of Kabodien (right bank of Vakhsh) and Dusti (left bank of Vakhsh) of Khatlon Region. The boundary of the nominated property is clearly defined and adequate.

The size of the Nature Reserve changed several times since its establishment in 1938. The initial area of the Nature Reserve was 50,000 ha, but in 1946 was reduced to a tenth of that size. Many other expansions and reductions ensued until 1970, when a maximum size of 52,200 ha was reached. The current alignment of the Nature Reserve was established in 2008, after a part of the Nature Reserve was converted into agricultural land. The establishment of the Nature Reserve and frequent changes to its size reflect the development in the region, especially regarding agriculture and related infrastructure, e.g. railway and irrigation channels. In spite of these changes over more than 80 years, the nominated property maintains an adequate level of integrity within its current boundaries. The nominated property encompasses a series of floodplain terraces and tugay riverine forests in the valley with freshwater bodies, marshes, semi-deserts, takirs and solonchaks. However, in regard to criterion (x), the limited size of the nominated property would not be sufficient to encompass the required habitat to protect the mostly wide-ranging species proposed to be considered under criterion (x).

The buffer zone of the nominated property is intended to minimize impacts from agricultural development from areas outside the reserve boundaries. In supplementary information, the State Party provided documentation of a 2021 order establishing a protective zone for the reserve, forbidding hunting, fishing, tree cutting, and "irrigation works that lead to changes in the hydrological regime and drainage of swamps." The order thus limits agricultural activity around the nominated property. Supplementary information also reports a 50% reduction in water consumption for irrigation since 2016, suggesting that regulation in the buffer zone and adjacent areas is addressing the greatest threat to the integrity of the reserve.

IUCN considers that the boundaries of the nominated property and buffer zones meet the requirements of the *Operational Guidelines*.

4.3 Management

The Tigrovaya Balka Nature Reserve is a subdivision of the State Committee for Environmental Protection under the Government of the Republic of Tajikistan and operates in accordance with the Law of the Republic of Tajikistan On Specially Protected Natural Territories of 2014. Reserve administration currently comprise 57 staff, including of 30 rangers and 5 senior rangers, who conduct daily rounds and night raid patrols operating 15 check points across the reserve. The staff is sufficient for management and enforcement within the relatively small nature reserve. Due to its location on the border to Afghanistan, around 30 percent of the nominated property is under the jurisdiction of border security forces of Tajikistan.

Operational protection and preservation of the proposed Outstanding Universal Value is carried out by reserve managers according to medium-term management plans. Thus, the "Management Plan of the state reserve Tigrovaya Balka and the adjacent territory for the period 2022-2026" defines specific measures for protection, scientific research, monitoring of the state of conservation, environmental education and interaction with the local population, the timing of their implementation, actors, sources of funding and expected results. The management plan covers a wider landscape and addresses threats from lands adjacent to the Nature Reserve. The Tigrovaya Balka Nature Reserve is funded from the state budget (Committee for Environmental Protection). The nomination dossier indicates that the budget of the reserve is growing.

Therefore, IUCN concludes that the nominated property is currently subject to a robust management regime.

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

4.4 Community

The proposed property is a State Nature Reserve since 1938, with economic activities being prohibited. Accordingly, there are no people living inside the boundaries other than rangers at five border control stations. Entrance to the nature reserve is by permission only. According to the nomination dossier, up to 1,000 permanent residents are present in the buffer zone.

Overall, and based on the information provided to IUCN and evident to the field mission, there do not appear to be any concerns in relation to traditional rights by communities. Nevertheless, the field mission recommended that the capacity of the Nature Reserve would be enhanced with a special focus on public participation and public relations.

4.5 Threats

The nomination dossier identified the following threats, mostly from areas adjacent to the nominated property: (1) unregulated discharge of wastewater from agricultural lands and the associated release of pesticides into the reservoirs of the reserve; (2) interruption of periodic floods through the regulation of the Vakhsh River runoff by a number of hydroelectric power plants, which leads to a lower water level; and (3) rise in groundwater level through intensive irrigation during May-September, a period of high evaporation, which increases soil salinity.

The most serious threat and long-lasting impact is the altered hydrological regime of Vakhsh River due to dams and water offtake for irrigation. Before the regulation of the river flow in late 1960s the valley would flood in summer, an important ecosystem requirement. Tugay forests are now supported by channelled surface water and underground flows only. A significant part of the runoff of the Vakhsh (about one third) is used for irrigation and one fifth of the river runoff in the lower reaches is formed by wastewater, which leads to an increase in mineralization and pollution of river waters, according to the nomination dossier.

Direct threats inside of the nominated property, e.g. grazing, poaching, fire, change of protection status, etc., are considered low. Only threats from outside, e.g. irrigation related to agriculture and dams in the upper watershed pose high threats to the tugay forest ecosystem. In addition, increased climate change impacts on the hydrological regime as well as increased water demands for irrigation and electricity production make the future of Tugai forest unpredictable. However, if technologies to improve water efficiency for irrigation in the vicinity of the nominated property are adopted and the waterflow regime for existing dams are continuously scrutinised to secure a hydrological regime in the nominated property that ensures the long-term maintenance of its natural values, the relatively small natural tugay forest may be able to adapt to changing environmental conditions. In this regard, it is welcome that supplementary information reports an improvement of the hydrological regime and of the reserve since 2016 and a 50% reduction in water consumption for irrigation since 2016. In this regard, it will be important to ensure that no further river modifications, such as additional dams, are built in the upstream areas of the nominated property as such structures would exacerbate the threats to the natural values of the nominated property.

Overall, IUCN concludes that the nominated property is subject to a strict protection and management regime, supported by a functional buffer zone. Nevertheless, to ensure the nominated property's integrity in the long-term IUCN recommends the State Party to ensure there are no disruptions to the natural hydrological regime of the nominated property, and to consider expanding the buffer zone in future.

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

5. ADDITIONAL COMMENTS

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6. APPLICATION OF CRITERIA

The Tugay forests of the Tigrovaya Balka Nature Reserve (Republic of Tajikistan) has been nominated under natural criteria (ix) and (x).

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

The nominated property would close an important gap on the World Heritage List as it overlaps with the Middle Amu Darya freshwater ecoregion, the Badghyz and Karabil semi-desert terrestrial ecoregion and the Hindu-Kush Highlands Udvardy biogeographical province, all of which are currently not represented on the World Heritage List.

The natural complex of Tigrovaya Balka is an outstanding example of continuous ecological and biological processes taking place in the evolution and development of desert-tugay biocenoses and their characteristic plant and animal communities. Tugay is one of Central Asia's "keystone" aquatic ecosystems, which occurs only along the floodplains of Central Asian rivers and river deltas, relatively independent from the surrounding environment. Whilst the Tugay ecosystems have been greatly reduced and fragmented as a result of anthropogenic activities, the nominated property represents a rare case of intact Tugay Forest. The reserve hosts various ecological units, not only tugay lowland forests, but also steppe and semi-desert areas and their various ecotones where many stenoeceous species of flora are found. The reserve's forests, sandy and saline semi-deserts, piedmont semi-savannas, and various wetlands are dynamically adapting to changes in the hydrological regime of the territory. The nominated property is also distinguished by its native, i.e. not reintroduced, population of Bactrian Deer.

IUCN considers that the nominated property meets this criterion.

Criterion (x): Biodiversity and threatened species

Tugay habitats, riparian forest and wetlands are endemic to Central Asian semi-arid and arid climates, though highly fragmented and degraded due to deforestation, grazing, land conversion, irrigation and dam construction. The nomination dossier lists important species as Bactrian Deer (*Cervus hanglu bactrianus*), the Goitered Gazelle (*Gazella subgutturosa*), the Persian Leopard *(Panthera pardus ciscaucasica)*, and the Striped Hyena (*Hyaena hyaena*). However, the limited size of the nominated property does not provide for an adequate representation of these wide-ranging species. The Caspian Tiger (*Panthera tigris virgata*), for which Tigrovaya Balka ("Tiger Gorge") was named, is extinct and the continued presence of Caucasian Leopard (*Panthera pardus ciscaucasica*) is doubtful as it has not been recorded in the Hodja-Kaziyon foothills for a long time. Typical predators in the tugay are Jackel (*Canis aureu*) and Jungle Cat (*Felis chaus*), but as a result of anthropogenic pressure the number of predators is very low.

Overall, the nominated property demonstrates similar levels of biodiversity to other World Heritage properties located in the Mountains of Central Asia biodiversity hotspot and relevant biorealms. In conclusion, IUCN considers that the values proposed under criterion (x) would be best recognised under criterion (ix) as part of the intact Tugay ecosystem.

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/23/45.COM/8B and WHC/23/45.COM/INF.8B2;

2. Inscribes the **Tugay Forests of the Tigrovaya Balka Nature Reserve (Tajikistan)** on the World Heritage List under criterion (ix);

3. Adopts the following Statement of Outstanding Universal Value:

Brief synthesis

The Tugay Forests of the Tigrovaya Balka Nature Reserve is located in the interfluve of the Vakhsh and Panj rivers in southwestern Tajikistan at the border of Afghanistan. The confluence continues as the Amu Darya, the largest river in Central Asia, running to the Aral Sea. The Reserve includes extensive riparian tugay ecosystems, the sandy Kashka-Kum desert, the Buritau peak, as well as the low (1,000-1,200 m a.s.l.) mountains of the southern spurs of the Aruktau range – the Hodja-Kaziyon mountains. The area of the Tigrovaya Balka Nature Reserve is 49,786 hectares (ha) and its buffer zone is 17,672 ha. The property is composed of a series of floodplain terraces covered by alluvial soils, comprising tugay riverine forests with very specific biodiversity in the valley. Significantly, the property preserves a natural Asiatic poplar tugay vegetation complex.

Criterion (ix)

The natural complex of Tigrovaya Balka is an outstanding example of continuous ecological and biological processes taking place in the evolution and development of desert-tugay biocenoses and their characteristic plant and animal communities. The reserve hosts various ecological units, not only tugay lowland forests, but also steppe and semi-desert areas and their various ecotones where many stenoeceous species of flora are found. The reserve's forests, sandy and saline semi-deserts, piedmont semi-savannas, and various wetlands are dynamically adapting to changes in the hydrological regime of the territory. There are several habitats in the reserve: tugay riverine forests, freshwater bodies and marshes, semi-deserts, takirs and solonchaks.

The complex features water-resistant and thermophilic, salt-tolerant trees and shrubs such as the Asiatic Poplar or Blue Poplar, the Dzhida or Oleaster, the Multiramose Tamarix. Wildlife includes Bactrian Deer, whose population in the reserve exceeds 300; Goitered Gazelle, Striped Hyena, Gray Monitor, Tajik Black-and-gold Pheasant, and many waterfowl, completing the largely intact tugay ecosystem. The 24,100 ha of tugay forests in the reserve represent the largest and most intact tugay forest of this type in Central Asia, and this is the only place in the world where the Asiatic poplar tugay ecosystem has been preserved in its original state over an area of this size.

Integrity

The Tigrovaya Balka Nature Reserve is an integral natural complex, the main components of which are inseparably associated with each other by the common origin and dynamics of natural development, and includes the elements necessary to express its Outstanding Universal Value. The reserve presents ecosystems of tugay floodplain forests, sandy and saline semi-deserts, foothill low-grass semi-savannas and wetlands, with the spectrum of characteristic flora and fauna. The size of the property (49,786 ha) is sufficient to support the sustainable functioning of tugay ecosystems. The buffer zone of the reserve (17,672 ha), though narrow in places, provides additional guarantees of the integrity of the property.

The integrity of the site depends on the riparian dynamics of the Vakhsh and Panj rivers, with the Vakhsh being the most important but also the most modified by eight dams. These dams change inter-seasonal and inter-annual flow dynamics reducing the flooding on which riparian tugay ecosystems depend. Only the section along the Panj river is still under some influence of natural riparian dynamics but their riparian woodlands are of limited size. The water balance is now partly supported by secondary water sources from irrigation systems. The water regime within the property has been restored to the extent that the property's integrity is ensured, but the matter requires constant attention and action.

Biophysical processes and properties of the natural landscape of the Tigrovaya Balka Nature Reserve are indirectly affected by economic activities (irrigated agriculture and cattle grazing) conducted in adjacent lands, but at the time of inscription they have not significantly impacted the property and their water footprint has been greatly reduced.

Protection and management requirements

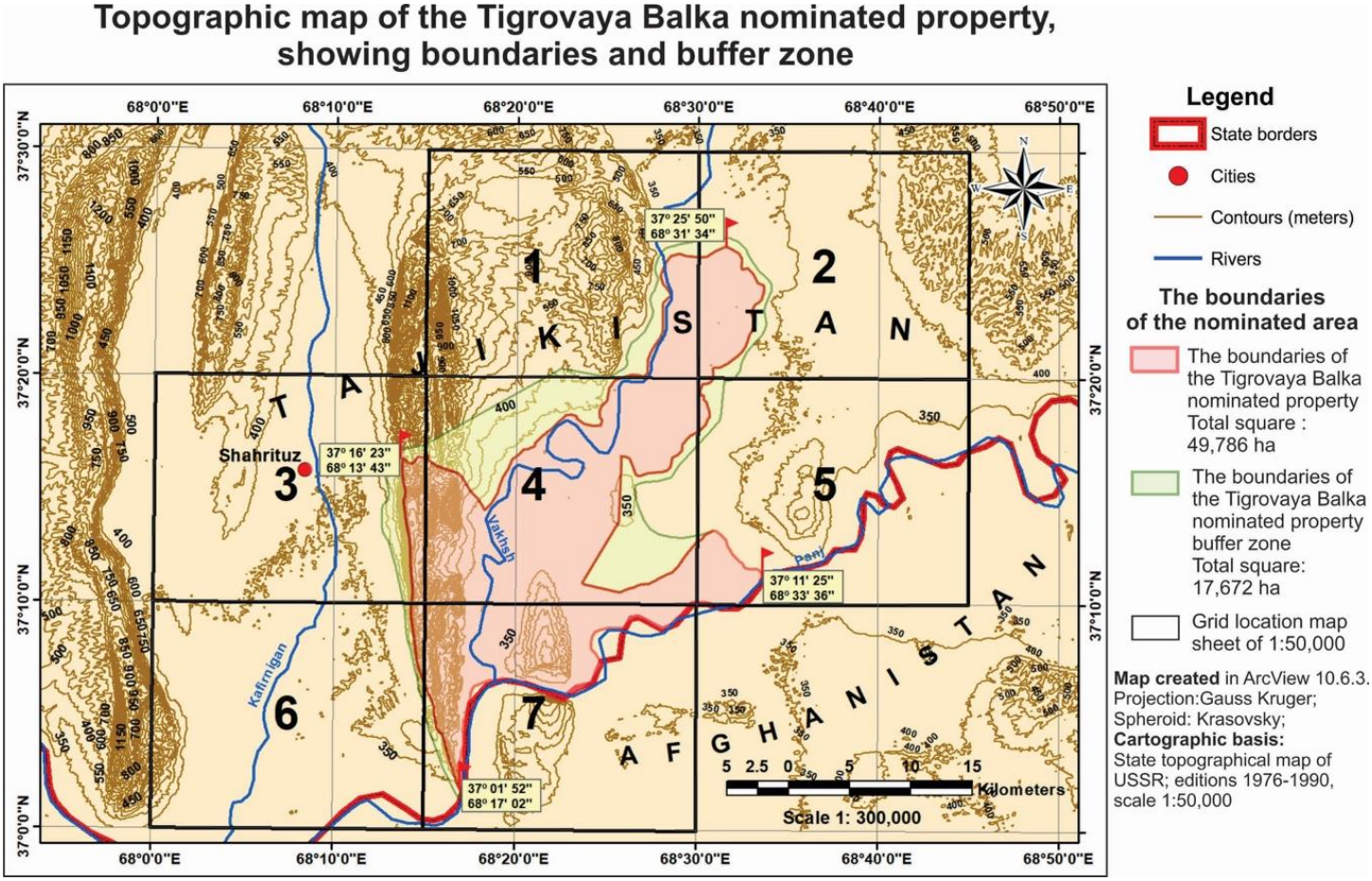
The property has had the status of a state nature reserve since 1938, the highest nature protection status of Tajikistan, corresponding to IUCN category Ia. The Tigrovaya Balka Nature Reserve is a structural subdivision of the State Committee for Environmental Protection under the Government of the Republic of Tajikistan and operates in accordance with the Law of the Republic of Tajikistan "On Specially Protected Natural Territories" of 27 November 2014. The protection of the reserve is the responsibility of a special inspection service, consisting of 30 rangers and 5 senior rangers, who conduct daily rounds and night patrols. Agriculture, animal husbandry and other economic activities are strictly forbidden within the property's boundaries, but do occur in the adjacent territories. The nature protection institution for the Tigrovaya Balka Nature Reserve has the necessary material and human resources to ensure undisturbed natural processes within the property.

Operational protection and preservation of the property's Outstanding Universal Value is carried out by reserve managers according to medium-term management plans, which define specific measures for protection, scientific research, monitoring of the state of conservation, environmental education and interaction with the local population, the timing of their implementation, actors, sources of funding and expected results. Reserve managers undertake a wide range of active management projects to counter the disruption of the hydrological regime due to upstream dams. Central to this is regular clearing of channels to deliver water from the Vaksh River to and among the lakes. Maintenance of the Outstanding Universal Value is contingent on regular supply of water from upstream sources.

4. Encourages the States Parties of Tajikistan and Afghanistan to coordinate and secure water flows from the Panj River to maintain the hydrological regime of the property.

5. Requests the State Party to
   a) secure and maintain a natural hydrological regime for the property with sufficient provision of water to the property to maintain its Outstanding Universal Value,
   b) assess regularly the management effectiveness of the property, including research on the hydrological regime of the Vakhsh River in relation to the property,
   c) enhance management capacity of the Nature Reserve with special focus on community engagement;

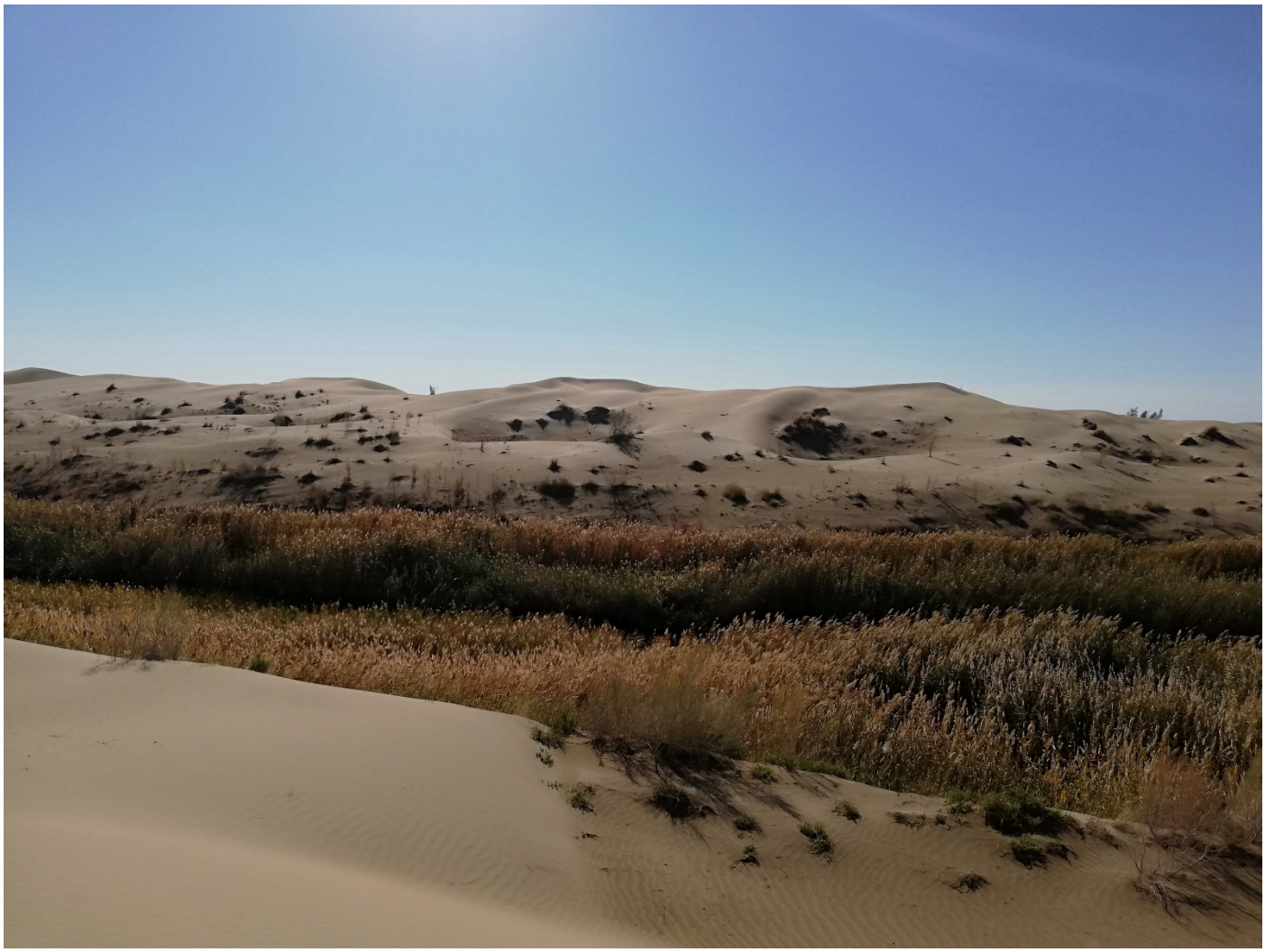
Map 1: Nominated property and buffer zone.



ASIA / PACIFIC

COLD WINTER DESERTS OF TURAN

KAZAKHSTAN, TURKMENISTAN, UZBEKSITAN



Cold Winter Deserts of Turan © IUCN / Oliver Avramoski

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

COLD WINTER DESERTS OF TURAN (KAZAKHSTAN, TURKMENISTAN, UZBEKSITAN) – ID N° 1693

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To inscribe the Altyn-Emel East; Altyn Emel Central; Altyn-Emel West; Bereketli Garagum; Gaplankyr; Repetek; Yeradzhi; Saigachy; Saigachy-Beleuli; Southern Ustyurt (nominated component parts 1, 2, 3, 7, 8, 9, 10, 11, 12 and 15) as Cold Winter Deserts of Turan under natural criteria (ix) and (x), excluding Barsakelmes Island; Kaskakulan; Delta; Saigachy-Duana and Saigachy-Zhideyli (nominated component parts 4, 5, 6, 13 and 14)

Key paragraphs of Operational Guidelines:
Paragraph 77: Nominated property includes component parts that meet World Heritage criteria (but also component parts that do not).
Paragraph 78: Nominated property includes component parts that meet integrity requirements (but also component parts that do not). Nominated property meets protection and management requirements.

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2022

b) Additional information officially requested from and provided by the States Parties: Following the session of the IUCN World Heritage Panel, a progress report was sent to the States Parties on 26 January 2023. This letter advised on the status of the evaluation process and requested supplementary information on the boundaries of all the nominated component parts in relation to the current extent of natural waterbodies and the location and extent of water resource management infrastructures; the boundaries of the Barsakelmes cluster in relation to the former area of the Aral Sea; confirmation of the connectivity status regarding the movement, migration and dispersal of wide-ranging wildlife that are related to the integrity of the nominated property, and measures to remove barriers to migration; updates regarding the transnational coordination strategy and legal protection status of all nominated component parts. The supplementary information was provided by the States Parties on 28 February 2023.

c) Additional literature consulted: IUCN's evaluation consulted a wide array of relevant reference material for the biology, ecology, protection and management as well as the comparative values of the nominated property, including: Altyn Dala Conservation Initiative (n.d.): Large landscape-scale steppe grassland conservation in Kazakhstan, RSPB website https://www.rspb.org.uk/our-work/conservation/projects/altyn-dala/, sSee also: https://altyndala.org/; Anon (2015). Guidelines for Addressing the Impact of Linear Infrastructure on Large Migratory Mammals in Central Asia, CMS https://www.cms.int/sites/default/files/publication/cms-cami_pub_linear-infrastructure_wcs_e.pdf; Anon (2018). Improving sustainability of the PA system in desert ecosystems through promotion of biodiversity-compatible livelihoods in and around PAs, Final Project Report, UN Development Programme in Kazakhstan https://info.undp.org/docs/pdc/Documents/KAZ/PIMS%204855_Final_Progress_Report_DP.doc; Anon (2020). Protecting the Goitered Gazelle in Central Asia, IUCN Save Our Species, 30 Sep, 2020 https://iucnsos.org/protecting-the-goitered-gazelle-in-central-asia/; Harris, G. et al. (2009). Global decline in aggregated migrations of large terrestrial mammals, Endangered Species Research, Vol. 7,: 55–76. https://abcg.org/files/documents/1b57ed70-76f2-4e3b-8cc8-c5164b0dd0db.pdf; Lethier, H. (2020). World Heritage thematic study for Central Asia. Priority sites for World Heritage nomination under criteria (ix) and (x). Gland, Switzerland and Belgrade, Serbia: IUCN and IUCN ECARO; Kaczensky, P. (2011). First assessment of the suitability of the Altyn Dala and Altyn Emel region of Kazakhstan for Przewalski's horse re-introduction, Research Institute of Wildlife Ecology, https://www.researchgate.net/publication/285356457_Kaczensky_2011_First_assessment_of_the_suitability_of_the_Altyn_Dala_and_Altyn_Emel_region_of_Kazakhstan_for_Przewalski's_horse_re-introduction; Kaczensky, P. et al. (2020). Reintroduction of kulan into the central steppe of Kazakhstan: Field Report for 2018-2019, Norwegian Institute for Nature Research. See also: https://www.nina.no/english/Fields-of-research/Projects/KulanSteppe; Miskovic (2022). Protecting Snow Leopard and Goitered Gazelle, Iconic Species of Central Asia, Central Asian Mammals Initiative, [Milica Miskovic, IUCN Regional Office for Eastern Europe and Central Asia (ECARO)] 21 April 2022. https://www.cms.int/cami/en/news/protecting-snow-leopard-and-goitered-gazelle-iconic-species-central-asia; UNEP Global Environmental Alert System (GEAS) (2014). The future of the Aral Sea lies in transboundary co–operation. https://na.unep.net/geas/getuneppagewitharticleidscript.php?article_id=108; Yergaliyeva, A. (2020). Kazakhstan Finalizes Plan to Restore Native Turanian Tigers In Ile-Balkhash Region, Nation, Nov 6,

https://wildfact.com/forum/topic-caspian-tiger-reintroduction-project;

d) Consultations: 8 external reviewers consulted by IUCN. The field evaluators were able to meet with the Kazakhstan National Commission for UNESCO, UNESCO Kazakhstan Office, IFSA (International Fund for Saving the Aral Sea), Forestry Department of Kazakhstan, Protected areas staff from Altyn-Emel National Park and Barsakelmes State Nature Reserve, Local administrations, public councils (local people), NGOs (Kazakhstan); Environment Protection Service of the Ministry of Agriculture and Environmental Protection of Turkmenistan (MAEPT), Protected area staff of Bereketli Garagum State Nature Reserve, Repetek State Nature Reserve and Yeradzhi Nature Sanctuary, Gaplangyr State Nature Reserve, Sarygamysh Nature Sanctuary and Shasenem Nature Sanctuary (Turkmenistan); Uzbek National State Committee of the Republic of Uzbekistan on Ecology and Environmental Protection, Karakalpakstan State Committee of the Republic of Uzbekistan on Ecology and Environmental Protection, Saigachy and Southern Ustyurt National Park Advisory Commissions, Protected areas staff from Saigachy and Southern Ustyurt National Park, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Karakalpakstan Branch of National Academy of Sciences, Uzbek National Academy of Sciences, Uzbek State Committee on Forestry (Uzbekistan).

e) Field Visit: Oliver Avramoski (Turkmenistan), 25 Oct – 1 Nov 2022; Rolf Hogan (Kazakhstan), 9-18 Nov 2022; Matthew Emslie-Smith (Uzbekistan), 14-22 Nov 2022.

f) Date of IUCN approval of this report: April 2023

2. SUMMARY OF NATURAL VALUES

The nomination of the Cold Winter Deserts of Turan seeks to represent an outstanding example of ongoing ecological and biological processes of evolution and development of terrestrial ecosystems in extreme climate conditions of the Turan deserts, characterized by cold winters with low precipitation, and by hot and very dry summers. The nominated property includes representative examples of most of the ecological-physiographic vegetation types in the Turan deserts: sagebrush and perennial saltwort vegetation in clay and stony deserts; psammophytic vegetation i.e. desert grasses, saxaul shrubs and woodland in sandy deserts; and salt vegetation on solonchak soils. Taken together, the nominated component parts include examples of the full range of morphological, physiological and behavioural adaptation strategies to Turan deserts.

The on-going ecological and biological processes in the evolution and development of the nominated desert ecosystems are demonstrated by the diversity of desert communities, and the adaptation strategies of the species that comprise them to the extreme climatic conditions. These communities correspond with the different soil types and microclimatic and environmental conditions, with multiple subtypes occurring within and across components to encompass the broad range of desert types across Central Asia. The nominated property therefore contains the full range of morphological, physiological and behavioural adaptation strategies of the regional Central Asian desert systems, and their ongoing ecological processes.

The nominated component parts are important to the migration of ungulate species including Saiga (*Saiga tatarica*; CR), Kulan (*Equus hemionus kulan*; NT) and Goitered Gazelle (*Gazella subgutturosa*; VU) within the region, as one of the 'adaptive behaviours' showcasing adaptation and development of ongoing ecological processes representing an attribute of the proposed Outstanding Universal Value. However, historical population decline of these ungulate species has occurred across the region, and significant barriers to migration between the countries exist through the border fencing, causing disruption to migratory routes.

The nominated property includes diversity hotspots for plant genera that are representative of the specific desert assemblages across the entire region. It hosts threatened mammals such as the above-mentioned Kulan (*Equus hemionus kulan;* NT), Goitered Gazelle (*Gazella subgutturosa;* VU), Urial (*Ovis vignei arkal;* VU), and Saiga (*Saiga tatarica;* CR) as well as other desert-adapted mammal species of special conservation interest. The nominated component parts of the property also serve as important areas for breeding and migration of birds, with 15 Near-Threatened (NT), ten Vulnerable (VU), five Endangered (EN) and two Critically Endangered (CR) bird species documented.

A number of nominated component parts are located in the Aral Sea area. The changes that occurred to the Aral Sea are widely recognised as an environmental and socio-economic disaster, with impacts also to the surrounding areas through soil contamination and salination and regional climatic changes. The nomination presents the primary succession occurring on the former seabed as an example of how plants, and in turn, animals are able to colonize hostile land areas as well as ongoing adaptation and development of the ecosystem under new environmental conditions in the Barsakelmes component parts 4, 5 and 6, which are located in the former Aral Sea, as well as the component parts 13 and 14 of the Northern Ustyurt cluster, which sits adjacent to the Sea.

Table 1: Description of nominated component parts

State Party	Name of the cluster	Name of nominated component part (number of nominated component part)	IUCN Protected Area category	Area of nominated component parts of the property (ha)	Area of the buffer zone (ha)
Kazakhstan	Altyn-Emel	Altyn-Emel East (01)	Cat II*	13,019	255,684
		Altyn-Emel Central (02)	Cat II*	5,644	
		Altyn-Emel West (03)	Cat II*	33,306	
	Barsakelmes	Barsakelmes Island (04)	Cat Ia	50,884	19,639
		Kaskakulan (05)	Cat Ia	109,942	26,670
		Delta (06)	Cat Ia	2,300	5,851
Turkmenistan		Bereketli Garagum (07)	Cat Ia & IV	87,400	30,745
		Gaplangyr (08)	Cat Ia & IV	926,203	22,950
	East Garagum	Repetek (09)	Cat Ia	34,600	47,324
		Yeradzhi (10)	Cat IV	30,000	n/a
Uzbekistan	Northern Ustyurt	Saigachy (11)	Cat Ib	575,335	219,800
		Saigachy- Beleuli (12)	Cat Ib	21,765	
		Saigachy- Duana (13)	Cat Ib	23,454	
		Saigachy- Zhideyli (14)	Cat Ib	7,746	
		Southern Ustyurt (15)	Cat II	1,447,143	n/a
			Total	**3,368,741**	**628,663**

*Strictly protected area of the National Park (equivalent to IUCN Category Ia).

A brief description of the country component parts and clusters that make up the present nomination is as follows:

Kazakhstan

The Altyn Emel cluster is located in the Ili intermountain depression and is representative of the deserts of the mountain depressions and piedmonts in the most eastern part of Western Central Asia, including foothill steppified deserts found nowhere else in the nominated property. The nominated component parts comprising the cluster (Altyn-Emel East (component part 1), Altyn-Emel Central (component part 2) and Altyn-Emel West (component part 3)) contain a diverse complex of different vegetation types of rocky desert. Given the altitudinal variation of the nominated areas, the cluster includes a great diversity ecological conditions and habitats, giving rise to species that are not present elsewhere in the nominated property (e.g. Snow Leopard (*Panthera uncia*, VU)) or in as many numbers (e.g. Kulan, *Equus hemionus ssp. kulan*, EN).

The Barsakelmes cluster (component parts 4-6) corresponds to the Barsakelmes State Nature Reserve and comprises the main vegetation types of the Northern Turanian deserts, including sagebrush communities of Artemisia and saltwort vegetation. Black Saxaul (*Haloxylon ammodendron*), *Nanophyton erinaceum*, and *Caragana grandiflora* associations as well as a *Halocnemum strobilaceum* formation on solonchak soils also occur. The nominated Barsakelmes cluster is put forward as representation of primary succession on the former Aral seabed with former islands (Barsakelmes Island (component part 4) and Kaskakulan (component part 5)) acting as points of origin for species dispersal with annual saltwort vegetation forming the pioneer stage, followed by

psammophytic plant communities. The Delta component (component part 6) was a recent addition to the Strict Nature Reserve following the construction of a dam to increase the water level in the North/Small Aral Sea and became a wetland used by waterfowl.

Turkmenistan

Bereketli Garagum (component part 7) is in the Central (low-lying) Karakum desert, 240 km north from the capital of Ashgabat and comprises ridged sandy and salt flat complexes, intracontinental saltmarsh desert, and clay desert with classical aeolian landforms. The habitat types are typical of sand desert soils: sands covered with vegetation, mobile sands, and takyr-like soils and edges of takyrs. White Saxaul shrubland is the most characteristic vegetation type of Turan and is accompanied by different psammophytic (sand adapted) and ephemeral vegetation. The nominated component part hosts all species of Turanian origin in the genus *Psammophilus* and many plants endemic to the Karakum desert. The Houbara Bustard (*Chlamydotis undulata*; VU) also nests in this nominated component part.

The Gaplangyr (component part 8) occupies the north-western part of the Gaplangyr plateau, in the north-western part of Turkmenistan. The nominated component part is a transitional area between the northern and southern deserts and at the boundary of the ranges of many animal species, including amphibians and reptiles. It combines stony and clay desert dominated by *psammophytes* with various ephemeral herbs with patches of takyrs, scattered across the plateau and between the sand ridges, as well as solonchaks in depressions, where mineralised groundwater is close to the surface. There are 213 bird species recorded in this nominated component part, including 58 nesting species, such as the Egyptian Vulture (*Neophron percnopterus*, EN), Saker Falcon (*Falco cherrug,* EN), and Asian Houbara (*Chlamydotis macqueenii*, VU). Populations of globally threatened mammals include the Saiga (*Saiga tatarica*; CR), Urial (*Ovis vignei*, VU) and Goitered Gazelle (*Gazella subgutturosa*; VU).

The Repetek (component part 9) and Yeradzhi (component part 10) nominated component parts form the East Garagum cluster. Repetek lies in the Eastern Karakum desert, the southern subzone of the Karakum desert, 70 km southwest of Turkmenabad, whereas Yeradzhi is located 70 km northwest of Repetek, and 90 km from Turkmenabad. Both nominated component parts include the most representative examples of sandy deserts, including ridges, hillocks and mobile sand dunes. The components include exemplary stands of the Black Saxaul (*Haloxylon ammodendron*). The globally threatened species include the Marbled Polecat (*Vormela peregusna*; VU), Striped Hyena (*Hyaena hyaena*; NT) and Goitered Gazelle (*Gazella subgutturosa*; VU).

Uzbekistan

The Northern Ustyurt cluster (component parts 11, 12, 13 and 14) is comprises largely of the Kassarma elevation, although areas overlap with the northern Ustyurt depression to the west and the “chinks” (rocky desert cliffs) leading down to the Aral Sea to the east. The area is characterised by transitional vegetation between the northern (Sagebrush-Saltwort) and southern (Ephemeral-Sagebrush) deserts, including *Hypsophytes*, *Halophytes*, *Psammophytes*, and fragments of tugai vegetation (see also p. 161). The Saigachy and Saigachy-Beleuli (component parts 11 and 12) serve as the most significant area for the breeding of Saiga across the Uzbek area of the Ustyurt plateau and are hotspots for annual cross-border migrations of Saiga (*Saiga tatarica*, CR) in the country. The cluster is also home to desert bird species characteristic of northern clay deserts, accompanied by species typical of wetland ecosystems given its location along the north-south migratory route associated with its immediate vicinity with the Aral Sea and, further to the south, the Sudochye lakes system.

Southern Ustyurt (nominated component part 15) borders Kazakhstan to the west and Turkmenistan (and the Gaplankyr component part 8) to the south. The northern boundary runs along the north of Assake-Audan depression, and the eastern border passes along the conditional line from the Shorzha Depression through Lake Sarykamysh. The nominated component part is dominated by gypsum deserts forming various combinations with clay, sandy, gravelly and solonchak deserts, including also rocky chinks such as the Gaplankyr chink. The faunal complex of the Southern Ustyurt nominated component part 15 is diverse and includes 30 species of fish, one species of amphibians, 20 species of reptiles, about 252 species of birds and 63 species of mammals. The nominated component part is the only place in the country where transboundary groups of Kulan (*Equus hemionus ssp. kulan*; EN) and Urial (*Ovis vignei*, VU) have been preserved, given its location bordering protected areas in Kazakhstan and Turkmenistan, and also represents the globally northern distribution limit of the Honey Badger (*Mellivora capensis*, LC) as well as a large number of karstic caves and sinkholes providing habitat for bats, and serving as shelter and water source for other species including Wildcat. Lake Sarykamysh, which is protected between this component part and the nominated Gaplankyr component part (component part 8) in Turkmenistan provides a vital site for migratory birds such as the White-headed Duck (*Oxyura leucocephala*; EN) and the nominated component part is also documented as a breeding site for other bird species such as Egyptian Vulture (*Neophron percnopterus*, EN).

3. COMPARISONS WITH OTHER AREAS

The property is nominated under criteria (ix) and (x). The nomination justifies criterion (ix) on the basis of the nominated property as an outstanding example of evolution and adaptation of terrestrial ecosystems to extreme climate conditions and of the development of survival strategies of plants and animals as ongoing ecological and biological processes. The Global Comparative Analysis presented in the nomination dossier correctly highlights the absence of comparable ecosystems from Central Asia on the World Heritage List. The analysis compares the nominated area with existing World Heritage properties, and Tentative List sites, within the Biogeographical Provinces of North and Central Eurasia, highlighting that out of the sites in the region, only Uvs Nuur Basin World Heritage property (Mongolia) contains desert ecosystems. However, the ecosystems within that property are under different topographic and biogeographic conditions than the nominated property, containing conifer, deciduous and floodplain forests as well as diverse wetlands and marshlands, freshwater and saltwater systems. The analysis does not outline the relative importance of the ecological processes within the nominated areas in comparison to other cold winter desert areas elsewhere, such as the Americas. However, as the basis of this nomination in filling the gap in the World Heritage List of Central Asian deserts, this is justifiable. One of the key attributes comprising the proposed OUV of the property, as nominated under criterion (ix), is the presence of large-scale mammal migration. The nominating States Parties do not present any comparison of the scale and intactness of the migratory systems in relation to other similar systems within the region, or elsewhere. The historical population decline of many of the ungulate species in the nominated property, as well as the known presence of larger populations of these ungulate species (e.g. Betpak Dala Saiga population) undermines the global significance of the migration processes within and across the nominated property. However, notwithstanding the above considerations, the nominated property carries significant potential as node points for the dispersal of these species across wider areas in the region. The transboundary arrangement of the nominated property, encompassing the full range of Cold Winter Desert habitats in Central Asia, therefore carries significance in this context as a factor in improving connectivity and restoring disrupted migratory routes across the entire region. Furthermore, the temperate deserts are the only biome worldwide without a single property on the World Heritage List. Saxaul woodland demonstrates the ability of desert ecosystems for ongoing carbon sequestration and storage.

The nomination under criterion (x) is based on the nominated property as a diversity hotspot for desert-adapted species, including those of conservation concern. These include plant genera of different families such as *Artemisia*, *Calligonum*, *Salsola*, *Zygophyllum* or *Limonium* including a high share of Turanian endemics. The nominated property is also the habitat of a number of globally threatened mammals such as Kulan (*Equus hemionus ssp. kulan*, EN), Goitered Gazelle (*Gazella subgutturosa*, VU), Urial (*Ovis vignei*, VU), and Saiga (*Saiga tatarica*, CR), alongside several other desert-adapted mammal species of special conservation interest. As noted above, the populations of ungulate species within the areas of the nominated components have undergone historical decline. However, in many instances, these populations are increasing and the value of the nominated property to the conservation of these populations is significant, as these represent the last remaining populations of these species within this part of their historical range. The nomination also notes that the nominated component parts together make up a series of significant stop over points for an important bird migratory route between Eurasia and Africa. This is indeed significant as the nominated component parts between Uzbekistan and Turkmenistan, in particular, either encompass (e.g. Lake Sarykamysh) or adjoin important wetlands which are vital for the migration routes given the scarcity of water sources in the region. Whilst other properties on the World Heritage List may represent specific points along migratory routes (e.g. Wadden Sea, Banc d'Arguin National Park), the serial arrangement of the nominated property ensures that important migratory grounds are included within the property, and is therefore significant in this regard.

IUCN, in collaboration with UNEP-WCMC, has undertaken supplementary comparative analysis with regards to criteria (ix) and (x), based on spatial analyses and literature review. The biodiversity that characterizes the nominated property appears to be of global significance based on the spatial analyses and literature review carried out in this report, both with regards to criteria (ix) and (x). Regarding criterion (ix), WCMC found that the nominated property presents unique ecological features and ecosystems well adapted to desert environments, including typical vegetation types of the Turanian deserts. It is part of the critically endangered Central Asian Deserts priority ecoregion which is not currently represented on the World Heritage List. It is also found in two terrestrial and two freshwater ecoregions which are not yet represented on the World Heritage List. Regarding criterion (x), the nominated property hosts diverse species of flora and fauna which have adapted to the extreme climatic conditions. The species diversity, particularly of mammal, bird and reptile species, is high in comparison to other World Heritage properties found in the same Palearctic Deserts and Xeric Shrublands biorealm. It also shows high rates of endemism for the Turanian region, and hosts globally threatened species, such as the Saiga Antelope and Kulan, which are characteristic ungulates of the region. The nominated property overlaps with two Important Bird Areas and two Key Biodiversity Areas, none of which are yet represented on the World Heritage List.

Most of the nominated areas have also been identified as gaps in both the 2005 and 2020 Central Asia Thematic Studies, and several nominated component parts have been identified as priority conservation sites within the region. However, the areas of the Aralkum

Desert, previously the Aral Sea, were not considered a part of the terrestrial realm that was the focus of these reviews, given their previous status as parts of a lacustrine ecosystem alongside the numerous impacts associated with the desiccation of the Sea.

The nominated property covers in total around 3.4 million hectares, and is therefore large in comparison to other comparable desert properties on the World Heritage List. Although the nominated property is not contiguous, some of the individual components (e.g. Southern Ustyurt component part 15 of around 1.5 million ha) are large in themselves and can therefore encompass a high degree of intactness for the specific desert subtypes for which they are nominated. There is one important exception for those nominated component parts located in the former Aral Sea area, which cannot be considered to be intact on the basis of the degraded ecosystems contained therein.

In conclusion, the representation of the most intact areas of the distinct desert systems of the Central Asian region, including the ongoing ecological processes and the species which comprise them, within the nominated property, with the exception of those nominated component parts located in the former area of the Aral Sea, is a current gap on the World Heritage List, which would be filled with the inscription of the nominated property. Given the scale of the nominated property and the representation of the major desert types of the broader region, it is considered that the nominated property is of major global significance in comparison to other areas.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

In terms of legal protection, the component parts of the nominated property are comprised of protected areas of various IUCN categories (see Table 1), owned by the nominating States Parties, and each with relevant legal protection under the respective legal frameworks within their countries. Regulatory compliance is ensured by the relevant authorities across the three nominating States Parties. Whilst many of the nominated component parts are very remote, and far from any communities, the protected areas comprising the nominated component parts have mechanisms in place for engaging and consulting communities on issues relating to regulations, management planning and activities associated with management.

Kazakhstan
The Altyn Emel cluster is located in the Altyn-Emel National Park (IUCN Category II), and the nominated component parts 1, 2 and 3 correspond to the strictly protected areas of the national park, connected by a buffer zone. The nominated component parts 4, 5 and 6 of the Barsakelmes cluster likewise correspond to the strictly protected areas of the Barsakelmes State Nature Reserve, each also with buffer zones. As each of the nominated component parts in Kazakhstan are within larger protected areas (Altyn-Emel National Park and the Barsakelmes State Nature Reserve), an additional layer of protection is afforded for each of the components beyond the boundaries of the respective buffer zones.

Turkmenistan
The Bereketli Garagum nominated component part (component part 7) is covered by Bereketli Garagum State Nature Reserve with its Sanctuary Minara. The nominated component part of Gaplangyr (component part 8) is composed of three protected areas, namely the Gaplangyr SNR (IUCN Category Ia;), the Sarykamysh Nature Sanctuary (IUCN Category IV), and the Shasenem Nature Sanctuary (IUCN Category IV), with partial protection provided by a buffer zone limited to the south western area outside the nominated component part. There is some concern regarding the IUCN Category IV Protected Areas in Turkmenistan (Sarykamysh and the Shasenem nature sanctuaries) due to the expiration of their protective status in 2024, and therefore the legal status of both nature sanctuaries should be upgraded to ensure permanent protection. Based on the supplementary information provided, IUCN notes that the respective process has been launched in this regard through a letter from Gaplangyr State Nature Reserve to the Ministry of Agriculture and Environmental Protection of Turkmenistan. The East Garagum cluster is composed of Repetek (nominated component part 9) and Yeradzhi (nominated component part 10), which correspond with the Repetek State Nature Reserve and the Yeradzhi Sanctuary.

Uzbekistan
In the Northern Ustyurt cluster (nominated component parts 11-14), the nominated component parts are protected within the boundaries of the Saigachy complex (landscape) reserve, which is managed as a wilderness area (IUCN Category Ib). The cluster is arranged as four nominated component parts which represent integrated ecosystems (large landscape units) that form intact natural complexes, including the connections between them. As noted above and further below, the impacts of the drying of the Aral Sea to the nominated areas of Saigachy-Duana (nominated component part 13) and Saigachy-Zhideyli (nominated component part 14) are of significant concern.

The Southern Ustyurt component part corresponds with the newly created Southern Ustyurt National Park. Whilst the nominated component part does not benefit from a buffer zone, as Uzbek legislation does not provide for buffer zones for National Parks, the remote location of the nominated component part provides a high degree of protection from activities within the local vicinity of the nominated component part.

Whilst all nominated component parts meet protection requirements, which is also facilitated by the remote location of the nominated component parts affording them with a high degree of protection from direct development pressures, there are component parts of the nominated property that have suffered from the impacts of the drying of the Aral Sea, which caused widespread desiccation and salinization as well as a

dramatic loss of plants, fish and invertebrate fauna (see also sections 3, 4.2, 4.3 and 4.5).

IUCN considers that the protection status of the nominated property meets the requirements of the *Operational Guidelines* in the all of the nominated components.

4.2 Boundaries

The nominated property comprises fifteen component parts (arranged in 4 clusters and 3 single component parts, see Table 1) covering a total of 3,368,741 hectares (ha), with a total buffer zone area of 628,663 ha, located across the extensive region between the Caspian Sea and the Turkestan high mountains system.

Kazakhstan
The Altyn-Emel cluster (nominated component parts 1-3) includes three nominated component parts (Altyn-Emel East (component part 1), Central (component part 2 and West (component part 3)) that correspond to the strictly protected areas of the Altyn Emel National Park. The Barsakelmes cluster covers 163,126 ha in total and includes the Barsakelmes Island (component part 4); Kaskakulan (component part 5) and Delta (component part 6) nominated component parts, which correspond to the strictly protected areas of the Barsakelmes State Nature Reserve. The Barsakelmes Island nominated component part (component part 4) includes the former territory of the Barsakelmes island (16,975 ha) expanded through the addition of the former seabed of the Aral Sea. The Kaskakulan nominated component part has an area of 109,942 ha and also covers areas previously in the Aral Sea. The Delta component (component part 6) was a recent addition to the State Nature Reserve and occupies the wetlands of the avandelta of the Syrdarya river that formed following the construction of the Kokaral dam.

Turkmenistan
The Bereketli Garagum nominated component part (component part 7) has an area of 87,400 ha in the Central (Low-lying) Karakum desert, 240 km north from the capital of Ashgabat and comprises ridged sandy and takyr complexes, intracontinental solonchak desert, and clay desert with classical aeolian landforms. The Gaplangyr nominated component part (component part 8) occupies 926,203 ha of the north-western part of the Gaplangyr plateau, in the transitional area between the northern and southern deserts in north-western Turkmenistan. The East Garagum cluster is formed of the nominated component parts of Repetek (component part 9) and Yeradzhi (component part 10). Repetek covers 34,600ha of the Eastern Karakum desert, the southern subzone of the Karakum desert, 70 km southwest of Turkmenabad, whereas Yeradzhi is at 30,000 ha in total and is located 70 km northwest of Repetek, and 90 km from Turkmenabad. The boundaries of two component parts in Turkmenistan (Gaplangyr and Repetek; nominated component parts 8 and 9) do arguably not follow the ecological processes or landscape features present in the area. Therefore, the State Party of Turkmenistan could be encouraged to consider developing a proposal to modify the boundaries of these nominated component parts to align with the natural features of the landscape.

Uzbekistan
The Northern Ustyurt cluster (nominated component parts 11-14) corresponds with the Saigachy Wilderness Complex. The cluster is formed of four separate components which correspond with the boundaries of the complex and are managed as a wilderness area (IUCN Protected Area Category Ib). The cluster has an area of 628,300 ha, with an additional 219,800 ha of buffer zone occupying the most northerly part of the Uzbek Ustyurt plateau. The cluster is comprised largely of the Kassarma elevation, although areas to the east overlap with the northern Ustyurt depression to the west and the chinks leading down to the Aral Sea to the east.

The Southern Ustyurt nominated component part (component part 15) is comprised of the newly created Southern Ustyurt National Park. With an area of 1,447,143ha, the component borders Kazakhstan to the west and Turkmenistan (and the Gaplankyr nominated component part (component part 8)) to the south. The northern boundary runs along the northern boundary of Assake-Audan depression, and the eastern border passes along the conditional line from the Shorzha Depression through Lake Sarykamysh. The nominated component part does not have a formal buffer zone identified due to the lack of national legislation to formally identify buffer zones for national parks. Noting the gas developments in the vicinity (in particular Chakhpakhty gas station), the State Party of Uzbekistan should be encouraged to develop a buffer zone for this component part.

The field evaluation mission found that the boundaries of the nominated serial property encompass intact examples of each of the ecological-physiographic vegetation types as well as the main desert zones of Central Asia within legally protected areas with a high degree of integrity due to their location and remote location. However, as noted above, the nominated component parts in the Barsakelmes cluster, and the Saigachy Duana and Saigachy- Zhideyli components of the Northern Utsyurt cluster cannot be recommended for inscription as part of the nominated property given their location in areas formerly of the Aral Sea and the high degree of ecosystem degradation that has occurred in these specific areas. Whilst the succession in the period since the onset of the drying of the Aral Sea has resulted in the establishment of species which would, in theory, be part of a climactic community, the absence of other key species which used to be present prior to the drying of the Sea (e.g. ungulates species) demonstrates the lack of integrity which persists in these areas marked by the widespread desiccation, salinization and contamination along with a dramatic loss of plants, fish and invertebrate fauna. These impacts have led to the former Aral Sea ecosystem to have collapsed according to the IUCN Red List of

Ecosystems. The nominated component parts located in areas formerly of the Aral Sea cannot therefore be considered to be of Outstanding Universal Value in relation to integrity requirements and their biodiversity values. For this reason, that nominated component parts in the Barsakelmes cluster, and the Saigachy Duana and Saigachy-Zhideyli component parts of the Northern Ustyurt cluster cannot be recommended for inscription as part of the nominated property

IUCN considers that the boundaries of the Altyn-Emel East; Altyn Emel Central; Altyn-Emel West; Bereketli Garagum; Gaplankyr; Repetek; Yeradzhi; Saigachy; Saigachy-Beleuli; Southern Ustyurt (nominated component parts 1, 2, 3, 7, 8, 9, 10, 11, 12 and 15) and buffer zones meet the requirements of the *Operational Guidelines*. However, the Barsakelmes Island; Kaskakulan; Delta; Saigachy-Duana and Saigachy-Zhideyli (nominated component parts 4, 5, 6, 13 and 14) do not meet the requirements of the *Operational Guidelines*.

4.3 Management

As the nominated property includes component parts across three countries, each with their own distinct legal protection regimes and corresponding management systems, the management is varied across the nominated property. However, each of the nominated component parts benefit from well-defined management plans and governance frameworks for the nominated component parts as well as committed staff with increasing technical capacities in essential areas of expertise (e.g. environmental monitoring). Improvements to the protection and management capacity for certain nominated component parts will be necessary for the effective conservation of the nominated property's values in the long term, and are discussed below in more detail.

Kazakhstan
The Altyn-Emel National Park is managed according to the Altyn-Emel Management Plan, and the General Plan for the Development of Infrastructure, including long-term objectives for integrated sustainable management of the national park and the surrounding area, ensuring the preservation of ecosystems, biological and landscape diversity, their limited and scientifically-based use for the purposes of environmental education, research, tourism, recreational and limited economic purposes.

In the Barsakelmes State Nature Reserve, there is also a Management Plan in place, which sets out annual Action Plans approved by the Scientific and Technical Council of the reserve. The management goal is to preserve typical, rare and unique natural ecosystems with all their nominated component parts.

Both Protected Areas encompassing the nominated component parts are also designated as UNESCO Biosphere Reserves and have established Public Committees. These Committees are functioning well according to both local community representatives and Protected Area staff consulted during the mission. The Committees allow for consultation on Protected Area management planning and activities as well as for local communities to raise issues of concern.

Turkmenistan
The priority conservation objectives within the nominated component parts in Turkmenistan are addressed through implementation of annual work plans aimed at patrolling and enforcing laws, monitoring components of the environment as well as key species of flora and fauna, raising awareness and education, strengthening the capacity of the reserve staff and preparing scientific reports.

Plans for the nominated component parts have been developed in consultation with key stakeholders. The structure and content of the Management Plans is in line with the internationally established standards or best practice and include the basic information to guide the Protected Area authorities in managing the proposed component parts. In all three management plans for the nominated component parts there is a separate programme on governance to ensure the participation of border land users and the public in the environmental activities of the reserves.

Capacity constraints have been noted in the nominated component parts of Turkmenistan. In particular, there is a need for training and additional human resources for legal enforcement, research and monitoring of component parts, as well as essential equipment for functioning management activities.

Uzbekistan
Management plans set out the relevant programs in order to conserve the values of the nominated component parts in Uzbekistan. These are well defined, and appear to be implemented by the relevant staff according to the system outlined. Capacity constraints have limited the implementation of the items related to scientific monitoring in the nominated component parts 11, 12, 13 and 14, as the reserve does not currently employ a scientific department. It is considered that there is a requirement for capacity building and training for the effective management in this regard, as well as to augment the capacity for other essential management requirements such as patrolling (especially should the ungulate populations increase within the nominated property, as envisaged).

For the Southern Ustyurt nominated component part, as the national park which forms this component was only established in 2020, the management plan is the first such plan, and therefore capacity development is a priority in order to establish the systems and activities required for the conservation of the national park. Whilst capacity constraints in terms of equipment (i.e. vehicles, cameras etc.) were noted by members of staff for the NP during the evaluation mission, it was considered that the staff are equipped to function in their intended operations and fulfil the necessary tasks for the conservation of the nominated component part, noting also that the management plan is tailored for capacity building, given the recent establishment of the national park.

There is a well-defined governance structure for the nominated component parts in Uzbekistan, including opportunity for local communities to engage in the management of the nominated component parts. The nominated component parts are managed by the State Committee for Ecology, in addition to local forestry administrations and a fishing cooperative in the case of the Southern Ustyurt nominated component part. The State Committee for Ecology are responsible for the regulatory and legal protection of the Protected Area at the national and local administrative levels. Each component also has an advisory committee consisting of representatives of land users, non-governmental non-profit organizations and citizens.

In the joint Memorandum of Understanding (MoU), signed on 10 January 2022 by the nominating States Parties, there is a commitment to establish effective transnational management and protection mechanism according to the *Operational Guidelines* and objectives set out by the *World Heritage Convention*. To coordinate transboundary management, the State Parties have agreed to establish a regional Joint Steering Committee (JSC) consisting of representatives of the authorities responsible for the protection and management of the nominated property, should the nominated property be inscribed on the World Heritage List (see Section 5.1c, below). This Committee will be responsible for the international coordination of the work undertaken on the nominated property and will coordinate the management of the site across scales (from site level to international) through the structures put in place in its operation.

There are a number of current and future projects that support management of the nominated component parts. Monitoring and patrolling (using the Spatial Monitoring and Reporting Tool (SMART)) has been introduced in a number of nominated component parts, in addition to staff training and equipment provision, through initiatives such as the Central Asian Desert Initiative (jointly implemented between the University of Greifswald; Michael Succow Foundation and the German Federal Ministry of Economic Cooperation and Development), alongside additional transboundary knowledge sharing and training initiatives between staff of the nominated component parts. Further similar projects that will support management are set to begin in the near future, which should be encouraged by the Committee.

Overall, the nominated component parts have adequate management plans in place to meet the requirements in conserving the values for which the property is nominated. There are limited concerns for some nominated component parts in terms of the capacity to implement the plans. Therefore, the States Parties should ensure continued capacity development relative to the threats, size of the areas and future development and management objectives, in particular related to any future tourism development.

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

4.4 Community

Given the remote location of the nominated component parts, there are reportedly no local communities within the nominated property, with very few communities within its vicinity. These local communities are afforded the right to information, consultation and consent as well as engagement in decision-making processes through mechanisms established as integral parts of the governance and management planning structure of the nominated component parts. As the nominated component parts are exclusively owned by the respective nominating States Parties, there are no tenure rights within the nominated area, although grazing of livestock and other forms of natural resource use are reportedly permitted within some nominated component parts in certain periods (especially during times of drought), which supports livelihoods and benefit-sharing in times of necessity for surrounding communities through appropriate regulation and management.

4.5 Threats

A major concern with regards to previous impacts of past development for the protection of the nominated property is the drying of the Aral Sea. This is relevant for nominated component parts in the Barsakelmes cluster and Saigachy-Duana and Saigachy Zhideyli nominated component parts, which are located within the former area of the Aral Sea. The decrease in area of the Aral Sea by around 75% is considered to be a major environmental disaster and led to significant impacts throughout the region, including within the above-mentioned nominated component parts. These include soil contamination through winds spreading large amounts of dust from the dry bottom of the former lake containing sea salt, pesticides and other chemicals, including within nominated component parts of the property in the Barsakelmes cluster and the Saigachy-Duana and Saigachy-Zhideyli nominated component parts.

Whilst some areas of the nominated property were previously developed mostly for livestock production, land use intensity was low and therefore the residual impacts are not considered to be of significant concern. However, recent linear infrastructure development poses a threat to a number of the nominated component parts, most notably the Repetek component (nominated component part 9), where the M37 highway and the Turkmenabad-Ashgabat-Bereket-Turkmenbashy railway bisect the nominated component part, with significant implications for the connectivity between the two resulting sections of the nominated component part, in particular for large mammal migration. There is also a network of dirt tracks crossing the nominated component parts in Uzbekistan which remain from previous and no longer active development of the region. These roads have

been shown to have minor impacts on the flora of the nominated component parts. Given the sparse distribution and limited use within the nominated component parts, this is not considered a major threat to the natural values of the nominated component parts. A 15 km long canal is located within the Yeradzhi nominated component part, which has resulted in a complex of lakes that have partly submerged the relict black saxaul woodland, although mostly outside of the nominated component parts.

Poaching represents one of the main threats to the nominated component parts, in particular towards ungulate species that represent key attributes for which the property is nominated (e.g. Saiga, Goitered Gazelle). Poaching has caused the historical decline of populations of almost all ungulate species throughout these nominated component parts, which have still not recovered to historical levels, and continues to the present day. Patrolling efforts are undertaken by the respective management authorities across the components. However, capacity is relatively limited and although rangers are being trained in SMART patrolling methods, equipment is also lacking in instances where poachers are observed and caught.

Border fences adjoin the nominated component parts where they are located at national borders. This is the case along the northern boundary of the Northern Ustyurt cluster (nominated component parts 11-14) which sits at the border of Kazakhstan and Uzbekistan; and the southern and western boundaries of the Southern Usyturt nominated component part (component part 15) which sit along the borders of Uzbekistan with Turkmenistan and Kazakhstan, respectively. These fences, which vary in composition, but all of which are significant barriers, prevent natural migration and movement of large terrestrial mammals, notably the ungulate populations that represent an important element of the potential OUV of the property. Mitigation measures are in place in some locations. There is a 15 km gap in the fence adjoining the northern Ustyurt cluster and another 11 km gap is due to be opened shortly in a location thought to be a key migration corridor for saiga, but there are no gaps in the fence adjoining the Southern Ustyurt component. Recommendations have been developed, and appear to be supported in principle by the nominating States Parties, to further increase connectivity by removing further fences in key locations and altering existing structures to facilitate greater movement of large mammals between nominated component parts. It is therefore recommended that the States Parties endeavour to promote the recovery of ungulate populations, where relevant, and promote the connectivity between nominated component parts to restore the integrity of these migratory processes.

Grazing by livestock within the nominated property, although not permitted, occurs occasionally in a number of nominated component parts. Moreover, overgrazing by livestock in the areas outside the nominated property affects the availability of food for species which are nominated as attributes of the proposed OUV (ungulates) and unattended livestock are known to occasionally wander into the nominated component parts, in particular in the nominated component parts in Turkmenistan. Other forms of natural resource use, including collecting of deadwood of saxaul trees and medicinal plants (e.g., *Ferula spp*.) was also reported in all nominated components in Turkmenistan.

There are plans for tourism development for across the nominated component parts, however they cannot be considered a significant threat at present as there is currently very limited if no tourism across most of the nominated component parts. Given the remote location of the nominated component parts, mass tourism is not feasible and therefore the proposals are mostly centred around a low-visitor, high-value model. There are currently small accommodation (yurt camps) existing or approved for construction in various locations across the nominated component parts (e.g. within the recreational zone of the Southern Ustyurt nominated component part).

Based on the field visits undertaken by the field evaluation mission to all nominated component parts, the overall threat level is considered low, with the exception of those associated with the desiccation of the Aral Sea and the subsequent collapse of the ecosystem. This is due to the limited presence of these threats across the nominated property of considerable size (i.e. grazing activities are limited to certain areas or occur only occasionally) or because the threats are associated with past development, from which the natural ecosystems have already undergone a high degree of recovery. Mitigation measures in place to address the other threats (such as the anti-poaching patrols and improvements to border fence infrastructure) and the relevant planning instruments (impact assessment legislation and procedures) to ensure future tourism-related developments do not become significant threats in the future will also ensure that current and future threats are appropriately addressed.

In summary, IUCN considers that the nominated property meets protection and management requirements, and that integrity requirements of the *Operational Guidelines* are met in Altyn-Emel East; Altyn Emel Central; Altyn-Emel West; Bereketli Garagum; Gaplankyr; Repetek; Yeradzhi; Saigachy; Saigachy-Beleuli; Southern Ustyurt (nominated component parts 1, 2, 3, 7, 8, 9, 10, 11, 12 and 15), but not in Barsakelmes Island; Kaskakulan; Delta; Saigachy-Duana and Saigachy-Zhideyli (nominated component parts 4, 5, 6, 13 and 14).

5. ADDITIONAL COMMENTS

5.1 Consideration in relation to serial properties

a) What is the justification for the serial approach?

The serial approach for the nominated property is justified by the representation of the different subtypes of desert within corresponding nominated component parts, which together include examples of the full

range of morphological, physiological and behavioural adaptation strategies to Turan deserts. Across the nominated component parts, examples of most of the ecological-physiographic vegetation types in the Turan deserts are represented, including sagebrush and perennial saltwort vegetation in clay and stony deserts; psammophytic vegetation, saxaul shrubs and woodland in sandy deserts; salt vegetation on solonchak soils.

The 15 nominated component parts, in four clusters and three single components, are protected areas with well-organized management structures and have been nominated as the most intact examples of each the ecological-physiographic vegetation types as well as the main desert zones of Central Asia.

The nomination presents the Barsakelmes cluster and the Saigachy-Duana and Saigachy-Zhideyli nominated component parts as examples of how primary succession on virgin land represents the development of desert ecosystems (namely in the formation of the Aralkum desert ecosystems). However, as discussed above, these systems cannot be considered intact, given their listing on the IUCN Red List of Ecosystems as 'collapsed'. Therefore, their inclusion within the nominated property cannot be justified under the serial approach, as these areas do not fulfil the integrity requirements to be considered of OUV.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the Operational Guidelines?

The components of the nominated property are located across several thousand kilometres, stretching from nominated component parts in Turkmenistan and Uzbekistan, to the Altyn Emel National Park close to the Kazakh-China border thousands of kilometres from the nearest other nominated component parts. The distance between the Altyn Emel cluster and the remaining nominated component parts which are relatively close to each other is particularly stark. Despite the issue of poor connectivity between Altyn Emel and the remaining nominated component parts, given the distance between them, the inclusion of the Altyn Emel cluster within the nominated property is justified as the only example of foothill steppified deserts (semi-desert) in the property, including distinct altitudinal variation in species and habitats within the cluster, and therefore completes the range of desert types emblematic of the cold winter deserts of Central Asia.

Within Kazakhstan, the individual nominated component parts of the Altyn-Emel National Park cluster are functionally linked by a buffer zone, or reserved lands that allow for the movement of animals through natural habitat. For the Delta component of the Barsakelmes cluster, there is minimal functional linkages with the other clusters in the State Nature Reserve. The site is a wetland and part of the Small Aral Sea and there are minimal linkages with the other two nominated desert component parts within the State Nature Reserve.

There seems to be a functional ecological connectivity between nominated component parts 9 and 10. The Management Plan for East Garagum components proposes to establish new Protected Areas between the two nominated component parts to maintain or strengthen ecological connectivity. Nominated component part 8 in Turkmenistan is contiguous with nominated component part 15 in Uzbekistan, but the ecological connectivity between them has been impaired by the wire fence running along the state border. The Management Plan for nominated component part 8 notes that the government needs to ratify the Bonn Convention on Migratory Species of Wild Animals (CMS), to provide a legal basis for opening up ecological corridors along the state border with Uzbekistan and to allow for "natural migrations of ungulates".

The Southern Ustyurt nominated component part (component part 15) is also contiguous with the Gaplankyr nominated component part (component part 8) component in Turkmenistan, and therefore can be considered to be linked in this regard. However border fences which span almost the entire border between the three nominating States Parties remain a barrier to the migration of large mammals that are proposed as attributes conveying OUV. There has been progress in promoting better connectivity through the opening of sections of the border fence between Uzbekistan and Kazkahstan, with one more opening proposed in the near future. Furthermore, Uzbekistan is an active member of the CMS (and host of the 14th meeting of the Conference of the Parties in October 2023), however there is still much to be achieved in promoting transboundary cooperation to facilitate greater migration of species across the borders of the countries.

The transboundary arrangement of the nominated property should promote the further recovery of migratory ungulate species, alongside existing regional conservation initiatives, and the States Parties should be encouraged to continue efforts to improve connectivity between nominated component parts, including through the potential further extension of the nominated property, in particular the existing and proposed protected areas in the Southern Ustyurt area of Kazakhstan and by continued efforts in understanding transboundary migration patterns.

c) Is there an effective overall management framework for all the component parts of the nominated property?

A Steering Committee to oversee the transboundary element of the management of the nominated property will be established, if inscribed. A Memorandum of Understanding has been signed by the respective States Parties to promote common approaches to monitoring, promoting World Heritage status and supporting staff capacity and training as well as coordinating approaches to enhancing connectivity between the clusters and the wider landscape. The mechanism for coordination is set out in the nomination with the relevant national governmental agencies of each State Party serving as focal points on

the regional committee, drawing upon the relevant information, resources and expertise within their given country and nominated component parts. However, no budget has been allocated by the governments for the Steering Committee. It is therefore recommended, should the property be inscribed, that the States Parties establish the Steering Committee immediately, including the sufficient allocation of budget for its operation.

6. APPLICATION OF CRITERIA

The **Cold Winter Deserts of Turan (Kazakhstan, Turkmenistan, Uzbekistan)** has been nominated under natural criteria (ix) and (x).

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

The nominated property includes five component parts, which are impossible to meet any integrity requirement as they are located within areas heavily affected by the drying of the Aral Sea: Barsakelmes Island; Kaskakulan; Delta; Saigachy-Duana and Saigachy-Zhideyli. Given their previous status as parts of a lacustrine ecosystem alongside the numerous impacts associated with the desiccation of the Sea, the area covered by the nominated component parts of the former Aral Sea cannot be considered intact. The ecosystem is considered to have 'collapsed', according to the IUCN Red List of Ecosystems.

In contrast, the remaining ten nominated component parts include ecosystems representing an intact and outstanding example of the evolution and adaptation of terrestrial ecosystems to extreme climate conditions and of the development of survival strategies of plants and animals as ongoing ecological and biological processes, with the exception of those located in the area formerly covered by the Aral Sea. The nominated property hosts a diversity of desert communities, comprised of species that have developed adaptation strategies for survival in the extreme climatic conditions of the deserts of Central Asia. These include unique ecological features and ecosystems well adapted to desert environments, including typical vegetation types of the Turanian deserts, which correspond with the different soil types and microclimatic and environmental conditions, with multiple desert subtypes occurring within and across nominated component parts to encompass the broad range of desert types across Central Asia. The nominated property therefore contains the full range of morphological, physiological and behavioural adaptation strategies of the regional Central Asian desert systems, and their ongoing ecological processes. Communities include saxaul woodland, sagebrush, saltwort, psammophytic and solonchak deserts, each displaying taxonomic diversification and morphological convergence of plants, and together constitute part of the critically endangered Central Asian Deserts priority ecoregion which is not currently represented on the World Heritage List. Animals throughout the nominated property display a range of morphological, physiological and behavioural adaptations to survive, including seasonal migrations of large mammals.

IUCN considers that the nominated property meets this criterion in the nominated component parts of Altyn-Emel East; Altyn Emel Central; Altyn-Emel West; Bereketli Garagum; Gaplankyr; Repetek; Yeradzhi; Saigachy; Saigachy-Beleuli; Southern Ustyurt (nominated component parts 1, 2, 3, 7, 8, 9, 10, 11, 12, and 15), but not in Barsakelmes Island; Kaskakulan; Delta; Saigachy-Duana and Saigachy-Zhideyli (nominated component parts 4, 5, 6, 13 and 14).

Criterion (x): Biodiversity and threatened species

As noted above, IUCN considers that the complete loss of integrity of the nominated component parts of Barsakelmes Island; Kaskakulan; Delta; Saigachy-Duana and Saigachy-Zhideyli precludes them as intact habitat, given the changes that occurred to the Aral Sea that are widely recognised as an environmental disaster, with impacts also to the surrounding areas through soil contamination and salinization and regional climatic changes.

The nominated property is important for the conservation of desert species of Central Asia. The species diversity, particularly of mammal, bird and reptile, is high in comparison to other World Heritage properties found in the same Palearctic Deserts and Xeric Shrublands biorealm. It also shows high rates of endemism for the Turanian region, hosts many globally threatened species, and overlaps with two Important Bird Areas and two Key Biodiversity Areas, none of which are yet represented on the World Heritage List. The nominated property contains diversity hotspots for plant genera that are representative of the specific desert assemblages across the entire region, including the diversity hotspots of *Chenopodiaceae* alongside *Artemisia, Calligonum, Salsola, Zygophyllum* and *Limonium* families. The Cold Winter Deserts of Turan are also the habitat of globally threatened mammals such as Kulan (*Equus hemionus kulan*, EN), Goitered Gazelle (*Gazella subgutturosa*, VU), Saiga (*Saiga tatarica*, CR) and Urial (*Ovis vignei arkal*, VU) and also host numerous breeding birds, and contain important resting places of migrating bird species as well as other desert adapted species, including herpetofauna and insects.

IUCN considers that the nominated property meets this criterion in Altyn-Emel East; Altyn Emel Central; Altyn-Emel West; Bereketli Garagum; Gaplankyr; Repetek; Yeradzhi; Saigachy; Saigachy-Beleuli; Southern Ustyurt (nominated component parts 1, 2, 3, 7, 8, 9, 10, 11, 12, and 15), but not in Barsakelmes Island; Kaskakulan; Delta; Saigachy-Duana and Saigachy-Zhideyli (nominated component parts 4, 5, 6, 13 and 14).

7. RECOMMENDATIONS

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

The World Heritage Committee,

1. Having examined Documents WHC/23/45.COM/8B and WHC/23/45.COM/INF.8B2,

2. Inscribes the **Cold Winter Deserts of Turan, Kazakhstan, Turkmenistan, Uzbekistan,** comprising the following component parts: Altyn-Emel East, Altyn Emel Central, Altyn-Emel West, Bereketli Garagum, Gaplankyr, Repetek, Yeradzhi, Saigachy, Saigachy-Beleuli and Southern Ustyurt, on the World Heritage List on the basis of **criteria (ix)** and **(x)**;

3. Adopts the following Statement of Outstanding Universal Value:

Brief synthesis

The Cold Winter Deserts of Turan is a transnational serial property shared by Kazakhstan, Turkmenistan, and Uzbekistan. The property comprises ten component parts distributed across arid areas of Central Asia's temperate zone between the Caspian Sea and the Turanian high mountains system. The property is subject to extreme climatic conditions with minimal levels of precipitation, very cold winters and hot summers. In spite of these extreme conditions, the property boasts an exceptionally diverse flora and fauna that has adapted to the harsh conditions. The property also represents a considerable diversity of desert ecosystems, their evolution, functions and natural dynamics, covering Turan Deserts from the mountain depressions and piedmonts of Altyn-Emel to the gypsum deserts of Southern Ustyurt, spanning a distance of more than 1,500 kilometres from East to West. Each of the component parts has its own specifics, and at the same time, they complement each other in terms of biodiversity, desert types, and ongoing ecological processes. The property holds a vast area of 3,174,415 hectares, with buffer zones adding up to a total of 320,819 hectares.

Criterion (ix)

The serial property represents the cold winter deserts as an outstanding example of the development of terrestrial ecosystems in extreme climate conditions and of the evolution of survival and adaptation strategies of plants and animals as ongoing ecological and biological processes. The ten component parts include diverse geomorphological desert types, which are reflected by different ecosystems. It is representative of most of the ecological-physiographic vegetation types in the Turan deserts: sagebrush and perennial saltwort vegetation; psammophytic vegetation, i.e. desert grasses; saxaul shrubs and woodland. Taxonomic diversification and morphological convergence of plants are significant ongoing biological processes. Saxaul woodland demonstrates the ability of desert ecosystems for ongoing carbon sequestration and storage. Morphological, physiological and behavioural adaptations ensure survival of animal life as a fundamental ongoing process within the cold winter deserts of Turan. The component parts are important to the migration of migratory birds and ungulate species and serve as node points for migratory species and their dispersal across wider areas in the region.

Criterion (x)

The serial property hosts very specific and diverse flora and fauna, adapted to the extreme climatic conditions of the Cold Winter Deserts of Turan. The species diversity is high, including diversity hotspots of Chenopodiaceae *and plant genera of different families such as* Artemisia*,* Calligonum*,* Salsola*,* Zygophyllum *or* Limonium*, including a high share of endemic species. The property hosts numerous breeding birds, and important resting places of migrating bird species, as well as desert-adapted herpetofauna and insects. The Cold Winter Deserts of Turan are the habitat of globally threatened mammals, such as Goitered Gazelle, Saiga and Urial. Further important species that occur in component parts of the property include Kulan, Snow Leopard, Marbled Polecat and Striped Hyena as well as Asian Houbara, Great Bustard, Saker Falcon, White-headed Duck and Egyptian Vulture.*

Integrity

The property's ten component parts are representative of the Turanian cold winter deserts. They include the most intact examples of desert ecosystems within legally protected areas. The serial property covers a total of 3,174,415 hectares, with some component parts benefitting from buffer zones with a combined area of 320,819 hectares. The ecosystems fulfil their ecological functions, and host the characteristic plant and animal diversity of cold winter deserts.

Most of the ten component parts are very remote and far from settlements. However, historical population decline of ungulate species has occurred across the region due to poaching, and significant barriers to migration exist through the border fencing, causing disruption to migratory routes. Further threats to the property include linear infrastructure, such as tracks, roads, railways and canals, affecting connectivity as well as continued poaching and grazing by livestock. Overgrazing by livestock in the areas outside the property can also cause threats to ungulates as it affects their food source availability. The overall threat level is low at the time of inscription but these threats will require close attention, including through monitoring and mitigation action.

Protection and management requirements

All ten component parts of the property are publicly owned and protected by the relevant national legislation of Kazakhstan, Turkmenistan and Uzbekistan and managed on the basis of specific management plans by state administrations under the responsibility of the relevant ministries. It will be

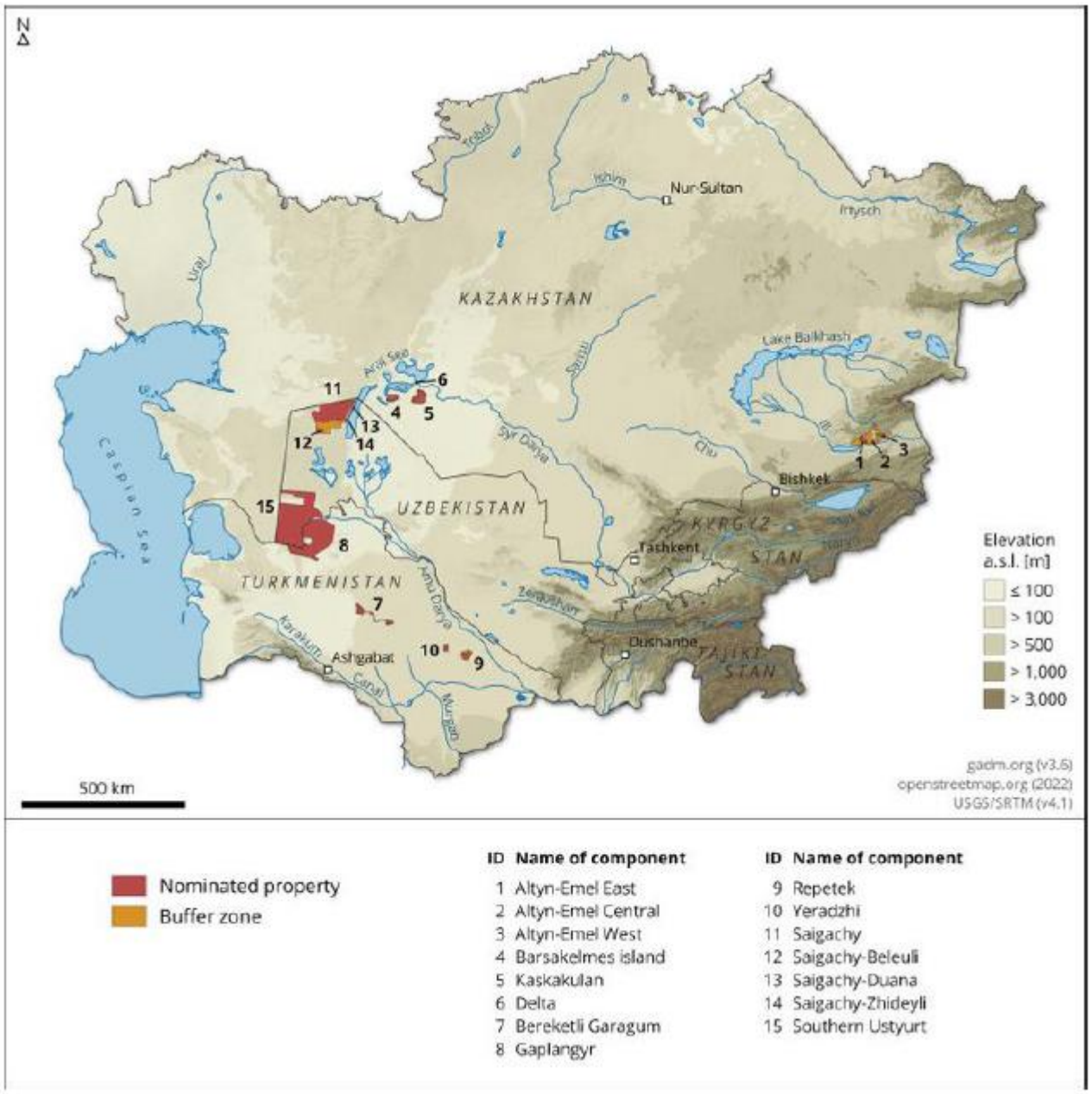
essential for each component part of the property to maintain the strict protection regime in the long term. The three component parts of the Altyn Emel cluster in Kazakhstan are encompassed by the Altyn-Emel National Park. The component parts in Turkmenistan are fully covered by Nature Sanctuaries and State Nature Reserves. In Uzbekistan, the Southern Ustyurt component part corresponds with the Southern Ustyurt National Park whilst the component parts of Saigachy and Saigachy-Beleuli are covered by the Saigachy complex (landscape) reserve, which is managed as a wilderness area.

The priority management objective for all ten component parts is to ensure the ecosystem integrity of desert landscapes, including their biological diversity of plants and animals. Each of the component parts benefit from well-defined governance frameworks and management plans as well as staff with growing technical capacities in essential areas of expertise. There are various projects in support of the management of the component parts, including on monitoring and patrolling which will need to be continued along with continued capacity development in relation to the threats, size of the areas and future management objectives, including sustainable tourism not exceeding the carrying capacity and affecting the fragile desert ecosystem.

The transnational management will be ensured by a Joint Steering Committee with responsible representatives of all three States Parties on the basis of a Memorandum of Understanding, signed on 10 January 2022. The Memorandum commits the States Parties of the property to effective transnational management and protection mechanisms, according to the Operational Guidelines*. The joint management is to be implemented and coordinated through the Joint Steering Committee, including through exchanges on the individual and national management plans, by staff exchange, joint public awareness campaigns and environmental education. It is important that the Joint Steering Committee also coordinates approaches to enhancing connectivity between the component parts and the wider landscape and that sufficient budget is allocated by the governments.*

4. Requests the States Parties to ensure the protection and management of the Outstanding Universal Value is guaranteed in the long term, including by:
   a) Increasing the connectivity between the component parts of the property and with the wider ecosystem, including by removing and mitigating barriers to large mammal migration,
   b) Ensuring the legal protection of each component part and each buffer zone is maintained in the long term,
   c) Allocating sufficient funding to the Joint Steering Committee, strengthening the transnational and transboundary management of the property, including through regular exchange and capacity-building and research and monitoring across the ten component parts of the property, including on transboundary migration patterns.

Map 1: Nominated property and buffer zones



ID	Name of component
1	Altyn-Emel East
2	Altyn-Emel Central
3	Altyn-Emel West
4	Barsakelmes island
5	Kaskakulan
6	Delta
7	Bereketli Garagum
8	Gaplangyr

ID	Name of component
9	Repetek
10	Yeradzhi
11	Saigachy
12	Saigachy-Beleuli
13	Saigachy-Duana
14	Saigachy-Zhideyli
15	Southern Ustyurt

EUROPE / NORTH AMERICA

ANTICOSTI

CANADA

Anticosti © IUCN / Sophie Justice

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

ANTICOSTI (CANADA) – ID N° 1686

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

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

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2022

b) Additional information officially requested from and provided by the States Parties: Following the session of the IUCN World Heritage Panel, a progress report was sent to the States Parties on 25 January 2023. This letter advised on the status of the evaluation process and requested supplementary information on Anticosti's protected areas, the involvement of the Ekuanitshit and Nutashkuan First Nations, a reorganisation of the Government of Quebec and on the staffing for the nominated property. The supplementary information was provided by the State Party on 28 February 2023, including direct responses from representatives of the Ekuanitshit and Nutashkuan First Nations.

c) Additional literature consulted: IUCN's evaluation consulted a wide array of relevant reference material for the geology, protection and management as well as the comparative values of the nominated property. References included: Bureau d'audiences publiques sur l'environnement (2022). Rapport 367. Projet de désignation de réserve de biodiversité d'Anticosti. Rapport d'enquête et de consultation ciblée. Quebec. Canada. https://www.quebec.ca/nouvelles/actualites/details/reserve-de-biodiversite-danticosti-le-bape-publie-son-rapport-43341; Cloutier, R. and Lelièvre, H. (1998). Étude comparative des sites fossilifères du Dévonien. France. https://www.researchgate.net/publication/282859522_Etude_comparative_des_sites_fossiliferes_du_Devonien; Crofts, R. et al. (2020) Guidelines for geoconservation in protected and conserved areas. IUCN Best Practice Protected Area Guidelines Series No. 31. Gland, Switzerland: IUCN https://doi.org/10.2305/IUCN.CH.2020.PAG.31.en; Dingwall, P. et al. (2005). Geological World Heritage : a global framework : a contribution to the global theme study of World Heritage Natural Sites. Gland : IUCN, 2005 https://portals.iucn.org/library/node/12797; Lefebvre, B. and Ausich W. I. (2021). New Siluro-Devonian Anomalocystitids (Echinodermata, Stylophora) from Bolivia and Canada, and a Reevaluation of Skeletal Homologies in Mitrates. Paleontological Journal, 55, 9, 932–965. https://doi.org/10.1134/S0031030121090070; Lévesque, J. (2021). Validation des concepts du projet destination écotouristique Anticosti par un groupe d'experts multidisciplinaires. Québec, Canada.; Lévesque, J. (2022). Plan d'actions pour le développement touristique (Phases 1, 2 et 3). Québec, Canada; Mc Keever, P.J. and Narbonne, G.M. (2021) Geological world heritage: a revised global framework for the application of criterion (viii) of the World Heritage Convention. Gland, Switzerland: IUCN https://doi.org/10.2305/IUCN.CH.2021.12.en; Sinnesael, M. et al. (2021). Precession-driven climate cycles and time scale prior to the Hirnantian glacial maximum. Geology, 49, 11, 1295-1300. https://doi.org/10.1130/G49083.1; Riopel, G.C. (In Preparation) Les stromatopores aulacéridés de l'île d'Anticosti : Les géants fragiles des mers ordoviciennes ; Thompson, J.R. et al. (2022). The morphologic and paleobiogeographic implications of a new early Silurian echinoid from Anticosti Island, Quebec, Canada, https://doi.org/10.1139/cjes-2022-0028. Canadian Journal of Earth Sciences; Wells, T.R. (1996). Earth's geological history : a contextual framework for assessment of World Heritage fossil site nominations. Gland, Switzerland : IUCN. https://portals.iucn.org/library/node/7357; Zimmt, J., and Jin, J. (2023). A new species of Hirnantia (Orthida, Brachiopoda) and its implications for the Hirnantian age of the Ellis Bay Formation, Anticosti Island, eastern Canada. Journal of Paleontology, 97, 1, 47-62, doi:10.1017/jpa.2022.83.

d) Consultations: 7 desk reviews received. The mission was able to meet with Ekuanitshit First Nation; Nutashkuan First Nation; the municipality of Anticosti; the regional municipality (Municipalité régionale de comté de Minganie); the ministries Ministère de l'Environnement et de la Lutte contre les Changements climatiques de Québec, Ministère des Forêt, de la Faune et des Parcs de Québec (today Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs), Ministère des Relations internationales et de la Francophonie de Québec; Parcs Canada; the company of open-air establishments of Quebec (Société des établissements de plein air du Québec – Sépaq); the tourism organization Tourisme Côte-Nord; and Nature Québec.

e) Field Visit: Sophie Justice, 2 to 9 September 2022

f) Date of IUCN approval of this report: April 2023

2. SUMMARY OF NATURAL VALUES

The island of Anticosti is situated in the Gulf of Saint Laurence, Quebec, Canada, and has a surface area of 795,300 ha. The nominated property covers almost the entire coastline of the island comprising the wave-cut platform, beach and cliffs, with the minor exception of the only permanent settlement, the village of Port Menier. It also includes the high flow channels of the two principal rivers, Jupiter and Vaureal. Anticosti is a natural island covered by forest and wetlands and subject to a subpolar, subhumid climate. The nominated property is entirely located on provincial state land that is also administered by the provincial government of Quebec (environment ministry – Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs). External to the nominated property, seaward of the wave-cut platforms and beaches, the marine zone is also state owned.

The nominated property comprises gently south westerly dipping fossiliferous carbonate ramp sediments of upper Silurian to lower Ordovician age that cover an interval from 447 to 437 million years, a time period known as the Ordovician/Silurian (O/S) boundary interval. The O/S boundary interval was a period of profound change on Earth and the life it supported. Ecosystems were dominated by marine invertebrates and vertebrates and land plants were only emerging. A generally prolonged "greenhouse" climate was punctuated by a glaciation that achieved its maximum in the late Ordovician (Hirnantian). This corresponds to the first recorded mass extinction event, which affected almost every marine organism. An estimated 85% of species became extinct. Marine fauna took around 4 million years to re-establish and diversify, for example, to resume reef building. The superlative wealth of information at Anticosti enables reconstruction of communities, ecosystems and modes of life. It provides deep insights into how life adapted, for example to varying water depth, temperature, sedimentary input and turbulence levels. The testimony Anticosti provides of these landmark events in earth history is the focus of the potential Outstanding Universal Value identified in the nomination.

Whilst not the direct focus of this nomination, the nominated property covers over 245 species of fauna, of which 221 are birds (including more than 100 that breed on the island), it is one of the most important bird sites in North America. The boreal flora of Anticosti is well documented and rich. Grazing by White Tailed Deer (*Odocoileus virginianus*, LC) introduced in the 19th century has altered the ecosystem and active management is in place to conserve the natural diversity on the island. The waters of the Gulf of Saint Laurence are home to fish species such as Atlantic Salmon (*Salmo salar*, LC) and Brook Trout (*Salvelinus fontinalis*). It also displays rich geomorphology in the form of karst landforms, coastal landforms, raised beaches, lakes and wetlands and glacial geomorphology.

3. COMPARISONS WITH OTHER AREAS

Anticosti has been nominated under criterion (viii). The nomination dossier includes a detailed global comparative analysis based on two overarching steps. In the first step, the analysis screened 41 relevant stratigraphic and palaeontological sites representative of the first mass extinction of life at the end of the Ordovician, shortlisting 10 sites based on the application of five criteria: (a) fossil abundance and diversity, (b) elimination of graptolites (i.e. the record filter-feeding organisms), (c) geographic and stratigraphic extent, (d) accessibility and (e) range of lithofacies (i.e. body of rocks in any particular sedimentary environment) critical to understand the Earth and life events across the Ordovician/Silurian (O/S) boundary interval. In the second step, the global comparative analysis studies in depth the ten sites most pertinent for the O/S boundary interval, applying 12 criteria determining the ranking of the sites in three categories: (a) quality of the paleontological archive, (b) significance of the fossil groups and stratigraphic succession, and (c) long-term viability as a World Heritage property. The analysis also incorporates IUCN's Fossil Site Evaluation Checklist. Based on in-depth study, Anticosti is ranked first on all 12 criteria. The comparative analysis concludes that Anticosti's stratigraphic and paleontological record is the world's best archive of marine ecosystem changes during the O/S interval.

External desk reviewers unanimously commended the quality of the global comparative analysis presented in the nomination dossier, which follows a robust methodology with clear criteria and a careful search of comparable sites worldwide. Reviewers highlighted the global importance of the nominated property, holding evidence of the first mass extinction in Earth's history with superbly preserved and highly abundant fossils from that period of time. The nominated property is a complete and high-resolution testimony of the history of life at a crucial period, the first global mass extinction of animal life, making the nominated property the best of the best to represent this end-Ordivician extinction. This record is complete, uninterrupted and intact, according to desk reviewers.

The 2021 IUCN study *Geological World Heritage: a revised global framework for the application of criterion (viii) of the World Heritage Convention* highlighted as a significant gap on the World Heritage List "the interface between Palaeontology and global change over geological timescales, especially the mass extinction events", noting that the terminal Cretaceous extinction is represented by the fossil record at the Stevns Klint (Denmark) World Heritage property, whereas the equally profound Palaeozoic extinctions at the end of the Ordovician, Devonian and Permian are not yet represented on the World Heritage List. As a representative site of the O/S boundary interval, the nominated property would therefore fill an important identified gap on the World Heritage List.

Based on the above, IUCN considers that the nominated property makes a compelling case as the most globally representative site for Ordovician biodiversity, the conclusion of the Ordovician Mass Extinction event and the lower Silurian post-extinction recovery of life. The extraordinary wealth of paleontological, sedimentary, stratigraphic, and geochemical information give insight into the highly complex relationships between Earth systems and events and living organisms. Of all global sites for the O/S boundary interval, Anticosti presents the highest taxonomic diversity, the greatest number of species and invertebrate abundance. More than 1,440 taxa have been identified that include the recently described "lagerstätten", which exhibit diverse soft bodied "benthic fauna (i.e. sedimentary deposits of seafloor fauna) including a meiofauna (i.e. benthic invertebrates) and marine algae. The extensive, well preserved and accessible nature of the nominated property holds detailed information about changes to life, the local environment and the global environment from 447 to 437 million years ago. The detailed spatial and temporal insight Anticosti provides into how ancient populations, communities and ecosystems reacted to global changes provides a globally unparalleled insight into the causes and consequences of the complex Ordovician mass extinction event and the subsequent Silurian recovery of life.

In conclusion, IUCN considers that the nomination demonstrates the global significance of Anticosti under criterion (viii).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The protection of the nominated property falls under the responsibility of the provincial government of Québec (Gouvernement du Québec), the Government of Quebec. The environment ministry of the provincial government (Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs) is responsible for the relevant protected areas and their management. Several small federal and private properties are excluded from the designated zones; however these do not impact the integrity of the nominated property, according to the field evaluation mission.

The entire nominated property is covered by protected areas under the Natural Heritage Conservation Act of Quebec, corresponding to IUCN Protected Area categories Ia, II and III. The Proposed Biodiversity Reserve of Anticosti (category III), which is set to become a Permanent Biodiversity Reserve in 2023, was designed to protect the islands geological heritage and the biodiversity of its representative ecosystems. The Reserve covers 94.3% of the nominated property. The remaining areas of the nominated property are covered by Anticosti National Park (category II, 9.8%), and the Ecological Reserves of Pointe-Heath (category Ia, 0.4%) and Grand-Lac-Salé (category Ia, 0.2%). The entire area of the nominated property is owned by the provincial government. In the area covered by the proposed Biodiversity Reserve (IUCN category III), no new leases will be permitted for tourist resorts.

Similar to the nominated property, the buffer zone of the nominated property is protected through the Proposed Biodiversity Reserve, Anticosti National Park, the Ecological Reserve of Pointe-Heath and the Ecological Reserve of Grand-Lac-Salé. It is important to note that a legal mechanism has been established so that future boundary adjustments can be made to accommodate natural changes in the landscape. This has been legally defined through a well-conceived mechanism that pins the 1km wide buffer zone to the position of the cliff top or talus slope of the nominated property.

In conclusion, IUCN considers that the entire nominated property is protected by adequate legal protections and comprehensive management frameworks which are listed in the Quebec register of protected areas.

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

4.2 Boundaries

The nominated property is of a significant extent and has well defined, clearly mapped boundaries. It is bordered by a buffer zone with a width of 1 km wide on its landward side. The field evaluation mission found that the nominated area completely expresses the property's potential OUV and exhibits excellent connectivity with its surrounding landscape. The roughly ring-shaped exposure around the coastal perimeter of the island features the entire Ordovician – Silurian interval for which the property is nominated. In addition, the inclusion of the incised Jupiter and Vaureal river valleys to the nominated property provides significant further exposures in the interior of the island. The coastline presents irregular relief, and, in some sectors, beaches are developed that largely cover the outcrop. However, given the nature of the sediments of the nominated property, strata have been correlated between outcrops to provide the continuous vertical sections.

The nominated property is a very long-lasting feature because the entire island of Anticosti is formed of the gently south easterly inclined bedrock of Ordovician to Silurian age that is the basis for its proposed nomination. The natural evolution of its coastline and rivers will reveal new outcrop of the same interval. It is anticipated that zones with no outcrop today will provide future exposures of the strata expressing the nominated property's OUV and vice versa.

As mentioned in the preceding section, the nominated property will gradually evolve over time. Therefore, these boundaries need to be mobile and accommodate the natural evolution of the nominated property over time, with a buffer zone which remains 1 km wide, slowly migrating inland over time. A legal mechanism has been established so that future boundary adjustments can be made to accommodate natural changes in the landscape. This has been legally defined through a well-

conceived mechanism that pins the 1km wide buffer zone to the position of the cliff top or talus slope of the nominated property. The nominated property will gradually evolve over time, the buffer zone which remains 1 km wide will slowly migrate over time with these modifications. If the nominated property is inscribed on the World Heritage List, IUCN considers that these updates to the boundaries will eventually need to be mirrored on the List through the minor boundary modification process, to ensure the boundaries of the potential World Heritage property would reflect the actual stage of the natural evolution.

IUCN considers that the boundaries of the nominated property and buffer zones meet the requirements of the *Operational Guidelines*.

4.3 Management

The nominated property is overseen principally by staff of the Quebec's environment ministry. A management plan with measurable objectives has been established and the new team will detail the working objectives for the nominated property. Information panels are already in place in the areas of highest frequentation to inform the public of their need to respect the geological heritage and the tight restrictions on collecting fossils. Legal enforcement is possible. In the section of the nominated property that is covered by Anticosti National Park, the implementation of the national park's management plan is ensured by the ministry and delegated to the Sépaq (the company of open-air establishments of Quebec). The protection measures for the geological heritage stipulate it cannot be sampled, altered, or painted. Legal enforcement is possible and enforceable by the team on the site.

Although the remoteness of the nominated property will provide some protection, planning is in place to improve conservation measures for example through communication about the restrictions of fossil collecting and to develop public awareness around the geological heritage. In certain sectors of the proposed Biodiversity Reserve, visitors are permitted each year to collect five samples no greater than 10cm in size that have been naturally eroded and are no longer in situ. All personnel linked to the management of the natural heritage on Anticosti and met by the field evaluation mission commented on the respectful behaviour of visitors and that interventions are extremely rare.

Additional planning has been undertaken by the Municipality of Anticosti with the preparation of a tourism strategy and a strategic development plan (2017 – 2020). The regional development plan of the regional municipality of the county of Minganie also identifies Anticosti as a protection-conservation zone with a potential for recreation and tourism. Regular stakeholder discussions have taken place with the Ekuanitshit and Nutashkuan First Nations, the municipality of Anticosti, the regional municipality of the county of Minganie, Nature Quebec, the Sépaq (the company of open-air establishments of Quebec) and other outfitters, Tourisme Côte-Nord, residents, environmental and citizen groups. A community committee will ensure that local and indigenous concerns as well as indigenous knowledge will be taken up in management and conservation. A scientific committee will support the management board of the nominated property.

National Park operations are delegated to Sépaq, while certain management activities of the Biodiversity Reserve and ecological reserves may be carried out with local authorities and Innu communities. The human and financial commitments to the nominated property are substantial and the prospects for further conservation financing are strong. The provincial government of Quebec has committed considerable financial resources for the integrated management of the nominated property through the establishment of the Biodiversity Reserve of Anticosti. The ministry has secured a budget of USD 1.09 million over five years for operating costs, USD 0.36 million for third party costs and an additional USD 1.74 million over five years for remuneration. In addition, resources have been allocated to the municipality of Anticosti. For example, USD 0.58 million was allocated over three years to participate in the management of the proposed Biodiversity Reserve during the progressive recruitment of the management team.

The provision of geological expertise is ensured through the scientific committee and site management positions that require strong geological backgrounds. In supplementary information, the State Party notes a new programme worth USD 1.02 million to support research closely related to the proposed OUV of the nominated property. In response to discussions with the field evaluator, the State Party also confirmed in supplementary information that an additional geologist position will be created to support the protection and management of the nominated property's geological values.

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

4.4 Community

The nominated property and its buffer zone are located on the Nitassinans or territories claimed by the Innu communities of Ekuanitshit and Nutashkuan. The Ekuanitshit and Nutashkuan First Nations are supportive of the nomination of Anticosti to the World Heritage List, and the long-term preservation of the island. Distanced from their traditional practices on Anticosti due to the historic management of the island, the inscription of the nominated property provides in the view of the mission an opportunity for the First Nations to re-establish their links and traditional oversight of this important heritage and its effective protection and management.

There is effective dialogue between the many island stakeholders: the Ekuanitshit and Nutashkuan First Nations, Quebec's ministries for environment and international relations, the municipality of Anticosti, the regional municipality of the county of Minganie, Nature

Quebec, the Sépaq (the company of open-air establishments of Quebec), Tourisme Côte-Nord. The preparation and ongoing development of the nominated property has been fully and openly discussed with the First Nations and local community. The intention for this dialogue to continue is enshrined in the proposed management structure through the creation of the Site Management Advisory Board. Regular dialogue and information sharing is proposed.

The Ekuanitshit First Nation reiterated their support for World Heritage listing of Anticosti in a letter provided as part of the supplementary information. The Nutashkuan First Nation also reiterated their support for World Heritage listing of Anticosti in a letter provided as part of the supplementary information, confirming their consent in line with Article 32 of the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) and their expectation that the State Party swiftly formalises the joint governance upon inscription with the necessary financial and professional resources supporting its implementation. In supplementary information, the State Party also specified that the Government of Quebec will have the necessary resources to support the Innu communities in this partnership with wider investments announced in the order of USD 16.72 million as part of the Nature 2030 Plan to support Indigenous leadership in conservation.

Port Menier, the only town on the island is home to 218 permanent residents. 250 temporary residents are living from May to November in the tourist facilities linked to hunting and fishing outside the municipality. The principal economic activities on the island are forestry, hunting and salmon fishing.

4.5 Threats

The nominated property faces only limited threats due to its natural state, its remote location and the difficulty of access. The provincial government of Quebec has introduced the Law 21 to end the discovery and production of hydrocarbons and the public financing of these activities. This applies generally to the island and its surrounding waters. The nominated property within the proposed Biodiversity Reserve is protected from commercial activity that prohibits amongst other uses the construction of hydroelectric dams, forestry activity and the creation of new tourist resorts.

The most significant ongoing impact is that of natural erosion. In the proposed Biodiversity Reserve of Anticosti monitoring of the coastal erosion is the overseen by Quebec's environment ministry which is working with the University of Quebec at Rimouski. A study of coastal erosion was completed in 2021 that analysed data from 1973 until 2019. Erosion of Anticosti occurs at a median rate of 8cm per year, this was considered low compared to other natural sites on the World Heritage List. Climate change is a potential threat for increasing erosion due to the potential loss of protective winter sea ice, increased storm frequency and intensity, and higher sea levels, however the extent and nature of such changes are currently unknown and will be addressed in ongoing regular monitoring as set out in the management plan.

The municipality of Anticosti and the regional municipality of the county of Minganie would like to develop well managed sustainable tourism based on the nominated property. This is supported by the First Nations and the local community. Round table discussions have taken place that include all stakeholders accompanied by Tourism Cote-Nord (the regional destination management organisation). Plans have been developed for a larger, new visitor centre and linked research facilities. Given the limited transport links and the restricted accommodation on the island, the modest projections for tourism development seem realistic and unlikely to create adverse effects.

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

5. ADDITIONAL COMMENTS

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6. APPLICATION OF CRITERIA

Anticosti (Canada) has been nominated under natural criterion (viii).

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

The nominated property, Anticosti, is a fossil site globally representative of Ordovician biodiversity, the end-Ordovician Mass Extinction event and the lower Silurian post-extinction recovery. This time period relates to the first mass extinction event in earth history, which is the only mass extinction event to have coincided with a major glacial event. Anticosti holds an extraordinary wealth of paleontological, sedimentary, stratigraphic, and geochemical information. It presents detailed information about changes to life, the local environment and the global environment from 447 to 437 million years ago. It provides insight into the hugely complex relationships between Earth systems and events and living organisms. The site has important potential for further significant discoveries through continued site investigation and future interdisciplinary studies.

The quality of the fossil record at Anticosti, a window into life in the past, is outstanding. Of all global sites, Anticosti presents the highest taxonomic diversity and the greatest number of species for the Ordovician-Silurian (O/S) boundary interval. More than 1,440 taxa have been identified. It includes a variety of palaeontological information from shelly fossils, microfossils, soft body fossil preservation and trace fossils. The fossil assemblages include green and red algae, cyanobacteria, foraminifera, sponges, corals, annelids, molluscs, brachiopods, arthropods, crinoids, graptolites and conodonts. The nominated property also contains the greatest abundance of marine invertebrate

fossils distributed throughout the succession, and features dense fossil concentrations in the form of brachiopod shell beds, thick crinoid units and organic accumulations such as tropical reefs. It also presents the best global examples of acritarch and chitinozoan microfossils and recently, diverse “lagerstätten” of soft bodied of benthic fauna, including a meiofauna and marine algae have been described.

The diversity and high-quality of the geological information preserved at Anticosti marks the site as the best worldwide for evaluating biotic evolution and ancient environmental change during the O/S boundary interval. The near complete, expanded sedimentary sequence is a high-resolution archive of changes which are exposed in hundreds of kilometres of outcrop. Its superlative contribution however is the detailed spatial and temporal insight it provides into how ancient populations, communities and ecosystems reacted to global changes. This, combined with insights into global environmental change, provides a globally unparalleled insight into this complex mass extinction event and subsequent recovery.

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/23/46.COM/8B and WHC/23/46.COM/INF.8B2,
2. Inscribes **Anticosti (Canada)** on the World Heritage List under **criterion (viii)**;
3. Adopts the following Statement of Outstanding Universal Value:

Brief synthesis

Anticosti is a stratigraphic and fossiliferous site of worldwide importance with an exceptionally well preserved, abundant and diverse fossil fauna. Anticosti is the largest stratigraphic record in thickness and the most complete and best preserved palaeontological record representing the first mass extinction of animal life on a global scale, 447-437 million years ago. The property and buffer zone are located within protected areas that are free of any industrial activity.

The property is situated on the island of Anticosti, the largest island in Quebec at the entrance to the Gulf of St. Lawrence in eastern Canada. The area of the property is 18,240 hectares with a buffer zone of 89,740 hectares, together covering nearly 14% of the total area of Anticosti Island. Both the property and buffer zone are situated on the Nitassinans or territories claimed by the Innu communities of Ekuanitshit and Nutashkuan who have both provided their consent to the inscription of the property.

Criterion (viii)

Anticosti is the best natural laboratory in the world for the study of fossils and sedimentary strata from the first mass extinction of life, at the end of the Ordovician period, which represents an important milestone in the history of Earth. It contains the largest stratigraphic record in thickness and the most complete, and best preserved fossil record of marine life covering 10 million years of Earth history, from the Upper Ordovician to the Lower Silurian, 447-437 million years ago. The abundance, diversity, and state of conservation of the fossils are exceptional and allow for world-class scientific work.

Thousands of large bedding surfaces allow the observation and study of shell and sometimes soft-bodied animals that lived on the shallow sea floor of an ancient tropical sea. These animals were buried by the continual passage of strong storms, which completely preserved the organisms and the ecological structure of the ancient marine communities. The exquisite preservation of the fossil shells allows the analysis of their geochemical composition to identify ancient climatic and oceanographic signals, and to study in depth the causes of the mass extinction of life at the end of the Ordovician period.

Integrity

The fossiliferous strata included within the boundaries of the property have all the attributes to bear full witness to the first mass extinction of life on Earth. The property includes all coastal outcrops extending from low tide to cliff top for nearly 550 kilometres and outcrops along the Vaureal and Jupiter rivers respectively. Natural erosion plays an important role as the retreat of the cliffs uncovers new fossil horizons and serves to maintain the Outstanding Universal Value in the long term. Whilst the vast majority of the millions of fossils are found in-situ *on the bedding surfaces of rocks within the property,* ex-situ *fossils are also found in the collections of major museums around the world, and these collections outside the property are accessible to researchers from all over the world and help to enhance the understanding of the Outstanding Universal Value of the property.*

Protection and management requirements

The property and its buffer zone benefit from strong and long term legal protection. They are part of a network of publicly owned protected areas managed by the Quebec provincial government, free from any industrial activity, and there are no permanent residents in the property or its buffer zone. The prospect of new developments in or near the property and its buffer zone is minimal, and any potential development will be subject to strict guidelines. The Natural Heritage Conservation Act and the Quebec Parks Act ensure the protection and maintenance of all stratigraphic and palaeontological attributes essential to the full expression of the Outstanding Universal Value of the property as well as the island’s biological diversity, with additional protection ensured by the buffer zone.

The Permanent Biodiversity Reserve covers 94.3% of the property and was designed to protect the island's geological heritage and biodiversity. The remaining areas of the property are covered by Anticosti National Park and the Ecological Reserves of Pointe-Heath and Grand-Lac-Salé. The buffer zone of the property is also covered by the Biodiversity Reserve, the National Park and the Ecological Reserves. A legal mechanism has been established to enable future boundary adjustments to accommodate natural changes.

The management team established by the Quebec provincial government enforces protective legislation, carries out day-to-day management activities and monitors natural factors and human activities threatening the property and its buffer zone. The management is guided by the property's management plan, which includes measurable objectives. In addition, the management plan of Anticosti National Park guides the management of those areas of the property covered by the national park. A community committee ensures that local and indigenous concerns and knowledge are integrated into management and conservation. A scientific committee supports the management board of the property.

Information panels inform the public of the need to respect the geological heritage and the tight restrictions on collecting fossils, enforceable by the management team on the property. The protection measures for the geological heritage stipulate it cannot be sampled, altered, or painted. In certain sectors, visitors may collect a few small samples that have been naturally eroded and are no longer in-situ*.*

4. Commends the State Party for the high quality of the comparative analysis and nomination dossier, welcomes the strong financial and scientific support to the property provided by the State Party, and the involvement by the Innu communities of Ekuanitshit and Nutashkuan whose participation and knowledge will be an essential element for the property's protection and management.

Map 1: The nominated property and buffer zone.

EUROPE / NORTH AMERICA

EVAPORITIC KARST AND CAVES OF NORTHERN APENNINES

ITALY

Evaporitic Karst and Caves of Northern Apennines © IUCN / Gordana Beltram

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

EVAPORITIC KARST AND CAVES OF NORTHERN APENNINES (ITALY) – ID N° 1692

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To refer the nomination under natural criterion (viii).

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

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2022

b) Additional information officially requested from and provided by the State Party: Following the session of the IUCN World Heritage Panel, an Interim Report and request for supplementary information was sent to the State Party on 26 January 2023. This letter advised on the status of the evaluation process and requested supplementary information on the global comparative analysis, and on the integrity and protection and management requirements. The supplementary information was provided by the State Party on 27 February 2023.

c) Additional literature consulted: IUCN's evaluation consulted a wide array of relevant reference material for the geology, protection and management as well as the comparative values of the nominated property. Comprehensive reference lists were compiled within IUCN's World Heritage Caves and Karst Thematic Report (Williams 2008). Further references included: Aldrovandi, U. (1648). Musaeum metallicum in libros 4 distributum Bartholomaeus Ambrosinus. Bononiae, Marcus Antonius Bernia, Ferronius, 979; Benassi, E., Serventi, C. (eds.) (2010): Le coline di Albinea, Strenna del Pio istituto artigianelli, Pubblicazione semestrale – XIX-1, pp. 83; Broughton, P.L. (2021). Alignment of saline springs with evaporite karst structures in northeast Alberta, western Canada: analogue for Cretaceous hypogene brine seeps to the surface. Acta Carsologica 50, 119-141; D'Angeli, I. M., Serrazanetti, D. I., Montanari, C., Vannini, L., Gardini, F., & De Waele, J. (2017). Geochemistry and microbial diversity of cave waters in the gypsum karst aquifers of Emilia Romagna region, Italy. Science of the Total Environment, 598, 538-552; De Waele, J., et al. (2017). Evaporite karst in Italy: a review. International Journal of Speleology, 46 (2), 137-168; Dogan, U., Yesilyurt, S. (2019). Gypsum karst landscape in the Silvas Basin. In: Kuzucuoglu, C., Ciner, A., Kazanci, N. (eds.) Landscapes and Landforms of Turkey; Dubljansky, V. N. 1979. The gypsum caves of the Ukraine. Cave Geology, 1, 163–183; Forti, P. (1996). Speleothems and cave minerals in gypsum caves. International Journal of Speleology 25, 3: 7; Goldscheider, N., et al. (1977). History of the Mediterranean salinity crisis. Nature 267, 399-403; McKeever, P.J. and Narbonne, G.M. (2021). Geological World Heritage: a revised global framework for the application of criterion (viii) of the World Heritage Convention. Gland, Switzerland: IUCN; Moosdorf, N., Stevanovic, Z. and Veni, G. (2020). Global distribution of carbonate rocks and karst water resources. Hydrogeology Journal, 28, 1661-1677; Raeisi, E., Zare, M. and Aghdam, J.A. (2013). Hydrogeology of gypsum formations in Iran. Journal of Cave and Karst Studies 75, 68-80; Sivelli, M. and Vigna, B. (2017). Evaporite karst in Italy: a review. International Journal of Speleology, 46, 2,137-168; Stafford K., Nance R., Rosales-Lagarde, L. and Boston, P.J. (2008). Epigene and Hypogene Gypsum Karst Manifestations of the Castile Formation: Eddy County, New Mexico and Culberson County, Texas, USA. International Journal of Speleology, 37, 2, 83-98; Williams, P. (2008): World Heritage Caves and Kast. Gland, Switzerland: IUCN. 57pp.

d) Consultations: 12 desk reviews received. The mission was able to meet with scientists, politicians and elected officials (regional, mayors, ministry, and local), administrators, technical experts, non-government organizations, trade unions, and members of the local communities.

e) Field Visit: Gordana Beltram, 21 November – 28 November 2022

f) Date of IUCN approval of this report: April 2023

2. SUMMARY OF NATURAL VALUES

The Evaporitic Karst and Caves of Northern Apennines is a serial property that encompasses 3,680 ha and includes nine nominated component parts. The buffer zones total 8,348 ha. The nominated area is protected by a complex web of national, regional, and local legislation.

#	Nominated component part	Area (ha)	Buffer zone (ha)	IUCN Protected Area Category
1	*Alta Valle Secchia*	1,596	1,294	*II, IV*
2	*Bassa Collina Reggiana*	274	1,385	*IV, V*
3	*Gessi di Zola Predosa*	57	128	*IV*
4	*Gessi Bolognesi*	237	325	*IV*
5	*Vena del Gesso Romagnola - M.te Penzola*	70	4,775	*IV*
6	*Vena del Gesso Romagnola - M.te del Casino*	281		
7	*Vena del Gesso Romagnola - M.te Mauro*	962		
8	*Evaporiti di San Leo*	119	165	*IV*
9	*Gessi di Onferno*	84	276	*IV*
	TOTAL	**3,680**	**8,348**	

Table 1 : Nominated property and buffer zones

The nominated property encompasses two different geological periods during which evaporitic rocks were deposited: Firstly, the Triassic period (200 million years ago) associated with the breakup of the supercontinent Pangea and formation of the modern continents as well as the formation of the Atlantic and Indian ocean basins, and secondly, the ecological catastrophe known as the Messinian Salinity Crisis phase (6 million years ago), when the Mediterranean Sea largely evaporated. Over the last c.500,000 years the current cave system developed within these formations.

The nominated property is an unusually well-preserved and extensive epigenic gypsum karst terrain. It includes a very high density of caves: over 900 caves in a relatively small area. There are over 100 km of caves in total, including the 11.5 km long Spipola-Aquafredda-Prete Santo cave system and the 7 km long hydrogeological tunnel system. It also includes some of the deepest gypsum caves in the world reaching 265 meters below the surface.

The Evaporitic Karst and Caves of Northern Apennines are the first and the best studied evaporitic karst in the world, with academic work beginning in the 16th century. The features are accessible, well preserved, and readily understandable. These studies have had many iconic contributions to understanding of evaporitic karst, including their record of climate evolution over the last hundred thousand years, and their lessons to support our understanding of climate change in the future. This evaporitic karst and cave terrain has played a key role in the development of geology, speleology, mineralogy and hydrogeology. The site also contributed to the understanding of the use of evaporitic deposits as building materials: almost 2,000 years ago some of the natural caves were used by the Romans for the extraction of stunning transparent crystals to be used in window frameworks instead of glass.

The nominated property contains an unusually large diversity of chemical deposits and minerals associated with gypsum deposits and gypsum caves. Some of these minerals are found nowhere else, and no other area has, as yet, documented the same mineral diversity. The nominated property also contains many noteworthy and unique hydrological features and surface karst forms, including hypogean bends, very large gypsum cone features, salt springs, and speleothems. The paleontological values include gypsum strata with evidence of surface exposure, leading to the development of ancient intra-Messinian karst features containing one of the most important Late Miocene continental faunae in the world.

3. COMPARISONS WITH OTHER AREAS

Evaporitic karst, both salt and gypsum, is identified as a gap on the World Heritage List in the 2008 IUCN World Heritage Caves and Karst Thematic Report and in the 2021 IUCN Geological World Heritage global framework. The proposed Evaporitic Karst and Caves of Northern Apennines serial nomination's nine component parts comprise an exceptionally complete epigenic gypsum karst system worldwide. Most of the phenomena observable in evaporitic gypsum karst are present at the nominated property.

All desk reviewers of the nomination agreed that the nominated property has great scientific importance and reviews suggest the site is distinctive as extensively studied and documented epigenic gypsum karst. However, most reviewers concluded that, while well organized, the Global Comparative Analysis included in the nomination document was not adequate. Specifically, the comparison with other areas provided by the State Party applied an analytical framework that limited the range of scores available and used comparison factors for which the nominated property was strongest. The method appeared to essentially predetermine the outcome in favour of the Evaporitic Karst and Caves of Northern Apennines.

In addition to the analytical framework, reviewers also noted other gypsum karst areas of comparable significance, such as the giant gypsum caves in Podolia (Ukraine), the Sivas gypsum karst (Turkey), the extensive gypsum outcrops of the Gachsaran Formation in the Zagros Mountains (Iran), the gypsum

plain of New Mexico and Texas (United States), the Sorbas gypsum karst (Spain), and the dissolution and subsidence belt associated with the Hith Formation in the Interior Homocline (Saudi Arabia). With respect to salt karst, reviewers noted that the most outstanding salt karst occurs in the salt extrusions of the Zagros Mointains, in the coasts of the Dead Sea, the Delaware Basin (United States) and in the Devonian basins of Canada.

Consequently, the IUCN World Heritage Panel requested supplementary information on the global comparative analysis, which was provided by the State Party on 27 February 2023. The response was comprehensive, and it was provided to reviewers for a supplemental opinion. Although the response improved the Global Comparative Analysis, the view was that the site is probably not sufficiently broad in its values to fully encompass the identified gap on the World Heritage List of Evaporitic Karst, both gypsum and salt. Based on the comparison with other areas, there was substantial debate among desktop reviewers and extensive consideration of the published literature on this karst type. However, notwithstanding some remaining concerns related to the Global Comparative Analysis, all of the reviewers saw a strong case for the global significance of the nominated property.

The view reached by the IUCN World Heritage Panel based on the review input and supplementary information was that the nominated property is globally significant for an epigenic gypsum type of evaporitic karst, but not for a salt karst, and that it would address the remaining gap for Evaporitic gypsum karst on the World Heritage List. The findings of the comparison to other areas concluded that this extremely well-studied area holds cave systems and their evaporitic deposits (speleothems and minerals), some unique in the world, that demonstrate global significance. The area can be considered as the area with the most profusely studied, most accessible, more comprehensively displayed and better protected epigenic gypsum cave systems of the world. The nominated property preserves aspects of two significant effects in earth history: the break-up of the supercontinent Pangea about 200 million years ago, and the Mediterranean Salinity Crisis about 6 million years ago. It contains the greatest diversity of chemical deposits and minerals associated with gypsum caves documented so far worldwide. It is also notable for the high density of caves: 900 caves with the length of over 100 km distributed over a relatively short distance, including the longest epigenetic cave in gypsum (11.5 km long Spipola-Aquafredda-Prete Santo cave system), the second deepest cave in gypsum in the world (265 m), and one of the largest hydrogeological tunnels in gypsum worldwide (over 7 km long). The nominated property also contains an unusually high density of superficial karst forms: caves, minerals, speleothems, and hypogean bends, including salt springs.

In consideration of the comparison to other areas and the advice of expert reviewers, IUCN concludes that the updated comparative analysis supports the conclusion that, whilst the values are somewhat specialised, the nominated property demonstrates global significance under criterion (viii) in the representation of epigenic gypsum karst.

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nine component parts of the serial nomination differ considerably in size, ranging from 57 to 1,500 ha. All of the component parts have protection status equivalent to IUCN Category IV, and *Alta Valle Secchia* (nominated component part 1) is also partially protected by a national park (IUCN Category II). Ninety-six percent of the nominated property is protected by the European Union's Natura 2000 network. Seventy percent is protected by a national park and by two regional parks. Most of the remaining areas are nature reserves and protected landscapes, preserved by local law. The buffer zone and the land adjacent to the nominated property is subject to the territorial and landscape planning of the Emilia-Romagna Region that establishes the rules for the management of the territory. The State and the Emilia-Romagna Region have passed and implemented legislation and management that provides adequate legal protection to the gypsum areas in the Northern Apennines. The overall protection system is complex.

One factor adding complexity is that more than half of the area of the nominated component parts is privately owned and not under direct State or Regional responsibility. Private ownership ranges up to 98% in some nominated component parts of the serial nomination. Although the national legislation (Italian Civil Code) specifies that the waters, minerals, crystals, fossils, archaeological finds and antiquities belong to the State, the potential for private landowners to modify the nominated property in ways that may degrade the proposed Outstanding Universal Value is unclear.

In addition, some important areas (see section 4.2) with specifically identified attributes are not covered by any legislative or regulatory protection, including parts of the nominated component part of *Alta Valle Secchia*. Whilst the unprotected areas of *Alta Valle Secchia* are situated within the Appennino Tosco-Emiliano Biosphere Reserve, they are found in the buffer zone or transition zone of the Reserve and are not specifically protected for their geological values. According to supplementary information, the Biosphere Reserve's concern for geological values is mainly centred on educational aspects of geo-conservation rather than protection. The same also applies, to a greater extent, to the buffer zone of the nominated component part of *Alta Valle Secchia*, and to a small extent to the buffer zone of the three nominated component parts of *Vena del Gesso Romagnola.* Therefore, the nominated property and buffer zone would not be protected in their entirety as required by

the *Operational Guidelines*, especially by paragraphs 96-99, 101-102 and 104.

In the view of IUCN, several of the inconsistencies and gaps in protection need to be addressed if inscription is to be considered. For example, protection of geosites is explicitly included for Appennino Tosco-Emiliano National Park, but most of the nominated component parts are not in the National Park. For those nominated component parts not in the National Park, Regional Law 9/2006 specifies that rules for the conservation and enhancement of the geodiversity of Emilia-Romagna aim for the protection, knowledge and prioritization of geosites, caves and karst in the region. However, this law has not been consistently applied to all the nominated component parts in their entirety.

Overall, IUCN notes that adequate protection through different legislative and management programs are covering most of the nominated property. However, there remain gaps in protection within the nominated property and for important attributes of the proposed OUV located outside the nominated property (see section 4.2). The complexity of the system of protection is considerable and would benefit from a single unified protection system for the component parts of the nominated property. IUCN recommends that the State Party demonstrate the legal and relevant protection of the nominated property and the buffer zones match fully the boundaries and attributes of the proposed Outstanding Universal Value. For the northern part of the nominated property that overlaps with the Appennino Tosco-Emiliano Biosphere Reserve, the State Party should ensure strict protection is granted to the entire nominated component part and to all identified attributes of the proposed OUV.

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

4.2 Boundaries

The nine component parts of the nominated serial property include most of the evaporitic rocks of the Northern Apennine range. They represent the whole karst phenomena in gypsum and anhydrite, including the outcropping and underground karst areas, the main karst aquifers, and their recharge areas. They also include epigean and hypogean karst morphologies from the dissolution surfaces in vertically exposed gypsum cliffs to the speleothems in the abysses of the caves. From the environmental integrity point of view, the quality of the karst systems is excellent. The continuity of the karst hydrological system, above and below ground, is well preserved in all the nominated component parts.

However, this is not the case for the nominated component part *Alta Valle Secchia* where a large number of the stated attributes are located outside the nominated property, including in areas that are not formally protected for their geological values. As paragraph 99 of the *Operational Guidelines* requires boundaries to incorporate all the attributes that convey the proposed Outstanding Universal Value and to ensure the integrity of the nominated property, IUCN considers that the boundaries of the nominated component part of *Alta Valle Secchia* would need to be revised to capture the proposed attributes and to ensure their effective protection (see also section 4.1). There is also an underground system (*Tana della volpe*) outside the nominated areas of the *Vena del Gesso Romagnola* component parts.

Specific to the buffer zone for each nominated component part, the primary determinant of the boundary of the buffer zone is to ensure that the watershed is included, and that the legislative and management protection is adequate to protect the nominated property's values. Although there are no settlements on the gypsum outcrops, there are settlements in the surrounding landscapes, which have no legal protection for the geological values, and therefore, the buffer zone in these cases is limited and restricted to non-urban territory. This results for instance in a very narrow strip of buffer along the river to connect the two nominated component parts of *Vena del Gesso Romagnola - M.te Penzola* and *Vena del Gesso Romagnola - M.te del Casino* which are divided by the village of Borgo Tossignano. For most nominated component parts, the buffer zones would be improved by extending them to be more evenly spread on both sides of the gypsum outcrops (nominated component parts of *Alta Valle Secchia, Bassa Collina Reggiana, Gessi Bolognesi, Vena del Gesso Romagnola - M.te Penzola / M.te del Casino / M.te Mauro* and *Evaporiti di San Leo*). The buffer zones would also be improved by surrounding more widely the smaller nominated component parts component parts of *Gessi di Zola Predosa* and *Gessi di Onferno*.

In conclusion, whilst most nominated component parts have boundaries that encompass the attributes of the nominated property, there are important attributes that remain outside the nominated component parts of *Alta Valle Secchia* and the *Vena del Gesso Romagnola* component parts. The size and protection status of serial component parts of the proposed property are mostly sufficient to sustain and safeguard the proposed Outstanding Universal Value. However, important modifications to the boundaries are needed to ensure that all the attributes of each individual nominated component part are fully included. IUCN recommends that the State Party refine the boundaries and consider expanding the buffer zones as indicated above.

IUCN considers that the boundaries of the nominated property and buffer zones do not fully meet the requirements of the *Operational Guidelines*.

4.3 Management

The management system consists of two management bodies. The nominated component part of *Alta Valle Secchia* is managed by the Appennino Tosco-Emiliano National Park. All other nominated component parts are under the control of the Emilia-Romagna Region, which directly supervises the management bodies of the regional protected areas. These management bodies have a management plan, a specific budget and dedicated staff (technical and administrative) to manage and control the respective areas. Key management issues include the protection of the attributes and values of the geological heritage, conservation measures for habitats and species of Community interest, knowledge and communication of the natural environments. In addition, the northern part of the nominated property overlaps with management of the Appennino Tosco-Emiliano Biosphere Reserve.

The region and the responsible ministry provide adequate resources for the management of the nominated area and according to the management strategy and the field mission. Additional staffing and financial resources for the management of the nominated areas is planned. For 2022 and 2023 the Ministry has provided almost 7.9 million USD per year for natural World Heritage projects. For the period 2023 to 2025 an annual budget of approximately 2.5 million USD is foreseen. Staffing for the nominated property is sufficient with 88 rangers and 79 ecological guards. Expertise in geo-conservation is sufficiently covered by staff and complemented by strong cooperation with nearby universities.

A long-term monitoring system has been set up, using ground- and underground-based observations, for improved evaluation of the chemical and ecological state of karst aquifers, seismotectonic movements, and climate cave conditions. Key aspects of the nominated property's flora and fauna are also monitored. A Memorandum of Understanding was signed in 2020 including all the 37 responsible authorities.

The State Party has drafted a structure of governance and management for the nominated property, and an office at the local level to coordinate all the partners included in the serial nomination is to be established as part of the General Directorate for Land Care and Environment. The proposed Overall Management Strategy provides a fair basis for the future structure and shared responsibilities between the regional and the national administration and among the 37 involved stakeholders. The shared vision includes: protection of the environmental balance and safeguarding of the epigean and hypogean ecosystems; protection and conservation of geological values and specific geological landscape of the gypsums; enhancement of the historical, cultural, social, and archaeological aspects of the territories; environmental education of the local people and visitors to the protected and adjacent areas; sustainable development of the territory through best practices and promotion of compatible economic activities.

However, the final Programme Agreement is planned to be signed only 12 months after the potential inscription of the proposed serial property. A site management office for the overall coordination, communication and governance of the nominated property is expected to be put in place 18 months after potential inscription. IUCN recommends that the State Party puts in place the proposed management structure and management office to demonstrate that the serial site management is fully operational at the time of potential inscription. It is also recommended that the zonation of the Appennino Tosco-Emiliano Biosphere Reserve aligns with the management needs for geo-conservation of the nominated component parts.

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

4.4 Community

The Field Evaluation Mission experienced a high degree of support for the nomination. The degree of consultation with the 37 stakeholder groups and their participation in decision-making appeared to be effective. The management structure of the protected area would be complex owing to the different levels of protection, and different management agencies, both national and regional. This complexity will likely make community inclusion challenging.

Some farmers, including a local farmers association, spoke out about a lack of engagement, and expressed concern regarding the effect of a World Heritage inscription on their current activities. A trade union representing workers from the Monte Tondo quarry and gypsum panel factory in Riolo Terme were concerned about limits on their activity as well. The group considers that coexistence of the quarry and the protected area would be possible, and in fact would like the quarry to be enlarged a further ten metres into the mountainous area near the nominated component part of Vena del Gesso Romagnola - M.te Mauro.

4.5 Threats

Overall the threats to the nominated property are low. There are few settlements in the wider area, but the nominated component parts of the serial nomination are distributed in the hilly area of the Northern Apennines in the vicinity of the large towns of Parma, Reggio Emilia, Modena, Bologna and Rimini. There are no major industrial developments in the proposed property or in their buffer zones with the exception of the Monte Tondo quarry and the factory for gypsum panels in Riolo Terme. Potential threats to the nominated property are linked to three main activities: quarrying, agriculture and tourism.

The primary threat to the nominated property is continued quarrying of gypsum. This activity has been

ongoing since the Roman Empire. Most of the quarries in the region have been closed down and quarrying is now prohibited by law with the exception of the Monte Tondo quarry, which is located in the buffer zone of the proposed nomination, but may affect the cave system, in particular the Re Tiberio cave. The quarry currently operates under the permit issued by the regional administration. The region financed a study in 2021 which showed that further extension of the site should be phased out and the quarry closed in less than 10 years. Following the results of the study the Region intends to require the operator to prepare an environmental restoration plan including social restructuring and halt further quarrying activity. Currently, the company would like to renew the permit that has expired.

The agricultural activity is relatively limited, and management of the forestry resources is focused on expanding areas dedicated to wilderness. A few caves (six caves) are open to the public and, as evidenced during the field mission, are well taken care off, without alterations of the natural cavities and their habitats. There are no settlement pressures in the proposed nomination. The nominated property is close to large towns and is popular for local weekend visitation. If inscribed, it is anticipated that the level of tourism would increase, which could constitute a threat to the nominated property if not effectively managed through a visitor management plan with an identified carrying capacity.

In conclusion, IUCN recommends that the State Party confirm that it will not extend the permit in 2024 to the gypsum mining operation, and commence restoration activity as soon as practical. It is also recommended that the State Party prepare a visitor management plan that identifies areas of expected high levels of visitation, and identifies a carrying capacity for these areas.

In summary, IUCN considers that the integrity requirements and protection and management requirements of the *Operational Guidelines* are partially met.

5. ADDITIONAL COMMENTS

The proposed serial nomination is based on criterion (viii), but there are several cultural values of nominated component parts that provide additional value to the area. Most of these are directly or indirectly linked to gypsum use, karst and caves research, and archaeological sites preserving spiritual and burial grounds. Biodiversity is also an important value; for example, bat colonies in caves, species and habitat diversity of importance at national and European level, with some endemic and rare species. The Northern part of the proposed area (nominated component parts of *Alta Valle Secchia* and *Bassa Collina Reggiana*) is also part of the Appennino Tosco-Emiliano Biosphere Reserve which could also be extended to include the larger area of the nine component parts of the nominated property.

5.1 Consideration in relation to serial properties

a) What is the justification for the serial approach?

The gypsum outcrops and the nominated component parts of the Evaporitic Karst and Caves of Northern Apennines are located within a larger landscape with settlement, land use developments, and cities. The numerous settlements and varied infrastructure developments in the area do not provide the integrity and legal protection that would allow inclusion in a World Heritage property, and thus a contiguous property is not feasible. The nine nominated component parts are all required to protect the different types of karst and cave attributes that together convey the proposed Outstanding Universal Value of the nominated property.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the *Operational Guidelines*?

The nine component parts of the proposed nomination are complementary in demonstrating attributes linked to criterion (viii) together representing a relatively small, yet comprehensive and complete evaporitic karst system, including different surface phenomena ranging from dolinas, blind valleys, wallkarren, to karst springs, and caves, speleothems and cave minerals as well as different stages of geological history, processes and climate conditions. The parts are functionally linked in that they include a comprehensive evaporitic gypsum karst system.

c) Is there an effective overall management framework for all the component parts of the nominated property?

All nominated component parts are included in the overall management strategy that has been drafted. The strategy takes into account all the relevant stakeholders, including the regional administration of Emilia-Romagna and the national park administration. The strategy elaborates on the management structure that is based on the existing institutions and instruments. However, the structure is not in place yet and the nomination states would only become operational 18 months after a potential inscription. Management of visitors is critical and needs to be well established to avoid overcrowding at most attractive spots.

6. APPLICATION OF CRITERIA

The **Evaporitic Karst and Caves of Northern Apennines (Italy)** has been nominated under natural criterion (viii).

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

The values of the nominated property relate to evaporitic rocks deposited in two distinct geological periods: during the Triassic period (c.200 million years ago) associated with the breakup of the supercontinent Pangea and formation of the modern continents and the formation of the Atlantic and Indian ocean basins; and during the ecological catastrophe known as the Messinian Salinity Crisis (c.6 million years ago), when the present Mediterranean Sea largely evaporated. Over the last 500,000 years the current cave system developed within these two formations.

The area has been extremely well-studied since the 16th century. The cave systems and their evaporitic deposits (speleothems and minerals) have outstanding global significance. The area can be considered as the area with the most profusely studied, most accessible, more comprehensively displayed and better protected epigenic gypsum cave systems in the world. The nominated property contains an exceptional diversity of well-documented chemical deposits and minerals associated with gypsum caves. It has a very high density of caves: 900 caves with the length of over 100 km distributed over a relatively short distance, including the longest epigenetic cave in gypsum (11.5 km long Spipola-Aquafredda-Prete Santo cave system), the second deepest cave in gypsum in the world (265 m), and one of the largest hydrogeological tunnel in gypsum worldwide (over 7 km long). The nominated property contains an unusually high density of superficial karst forms, such as the largest gypsum cones described (2 m in diameter and 2 m high), and including caves, salt springs, minerals, speleothems, and hypogean bends.

The nine component parts of the nominated serial property seek to include most of the entire evaporitic rocks of the Northern Apennine range. They represent the whole karst phenomena in gypsum and anhydrite, including the outcropping and underground karst areas, the main karst aquifers, and their recharge areas. They also include a complete collection of epigean and hypogean karst morphologies from the dissolution surfaces in vertically exposed gypsum cliffs to the speleothems in the abysses of the caves. From the environmental integrity point of view, the quality of the karst systems is excellent. The continuity of the karst hydrological system, above and below ground, is well preserved in all the nominated component parts. The educational value of this exceptionally well-studied system is well illustrated in the several caves that are open to the public.

IUCN considers that the nominated property meets this criterion, noting that the related conditions of integrity, protection and management are not fully met at present.

7. RECOMMENDATIONS

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

The World Heritage Committee,

1. Having examined Documents WHC/23/45.COM/8B and WHC/23/45.COM/INF.8B2;

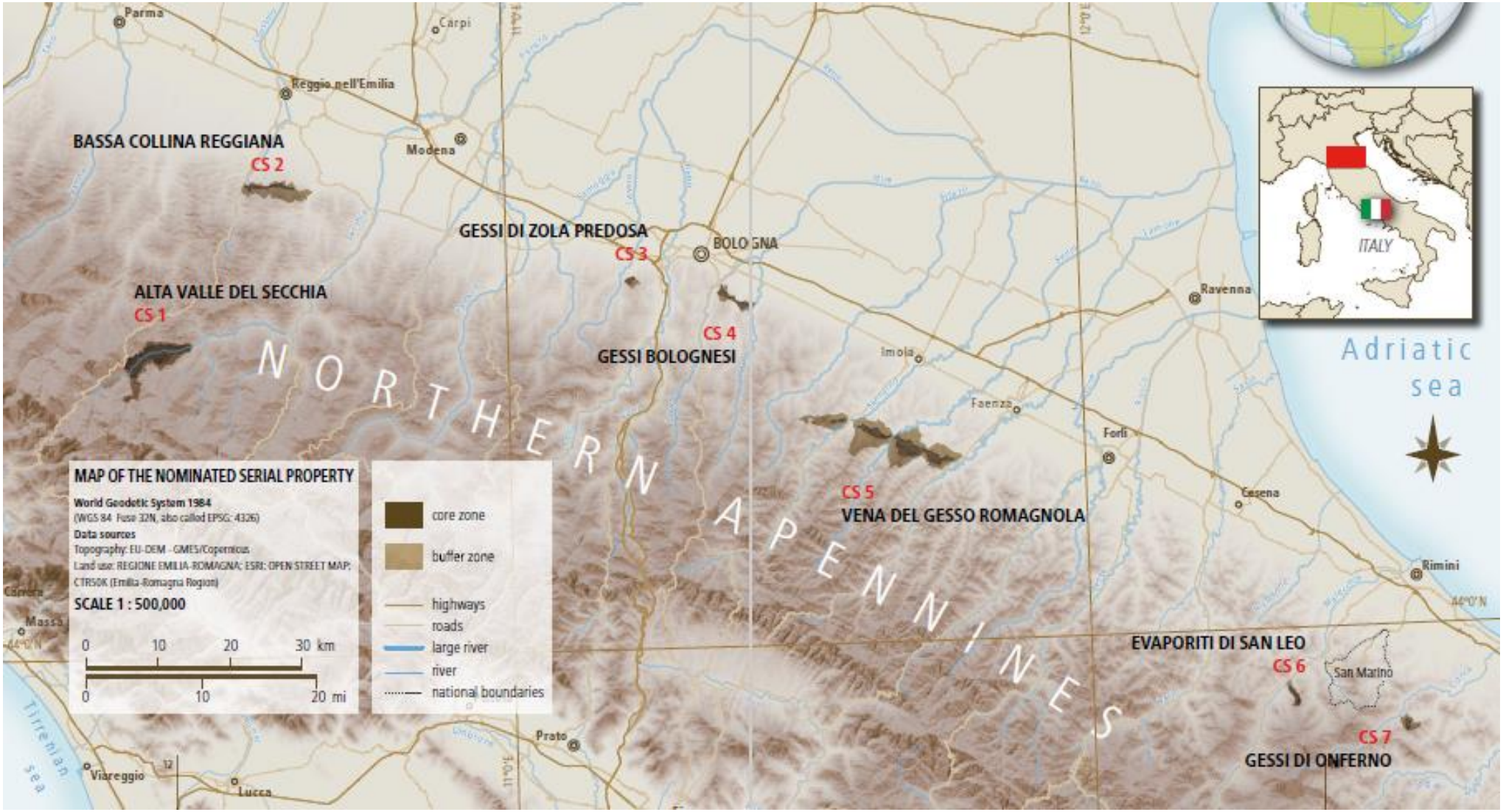
2. Refers the nomination of the **Evaporitic Karst and Caves of Northern Apennines** to allow the State Party to:

a) Modify the boundaries of the nominated property to ensure that the proposed attributes of potential Outstanding Universal Value are fully included,
b) Fully align the legal protection of the nominated property to the boundaries of the nominated property ensuring there are no gaps in legal protection within the boundaries of the nominated property,
c) Fully align the legal protection of the nominated property's buffer zones to ensure there are no gaps in legal protection within any of the buffer zones,
d) Confirm that the permit for quarrying in the Monte Tondo quarry will not be extended, and commence restoration activity as soon as practical;

3. Recommends the State Party to fully establish the planned management structure for the serial nominated property, and to consider:

a) developing a single unified protection system for the nominated component parts of the serial nominated property,
b) ensuring that the zonation of the Appennino Tosco-Emiliano Biosphere Reserve aligns with the protection and management regime needed for the nominated property,
c) preparing a visitor management plan that identifies areas of expected high levels of visitation, and the carrying capacity of the nominated property.

Map 1: Nominated property and buffer zone.



A. NATURAL PROPERTIES

A3. MINOR BOUNDARY MODIFICATIONS OF NATURAL PROPERTIES

EUROPE / NORTH AMERICA

FRENCH AUSTRAL LANDS AND SEAS

FRANCE

WORLD HERITAGE MINOR BOUNDARY MODIFICATION PROPOSAL – IUCN TECHNICAL EVALUATION

FRENCH AUSTRAL LANDS AND SEAS (FRANCE) – ID No. 1603bis

1. BACKGROUND INFORMATION

The "French Austral Lands and Seas" World Heritage property was inscribed on the World Heritage List under criteria (vii), (ix) and (x) in 2019 (Committee Decision 43 COM 8B.6). In its inscription decision, the Committee requested the State Party, *inter alia*, "to maintain, and strengthen if necessary, the measures which are in place to strictly regulate commercial fishing within the Exclusive Economic Zone (EEZ)".

IUCN's previous evaluation can be found in document WHC-21/43.COM/INF.8B2, which contain relevant analyses. The relevant documentation is available at http://whc.unesco.org/en/list/1603/documents/.

2. SUMMARY OF PROPOSED BOUNDARY MODIFICATION.

The minor boundary modification proposed by the State Party consists of an extension to all three component parts of the property: Crozet, Kerguelen and Saint-Paul et Amsterdam. All three component parts, as currently inscribed, total a terrestrial and marine area of 67,296,900 hectares (ha), making the property the largest inscribed on the World Heritage List. The extension would add 98,970,200 ha to the property resulting in a total area of 166,267,100 ha. The component part of Crozet would be extended from 25,578,400 ha to 57,519,300 ha, the component part of Kerguelen from 39,708,000 ha to 57,500,200 ha; and Saint-Paul et Amsterdam would be enlarged from 2,010,500 ha to 51,247,600 ha.

The minor boundary modification proposal is intended to align the boundaries of the property with the new, extended boundaries of the Nature Reserve. The areas proposed for extension would consist solely of marine areas. The revised property would cover the entire EEZ encircling the property's three archipelagos.

3. IMPACT ON OUTSTANDING UNIVERSAL VALUE

The minor boundary modification proposal presents the extension would, firstly, improve the representation of the property's attributes of Outstanding Universal Value (OUV) and, secondly, enhance the property's integrity under criterion (ix). Various scientific studies completed following inscription of the property suggest that the extended boundaries would more comprehensively cover the property's attributes. The extended area would increase the overlap with Important Marine Mammal Areas (IMMAs) identified in IUCN's 2020 report on the Fourth IMMA Workshop. The extension of the boundaries of Saint-Paul et Amsterdam would also more closely align with the respective marine Important Bird and Biodiversity Area (mIBA) and increase geographic range coverage of three Endangered Albatross species (Amsterdam Albatross, *Diomedea amsterdamensis*; Indian Yellow-nosed Albatross, *Thalassarche carteri*; Sooty Albatross, *Phoebetria fusca*, all EN) and the Northern Rockhopper Penguin (*Eudyptes moseleyi*, EN). Furthermore, a spatial analysis of the ecological importance of the pelagic and benthic zones indicates that the areas of ecological importance exceed the area currently inscribed.

These findings underpin Decree No. 2022-157 of 10 February 2022 extending and modifying the regulations of the Nature Reserve. The proposed minor boundary modification would align the boundaries of the property with the enlarged Nature Reserve, subjecting them to the same protection and management regime. IUCN notes that this Decree has also strengthened the protection regime of the property as it further reduces and controls human activity, including fishing, in the entire EEZ.

Based on the above research and the reinforced protection and management regime, IUCN considers that the extension of the property would, firstly, reinforce the protection of areas of high conservation value representing the same, yet more, of the habitats for avifauna, marine mammals, and pelagic and benthic species; and secondly, it would include important sections of migration corridors. The extension would thus not negatively affect the OUV of the property, but enhance the property's integrity and protection of its biodiversity.

Given the large areas of the proposed extension, the State Party has also discussed in detail whether this proposal would represent a minor or a significant modification of the boundaries. The analysis concludes that a significant boundary modification would apply only on the basis of percentage increase in area, whereas all considerations in regard to the property's OUV, latest science and the protection and management regime would be satisfied under a minor boundary modification.

As the attributes of OUV remain exactly the same, IUCN considers that the property's OUV would not be affected. Whilst the change in surface area is considerable, the revised boundaries would cover the same bathymetry and the same type of low-use marine area, which already constitutes the vast majority of the property's inscribed area. The modification would not add any new terrestrial area. Therefore, given the exceptional nature of the uninhabited low use marine

areas and considering that the attributes of the OUV remain exactly the same, IUCN concludes that this boundary modification proposal can be accepted as a minor one, in line with paragraph 163 of the *Operational Guidelines*. Furthermore, IUCN's very recent evaluation mission in 2019 – the most extended evaluation mission in IUCN's history – has obtained a full understanding of the property's values and wider marine areas as well as the property's protection and management system. IUCN thus considers that a new mission within the procedure of a significant boundary modification proposal would in all likelihood not provide any further insights in addition to those of the 2019 mission.

In addition, IUCN would like to commend the State Party of France for having considerably enhanced the protection and management of the property within a very short timeframe since its inscription in 2019 and in line with Committee Decision 43 COM 8B.6. The property itself and the present extension proposal represents a tremendously important milestone for marine conservation globally.

4. RECOMMENDATION

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

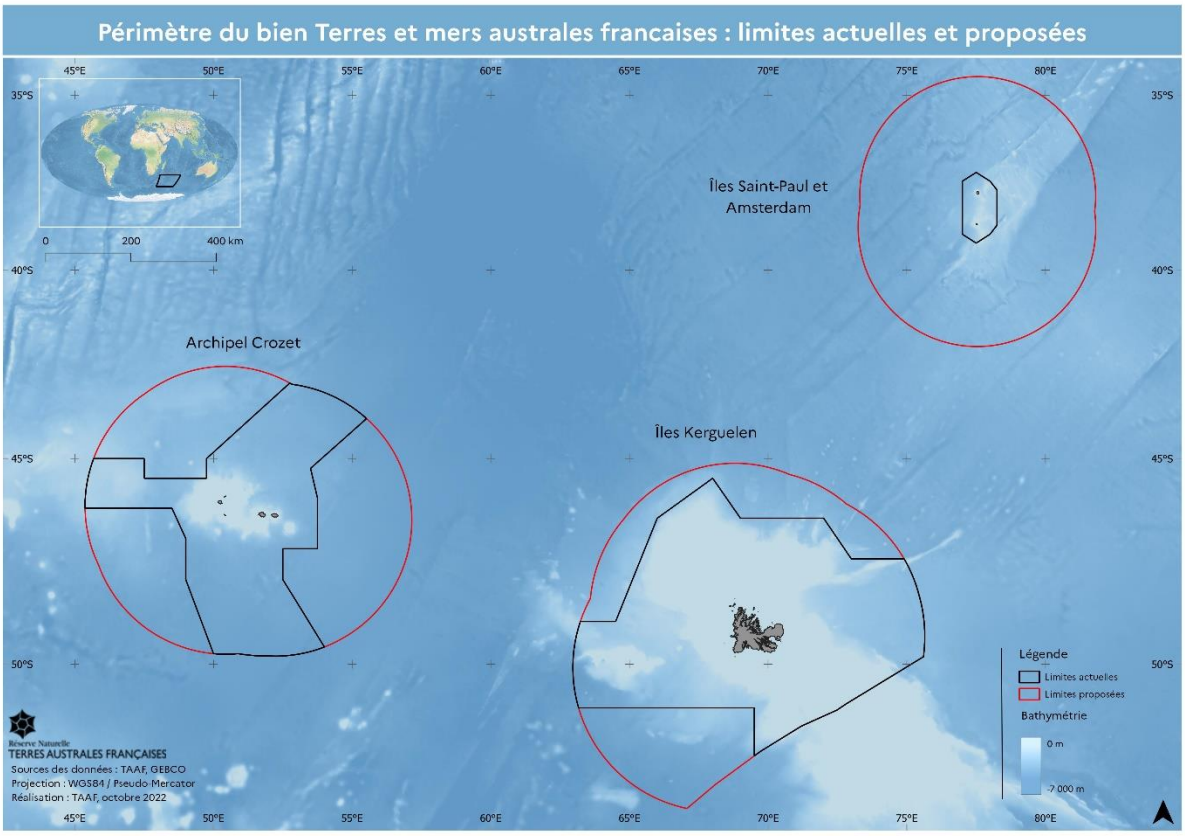
The World Heritage Committee,

1. Having examined documents WHC/22/45.COM/8B.ADD and WHC/22/45.COM/INF.8B2.ADD,

2. Recalling Decision **43 COM 8B.6**, adopted at its 43rd (Baku, 2019) session,

3. Approves the proposed minor boundary modification for the **French Austral Lands and Seas (France)**.

Map 1: World Heritage property and proposed minor boundary modification



EUROPE / NORTH AMERICA

COLCHIC RAIN FORESTS AND WETLANDS

GEORGIA

WORLD HERITAGE MINOR BOUNDARY MODIFICATION PROPOSAL – IUCN TECHNICAL EVALUATION

COLCHIC RAINFORESTS AND WETLANDS (GEORGIA) – ID No. 1616bis

1. BACKGROUND INFORMATION

The Colchic Rainforests and Wetlands World Heritage property in Georgia is a serial property with seven component parts boasting ancient deciduous Colchic rainforests and wetlands, including percolation bogs and other mire types of the Colchic mire region. The combined area of these component parts totals 31,253 hectares (ha) with buffer zones totalling 26,850 ha.

The property was inscribed in 2021 (Decision 44 COM 8B.8). In its inscription decision, the World Heritage Committee commended the State Party "for its commitment to expand the buffer zones of the property and to consider further enhancement of the conservation of the property by potentially adding additional areas, especially to protect critically endangered sturgeon through plans for a new protected area adjacent to the property". The Committee also strongly encouraged the State Party to "submit the proposed extensions of the buffer zones of the Churia component part towards the North and of the Nabada component part to support the conservation of the sturgeon population as a minor boundary modification, if possible, by 1 February 2023."

Furthermore, the Committee requested the State Party to continue to assess (a) "the feasibility of expanding the buffer zones around component parts 4, 5, 6, and 7 to ensure that they have higher connectivity", and (b) "the feasibility of expanding the buffer zone to protect coastal dunes that provide a barrier between the unique percolation mires and the Black Sea", besides other request.

IUCN's previous evaluation can be found in document WHC/21/44.COM/INF.8B2, which contain relevant analyses. The relevant documentation is available at http://whc.unesco.org/en/list/1616/documents/.

2. SUMMARY OF PROPOSED BOUNDARY MODIFICATION

Georgia submitted a minor boundary modification on 1 February 2023, proposing the extension of the buffer zones of the property's component parts Churia, Nabada and Grigoleti. The combined area proposed to be added to the buffer zones amounts to 1,203 ha.

The buffer zone of Churia would be almost doubled from 879 to 1,622 ha. The northward extension coincides with the Strict Protection Zone and the Traditional Use Zone of Kolkheti National Park. Furthermore, an additional 270 ha would significantly increase the buffer zone of Grigoleti northwards, currently at 328 ha. The area is mostly subject to the Traditional Use Zone of the National Park, along with a small section of the Strict Protection Zone. The buffer zone extensions would improve the hydrological buffering function and add a layer of protection against nutrient and pesticide inputs from agricultural areas and encroachment of any potential infrastructure developments.

Nabada's buffer zone currently measures 2,586 ha and would be slightly extended by 190 ha through a new buffer zone section separated from the existing buffer zone and covering the lower part of Rioni River. The Rioni River represents important habitats for six Critically Endangered sturgeon species. The area corresponds with a newly created Strict Protection Zone of Kolkheti National Park.

3. IMPACT ON OUTSTANDING UNIVERSAL VALUE

The minor boundary modification proposal highlights the positive impacts the buffer zone extension would have for the integrity of the property. The enlarged buffer zones would increase the area where permitted activities are more strictly controlled and therefore reduce the threats arising from alterations to the hydrological regime, peat extraction, nutrient and pesticide input from agriculture and encroachment from infrastructure development. It will improve the hydrological and ecological connectivity and resilience of the component parts, where appropriate, and support the re-colonization of sturgeon from Rioni River to other areas.

All proposed buffer zone areas are subject to the same protected area regime as the existing buffer zones. They are subject to a legally binding management plan prescribing the prohibited and permitted activities in the Traditional Use Zone and Strict Protection Zone. The management authority in charge of the management of the additional buffer areas will be the administration of Kolkheti National Park.

In its 2020 evaluation, IUCN has noted that the integrity of the property could be further improved if the buffer zone of component parts 4 (Imnati) and 5 (Pitshora) would be joined with the nearby buffer zones of component parts 6 (Nabada) and 7 (Churia) as this would enhance connectivity and include river habitats for critically endangered Sturgeon. In response to IUCN's remarks, the State Party provided supplementary information in 2020, confirming the feasibility to expand the buffer zones and that an extension of Kolkheti National Park was already in preparation. IUCN welcomes that the State Party has started the implementation of the above through the submission of a minor boundary modification, in line with Committee Decision 44 COM 8B.8.

The minor boundary modification proposal also included in an Annex a summary and conclusions of the "Feasibility study on expanding the buffer zones around the component areas of Grigoleti, Imnati, Nabada and Churia", in line with the Committee's request in its Decision 44 COM 8B.8. The present boundary modification proposal represents the result of the first conclusion of the feasibility study stating that this extension is immediately feasible. The study further concluded that another buffer zone extension would be possible in the medium term, as soon as the legal basis and the relevant management regime has been established. This second buffer zone extension would consist of seven areas being added to the existing buffer zones. Finally, the feasibility study concludes that the creation of a continuous buffer zone encompassing the Imnati/Pitshora, Nabada and Churia component parts would not be feasible for socio-economic reasons and not necessary to protect the property's OUV. IUCN welcomes the results of this feasibility study and the State Party's commitment to act upon these results.

In conclusion, IUCN recommends the Committee to accept the minor boundary modification proposal as it is in line with Committee Decision 44 COM 8B.8. IUCN further encourages the State Party to implement the recommendations of the feasibility study and to subsequently submit another minor boundary modification proposal to further strengthen the buffer zone arrangements, in line with Committee Decision 44 COM 8B.8.

4. RECOMMENDATION

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

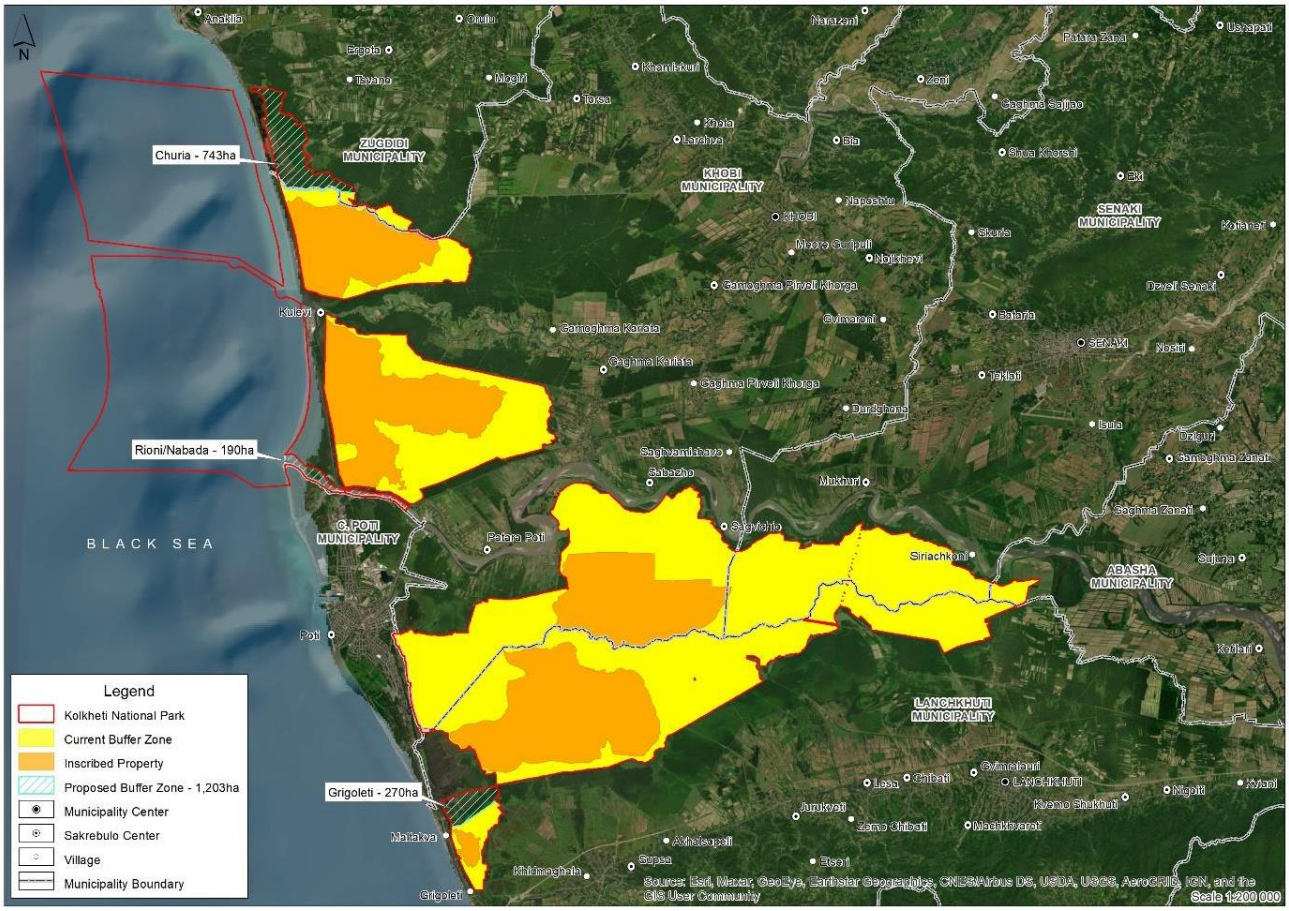
The World Heritage Committee,

1. Having examined documents WHC/22/45.COM/8B.ADD and WHC/22/45.COM/INF.8B2.ADD,

2. Recalling Decision **44 COM 8B.8**, adopted at its 44th (Fuzhou (China)/Online, 2021) session,

3. Approves the proposed minor boundary modification for the **Colchic Rainforests and Wetlands (Georgia)**.

Map 1: World Heritage property and proposed minor boundary modification



B. MIXED PROPERTIES

B1. NEW NOMINATIONS OF MIXED PROPERTIES

ASIA / PACIFIC

HIGHLANDS OF THE MONGOLIAN ALTAI

MONGOLIA

Highlands of the Mongolian Altai © IUCN / Sonali Ghosh

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

HIGHLANDS OF THE MONGOLIAN ALTAI (MONGOLIA) – ID N° 1672

IUCN RECOMMENDATION TO WORLD HERITAGE COMMITTEE: To defer the nomination under natural criterion (x)

Key paragraphs of Operational Guidelines:
Paragraph 77: The nominated property has the potential to meet criterion (x).
Paragraph 78: The nominated property partially meets integrity requirements, meets protection requirements, but does not meet management requirements.

Background note: The proposed nomination is a serial, mixed site proposed under cultural criteria (ii), (iii), (iv), and (v) and natural criterion (x). It consists of two nominated component parts, named 'Altai Tavan Bogd National Park (ATBNP) - Part of the ATBNP' – overlapping partially with the nationally designated ATBNP – and 'Siilkhem Mountain National park – Part of the SMNP '– overlapping partially with the nationally designated SMNP. The Altai Tavan Bogd National Park adjoins the Ukok Quiet Zone, a component part of the Golden Mountains of Altai World Heritage serial property in the Russian Federation which was inscribed in 1998 under criterion (x). A China Altay nomination was also submitted by the People's Republic of China in 2010. That nomination was a serial site under criteria (vii), (viii) and (ix), with two components (Kanas National Nature Reserve and Two Rivers' Headwaters Nature Reserve of Altay), to the west of the currently nominated property, but that nomination was withdrawn.

The present nomination was originally received in February 2021. However, as a consequence of the global Covid-19 pandemic, the evaluation had to be postponed from the 2021/2022 to the present 2022/2023 evaluation cycle.

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1. DOCUMENTATION

a) Date nomination received by IUCN: February 2021

b) Additional information officially requested from and provided by the State Party: A joint IUCN-ICOMOS letter for additional information was sent to the State Party on 10 October 2022. IUCN's interim report was sent on 25 January 2023, advising on the status of the evaluation process and requesting further supplementary information. IUCN requested information on: (i) engagement with local communities, particularly nomadic herders, and safeguards for their rights; (ii) maps and written summaries detailing any mining activities and the scale and precise location of the planned hydroelectric power plant; (iii) the status of management planning, including data on management staff for each nominated component part as well as data on tourism, fees and revenues; (iv) the selection of the nominated component parts, and in particular why Siilkhem National Park (SMNP) Section B was included in the initial submission to the Tentative List, but not included in the nominated property or included in the buffer zone; (v) further data on populations of important animal species in the nominated property, as well as data on illegal wildlife trade; and (vi) data on the total number of livestock in the nominated property, including research undertaken to analyse impacts of livestock grazing. Supplementary information was provided by the State Party on 14 November 2022 and 27 February 2023.

c) Additional literature consulted: IUCN's evaluation consulted a wide array of relevant reference material for the biology, ecology, protection and management of the existing property. Further references included: Augugliaro, C., Christe, P., Janchivlamdan, C., Baymanday, H., & Zimmermann, F. (2020). Patterns of human interaction with snow leopard and co-predators in the Mongolian western Altai: Current issues and perspectives. Global Ecology and Conservation, 24, e01378; Bayandonoi, G., Sharma, K., Shanti Alexander, J., Lkhagvajav, P., Durbach, I., Buyanaa, C., Munkhtsog, B., Ochirjav, M., Erdenebaatar, S., Batkhuyag, B. and Battulga, N. (2021). Mapping the ghost: Estimating probabilistic snow leopard distribution across Mongolia. Diversity and Distributions, 27, 12, 2441-2453. Beket, U. and Knapp, H.D. (2012). Protection of the natural and cultural heritage of the Mongolian Altai. Beket, U. (2009). The Vegetation of the Mongolian Altai. Problems of sustainable land use and nature conservation. BfN-Skripten 257, 1-18; Ganbold, O., Munkhbayar, M., Paik, I. H., Bing, G. C., Jargalsaikhan, A., Purevee, E. and Peak, W. K. (2017). Globally threatened birds in Mongolia: a review. Journal of Asia-Pacific Biodiversity, 10, 4), 435-440; Hilker, T., Natsagdorj, E., Waring, R. H., Lyapustin, A., and Wang, Y. (2014). Satellite observed Widespread decline in Mongolian grasslands largely due to overgrazing. Global Change Biology 20, 2, 418–428. In: Ibisch, P. L. (Ed.). (2015). Great Altay Transboundary Biosphere Reserve: Development of a Management Plan of the Proposed Great Altay Transboundary Biosphere Reserve (Republic of Kazakhstan and Russian

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d) Consultations: 8 desk reviews were received. The mission met with a wide range of stakeholders and with key experts and officials, including from the Department of Cultural Heritage, Ministry of Culture & Deputy-Chairperson of the World Heritage National Committee, the Special Protected Areas Department of the Ministry of Nature, Environment, and Tourism, the Secretary-General of the Mongolian National Commission for UNESCO, the Special Protected Areas Department of the Ministry of Nature, Environment, and Tourism, the Ministry of Nature, Environment, and Tourism, and the Ministry of Environment and Tourism of Mongolia.

e) Field Visit: Sonali Gosh (IUCN) and Kai Weise (ICOMOS), 14 to 24 August 2022.

f) Date of IUCN approval of this report: April 2023

2. SUMMARY OF NATURAL VALUES

The Altai Mountains form the western part of the Altai-Sayan Ecoregion, a Global 200 priority ecoregion at the junction of Central Asia and Siberia with large wilderness landscapes and high rates of endemism. The entire ecoregion covers more than 100 million hectares (ha), 62% of which is located in the Russian Federation, 29% in Mongolia, 5% in Kazakhstan, and 4% in China. The serial World Heritage property of the Golden Mountains of Altai (Russian Federation) was inscribed as a World Heritage site in 1998. Several reports and research documents have therefore highlighted the potential for extending the Golden Mountains of Altai property to a transnational, serial World Heritage property, given that the Altai Mountains in the Russian Federation are dominated by Siberian coniferous forests, whereas in the Mongolian Altai the vegetation is characterized by Central Asian steppe and desert vegetation, with some taiga forests and alpine tundra.

The nominated property is located in the Bayan Olgii Province, which is the westernmost Mongolian province of the Altai-Sayan Ecoregion. The landscape is characterized by steppe, alpine meadow vegetation, and high mountains. Only 10% of the province is covered by forest, consisting mainly of Siberian Larch (*Larix sibirica*, LC), most of which are found in the Altai Tavan Bogd National Park. The province has six national parks and out of these, parts of Altai Tavan Bogd National Park and Section A of Siilkhem Mountain National Park have been proposed for inscription on the World Heritage List.

The property is nominated under cultural criteria (ii), (iii), (iv), and (v), as an example of the interchange of human traditions within a high mountain area over a period of several thousand years, as evidenced by the rich Bronze Age (Late 3rd to 2nd millennia BCE) monuments and deer-stones, burial mounds, altars, and image stones of the Scythians and Turks, as a testimony to ancient nomadic cultural traditions, which are still practiced by indigenous ethnic Altai communities today, and as a testimony to the continued presence of human cultures over millennia, as demonstrated by the monuments within archaeological and cultural sites from the Paleolithic period through the Bronze Age, and by successive nomadic peoples and their empires, including Scythians, Hunnu, Turkic and Uyghur people, and Mongols.

Table 1: Areas of the nominated property and buffer zone

No.	Name of the component part of the nominated property	Area of nominated component part (ha)	Area of the proposed buffer zone (ha)
1	Altai Tavan Bogd National Park (ATBNP) – Part of the ATBNP	496,017.06	117,811.54
2	Siilkhem Mountain National park (SMNP) – Part of the SMNP	69,433.37	29,086.36
Total area (ha)		**565,450.43**	**146,897.90**

The property is also nominated under criterion (x) and the State Party notes that the nominated component parts would help secure habitat areas for numerous rare and endangered species, particularly the Argali (*Ovis ammon*, NT), Siberian Ibex (*Capra sibirica*, NT), Snow Leopard (*Panthera uncia*, VU), Eurasian Lynx (*Lynx lynx*, LC), and Pallas's Cat (*Otocolobus manul*, LC), but also raptors threatened by falconry (e.g. Saker Falcon, *Falco cherrug*, EN). Mongolia is home to the second largest population of snow leopards in the world, totaling about 1,000 snow leopards across the Mongolian Altai, Gobi Altai and Khuvsgul mountains in an area of about 10.3 million ha, and representing the easternmost population of the species. A recent study indicated a minimum of 23 individuals in the Altai Mountains, reiterating its importance as a conservation area for snow leopards. This region also provides prime habitat for numerous other carnivores including Grey Wolf (*Canis lupus*, LC), Wolverine (*Gulo gulo*, LC), Red Fox (*Vulpes vulpes*, LC), Beech Marten (*Martes foina*, LC), and Steppe Polecat (*Mustela eversmanii*, LC). Brown Bear (*Ursus arctos*, LC) has been reported in a few scattered areas bordering Russia and China (i.e. Siilkhem Mountains National Park Section A, Altai Tavan Bogd National Park and Chigertei National Park). Potential wild prey for snow leopard occurring in the province includes Siberian Ibex, Argali, Mountain Hare (*Lepus timidus*, LC), Tolai Hare (*Lepus tolai*, LC), Mongolian Marmot (*Marmota Sibirica*, EN), Pikas (*Ochotona pallasi, Ochotona dauurica*, *Ochotona alpina*), and Red Deer (*Cervus elaphus*, LC). The nomination document also cites the broad range of ecosystems along a steep altitudinal gradient and high floristic diversity as a justification for inscription.

3. COMPARISONS WITH OTHER AREAS

The comparative analysis provided in the nomination document is limited in several key respects. First, it focuses mainly on comparisons within the Altai Highlands Udvardy Province, and the Mountains of Central Asia, a Biodiversity Hotspot separate from the nominated property. A greater focus on ecoregions and priority ecoregions, and terrestrial realm-biomes, would have allowed a broader analysis and more site comparisons. In addition, the analysis on the Altai Highlands Udvardy Province appropriately focuses on the Golden Mountains of Altai World Heritage property in the Russian Federation but omits the Uvs Nuur Basin World Heritage property in Mongolia and the Russian Federation, which also overlaps with this Udvardy Province. Second, the analysis focuses on ecosystem types, climate and geology, but provides few specifics on species richness, endemism and endangered species, which would have provided more insight, as this property is nominated under criterion (x). Therefore, IUCN has requested supplementary information on the species found in the nominated property.

Some of the species numbers listed in the nomination were revised in the supplementary information, with slightly higher totals (359 plants, 42 mammals and 19 birds). However, even with this upward revision, these figures do not suggest exceptionally high biodiversity. The supplementary global comparative analysis that IUCN conducted in collaboration with UNEP-WCMC indicates that species richness in other World Heritage properties and Tentative List sites in the region is substantially higher than in the nominated property, in particular with respect to plants and birds. With respect to plants, the WCMC analysis indicates that the two existing World Heritage properties in the region, which are listed solely for criterion (x), i.e., Golden Mountains of Altai and Western Tien-Shan, and the Tentative Listed site in the region proposed under criterion (x), i.e., Northern Tyan-Shan in Kazakhstan, all have far higher overall plant diversity than the proposed nomination (359 species in the nominated property compared to approximately 2,000, 5,000, 1,200 respectively). In addition, the twelve natural World Heritage properties and Tentative List sites analysed by WCMC that are found in the same Palearctic Montane Grasslands & Shrublands realm-biome or in the Palaearctic Temperate Grasslands, Savannas, and Shrublands realm-biome also have substantially higher species numbers for birds. The supplementary information listed 11 Endangered or Critically Endangered bird, plant and mammal species, though several of these species are also present in many other protected areas.

Thus, WCMC found that the plant and animal diversity of the nominated property seems to be relatively low, consisting to a large degree of species characteristic of steppe, forest-steppe, mixed forest, and sub-alpine vegetation to alpine vegetation, and likely of regional significance. The endangered animal species in the nominated property, such as the Snow Leopard and Argali are iconic and important species but are found throughout the region. WCMC also noted that neither the nominated property nor any of the biogeographical regions where it is found have been mentioned as a gap in representation on the World Heritage List. The nominated property does not overlap with any protected area considered to be amongst the most irreplaceable in the world for the conservation of mammal, bird or amphibian species, nor does it overlap with any

Biodiversity Hotspot, High Biodiversity Wilderness Area, Endemic Bird Area or Centre of Plant Diversity.

An important note is that the WCMC spatial analysis of species range suggests that it is conceivable that the number of species overlapping with the boundaries of the nominated property could be significantly higher than cited in the nomination, and in fact comparable to other sites in the region. However, based on the species data provided by the State Party in supplementary information, IUCN was not able to ascertain if this is the case. Improved species data is therefore essential to potentially make a finding that the nominated property is of global, rather than of regional significance. IUCN would therefore recommend that the State Party review species data for the nominated property to make it possible to assess whether species levels are indeed lower than other protected areas in the region, or if they are in fact higher. In conclusion, IUCN considers that the nominated property does not currently demonstrate global significance under criterion (x).

In conclusion, IUCN considers that, based on currently available date, the nominated property is not globally significant under criterion (x).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The nominated property is under state ownership and overlaps with two National Parks, corresponding to IUCN Category II protected areas in IUCN's protected area classifications system. Several national laws, decrees, and regulations protect the nominated property at both the national and *Aimag* (province) levels. In Mongolia, hunting of Argali, Ibex and Snow Leopards has been prohibited since the late 1950s and they are included in the list of rare wild species under the Law of Mongolia on Fauna (2000). Most large mammals are also listed in the Red Book of Mongolia (Editions 1987, 1997 and 2013) and are also Appendix I & II species of the CITES, CMS and other international conventions. Within the territories of National Parks, activities such as hunting, application of chemicals, mining operations, commercial building and constructions are strictly prohibited.

In 2012, the President of Mongolia issued a decree declaring Altai Tavan Bogd Mountain a State-worshipped Sacred Mountain of Mongolia and retaining the highest status of state protection. In addition to these formal protections, the Altai mountains are revered, and the nomadic herders have used the area for millennia. The continuity of the traditional land use, the nominated property's remote location and limited visitation have resulted in effective protection and conservation of habitats, flora and fauna.

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

4.2 Boundaries

According to the maps in the nomination file, the area of the nominated property is fully covered by existing protected areas. The buffer zones are extensive, and the boundaries of each of the nominated component parts are clearly delineated, as are their buffer zones. The area of the nominated component part of 'Altai Tavan Bogd National Park (ATNP) – Part of the ATNP' – overlapping partially with the nationally designated park of the same name, ATNP – and the nominated component part of 'Siilkhem Mountain National park (SMNP) – Part of the SMNP' – also overlapping partially with the nationally designated park of the same name, SMNP Section A – are 496,017 ha and 69,433 ha respectively and their buffer zones are 117,811 ha and 29,086 ha respectively. They are therefore of sufficient size to ensure an adequate representation of the complete sequence of altitudinal vegetation zones, ranging from the steppe, forest-steppe, and subalpine vegetation to alpine vegetation, as well as the characteristic species of these ecosystem types, including key endangered species such as the Snow Leopard and Argali and a range of wide-ranging predators, and to ensure the long-term integrity of these areas. They also capture the hydrological values associated with the nominated property.

However, it deserves to be noted that the eastern part of Siilkhem Mountain National Park Section A is not included in the nominated property. Similarly, the south-eastern end of Altai Tavan Bogd National Park is not part of the nominated property. To improve the integrity of the nominated property, IUCN recommends including these areas within the boundaries of a revised nomination. Both nominated component parts also contain areas that are not covered by the respective national parks, a very significant section in the case of the nominated component part of 'Siilkhem Mountain National park (SMNP) – Part of the SMNP'. Nevertheless, the maps provided in the nomination dossier confirm that the entire nominated property is protected.

Furthermore, the exclusion of Siilkhem Mountains National Park Section B from the nomination raises concern as the field mission noted that this area had a significant Snow Leopard population and offers good connectivity to the Altaisky Zapovednik and buffer zone around the Lake Teletskoye component part of the Golden Mountains of Altai World Heritage property in the Russian Federation. The inclusion of Siilkhem Mountains National Park Section B in a revised nomination may be important to ensure the overall integrity of the nominated property, should improved species data confirm Siilkhem Mountains National Park Section B as an essential element to fully express the potential OUV under criteria (ix) and/or (x).

IUCN considers that the boundaries of the nominated property and buffer zones partially meet the requirements of the *Operational Guidelines*.

4.3 Management

As part of the preparation for the present nomination, the State Party has developed a 'primary draft' of the Management Plan for the Conservation of the Highlands of the Mongolian Altai with the involvement of multiple stakeholders. The plan is subdivided into a long-term Management Plan for the period from 2021 to 2029 and a medium-term Management Plan to be implemented from 2021 to 2025. The plans cover both natural and cultural heritage. In addition, there is a 2020-2024 management plan for the Altai Tavan Bogd National Park and Siilkhem Mountain National Park.

Based on the supplementary information provided by the State Party, it appears that the current 2020-2024 management plan for Altai Tavan Bogd National Park is under revision to account for new scientific studies and stakeholder consultations. This revision is not yet complete but is expected by 2024, and is expected to include eight strategies, 23 goals, and 107 activities, including a formally approved tourism route of Altai Tavan Bogd National Park, which will be marked and posted, and which will be designed to reduce unregulated tourism. However, as of now, a comprehensive management plan, including for tourism management, is not in place and what is provided in the nomination document annexes sets out broad objectives but without a clarity as to how the implementation is adequately resourced and how success will be measured.

The field evaluation mission also noted degradation and overgrazing as threats, a problem also referred to in literature. The supplementary information provided by the State Party indicates that consultations are ongoing on this issue and that there are regular public forums held twice a year with local officials, and clear regulations regarding grazing allowances. However, the supplementary information also notes that the number of livestock in the nominated property has increased by 6% a year over the last four years, indicating a concerning trend.

In addition, staffing levels remain low, with only 37 staff in total for both nominated component parts to address all management needs, including tourism regulation, wildlife monitoring, prevention of illegal activities, park administration etc. in two large national parks. Available financial resources are also low. The nomination document indicates that the Altai Tavan Bogd National Park Protection Administration has a fixed asset of approximately 85,000 USD and a 2018 budget of approximately 82,000 USD and although the supplementary information suggests that budgets will be increased substantially (to approximately 3 million USD for the duration of the new four-year management plan), including 3-4 additional staff, it is not clear whether these higher funding levels have been formally approved at the time of writing of this evaluation.

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

4.4 Community

The nominated property has been and remains central to many cultures. Nomadic groups (Khalkha, Uriankhai, Durvud, Kazakh, and Tuvans) continue to live traditionally as they have for thousands of years, herding livestock to seek new pasture and depending on their herds for their livelihoods. Ancient traditions of herding, horse riding, yak and camel domestication and use remain, as has the profound spiritual importance of the landscape and the significance of many sacred sites. These strong cultural ties to the land play a critical role in ensuring the protection and stewardship of the nominated property. The nominated areas themselves are not inhabited permanently and human population density is low (less than 2 individuals/km^2). The IUCN field evaluation mission noted that local communities were fully aware on the National Park status, but only partially aware of the World Heritage nomination, though the supplementary information provided by the State Party confirms that consultations regarding the World Heritage nomination have been ongoing and will continue through the preparation of the management plan.

4.5 Threats

Whilst the overall threat level is currently low, there are a number of potential threats that require close attention. There is a proposed development area (Tsagaannuur economic free zone) between the two parts of Siilkhem Mountain National Park, i.e. between Siilkhem Mountain National Park Section A overlapping with the nominated property and the nearby Section B, which is not nominated. The proposed development area currently includes plans for a power station, a new and an improved road and mining operations at the Asgat silver deposit.

The Asgat silver deposit adjoins Siilkhem Mountain National Park Section B, located more than 30 km away from Siilkhem Mountain National Park Section A, and is situated in a different watershed. In case a revised nomination would include Siilkhem Mountain National Park Section B, it would be important to ensure a rigorous and systematic social and environmental impact assessment to assess the impact on the potential Outstanding Universal Value (OUV) of the nominated property, in line with the *Guidance and Toolkit for Impact Assessments in a World Heritage Context*, prior to taking any decision that would be difficult to reverse. In this respect, it is also important to note the Committee's established position that mining exploration and exploitation are incompatible with World Heritage status.

Based on the schematic map provided in the supplementary information, the development corridor appears to overlap with the wider protected area boundary of Siilkhem Mountain National Park Section A, but does not appear to overlap with the nominated property and its buffer zone. However, at a distance of approximately 20 km from the nominated property, the development corridor does raise concerns as the nominated component part of 'Siilkhem Mountain National park (SMNP) – Part of the SMNP' could be

affected indirectly by the projects within the development corridor, such as from increased access and traffic. IUCN recommends conducting rigorous Strategic Environmental Assessments and/or Environmental Impact Assessments as needed for the development corridor and linear infrastructure, including the transnational road between Siilkhem Mountain National Park Section A and Section B. The assessments should take into account the potential OUV of the nominated property. In addition, it is recommended to conduct the assessments in line with the *Guidance and Toolkit for Impact Assessments in a World Heritage Context*, prior to taking any decision that would be difficult to reverse.

In addition, the nomination suggests that overgrazing is an issue, and this concern was also raised by the field evaluator and in the literature. The supplementary information provided by the State Party indicates that consultations are ongoing on this issue and that there are regular public fora held twice a year with local officials, and clear regulations regarding grazing allowances. However, the document also notes that the number of livestock in the nominated property is increasing steadily. This is therefore a key issue to monitor and to address in the pending management plan for the nominated property.

Climate change is an ever-present concern. Temperatures have risen faster in Mongolia than elsewhere around the world (over 2°C since 1940) and glaciers are retreating. Combined with overgrazing, this could lead to rapid desertification over large areas and could also pose a threat to the nominated property, making the maintenance of its ecological integrity all the more critical. Finally, a potential threat to aquatic biodiversity is the possibility of a Mongolian grayling hatchery, which might impact wild Mongolian grayling populations.

IUCN considers in summary that the nominated property meets protection requirements, that it partially meets integrity requirements, but that it does not meet the management requirements of the *Operational Guidelines*.

5. ADDITIONAL COMMENTS

5.1 Consideration in relation to serial properties

a) What is the justification for the serial approach?

The justification for the nomination of “Highlands of the Mongolian Altai” through two component parts located in the northern half of the Highlands of the Mongolian Altai is that together they represent an integrated cultural and natural landscape going back at least to the upper Palaeolithic period. The nominated property also represents the most complete sequence of altitudinal vegetation zones, ranging from the steppe, forest-steppe, and subalpine vegetation to alpine vegetation that supports several rare and endangered species including the Snow Leopard, and both components are important to wildlife dispersal and migration into the Russian Federation.

b) Are the separate component parts of the nominated property functionally linked in relation to the requirements of the Operational Guidelines?

Both nominated component parts are functionally linked in the sense that they all form part of the similar vegetation that is characterised by Central Asian steppe and desert vegetation in a complex relationship with extra-zonal taiga forests and alpine tundra, and together form the complete range of ecosystems along a steep altitudinal gradient. They are also functionally linked in the sense that connectivity exists between both nominated component parts to allow for wildlife dispersal and that they provide connectivity for wildlife movements into the Russian Federation.

c) Is there an effective overall management framework for all the component parts of the nominated property?

The nomination document includes a ‘primary draft’ of the Management Plan for the Conservation of the Highlands of the Mongolian Altai (MPCHMA) in Annex IV. This document was drafted by a wide range of institutions, including national and provincial government agencies as well as NGOs. However, the text provided in Annex IV is very broad in scope, and very brief on management in relation to the nominated property’s biodiversity values, with few details on activities, resources needed or how success will be measured. While there are some specific activities related to wildlife management referenced, much of this document consists of general objectives, such as the promotion and increase of support from rangers and local communities against poaching, and illegal picking and sale of medicinal, rare and endangered plant species. In addition, some of the measures proposed, such as developing a grayling hatchery, which could interfere with wild grayling populations, in fact raise concerns. As noted, the supplementary information states that the existing 2020-2024 management plan for Altai Tavan Bogd National Park is under review, with a more detailed document planned for 2024. This document may well provide more specifics. However, as of now, the nominated property’s management plan does not appear to be an effective overall management framework for the serial nominated property in place as the current plan does not specify clear management guidance on strategies, objectives, activities, resources and staffing.

6. APPLICATION OF CRITERIA

Criterion (x): Biodiversity and threatened species

The species data that is currently available for the nominated property indicates that species richness is not exceptional. Numbers for plant species (359), and birds (19) in particular are low. Eleven of the 132 species listed in the supplementary material are classified as Endangered or Critically Endangered, but many of these species are also present in other protected areas in the region. As a result, and based on the species data provided, the nominated property does not stand out as an area of high irreplaceability for species conservation. However, and as noted, based on

its species range analyses, the WCMC comparative analysis suggests that species totals could in fact be higher than what has been presented by the State Party. That has yet to be confirmed and will require improved data but would seem to be worth investigating further.

The nomination document accurately notes that the nominated property represents the most complete sequence of altitudinal vegetation zones in central Siberia, ranging from the steppe, forest-steppe, mixed forest and subalpine vegetation to alpine vegetation. The nominated property also exhibits a significant hydrological integrity and lies in the Western Mongolia freshwater ecoregion, which is currently not represented on the World Heritage List. This may suggest that with further comparative analysis at global level, a justification for inscribing this site under criterion (ix) could possibly emerge.

IUCN considers that the nominated property does not meet this criterion, but may have the potential to meet criterion (ix) and/or (x) should an in-depth comparative analysis and improved species data confirm global rather than regional significance.

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 cultural criteria and included in the working document WHC/23/45.COM/8B:

The World Heritage Committee,

1. Having examined Documents WHC/23/45.COM/8B and WHC/23/45.COM/INF.8B2,

2. Defers the nomination of the **Highlands of the Mongolian Altai** to the World Heritage List under natural criterion (x) to allow the State Party to prepare a fully revised and expanded nomination, including to:

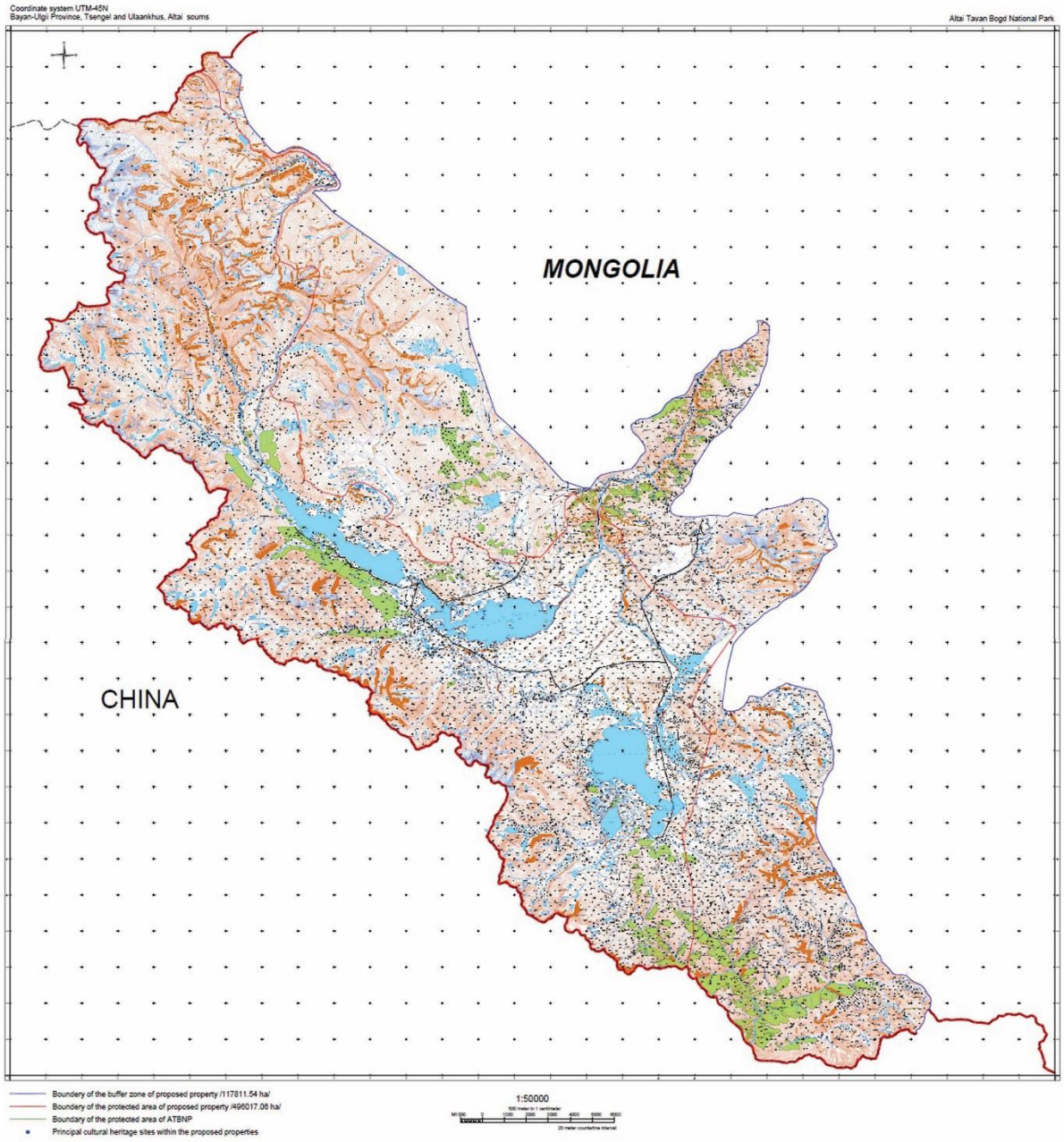
a) Establish complete and up-to-date species data for the nominated property to ensure a comprehensive assessment of the potential species richness of the nominated property and an accurate and revised comparative analysis demonstrating potential OUV,
b) Consider including the full extent of Altai Tavan Bogd National Park and Siilkhem Mountain National Park, Section A, as well as adding Siilkhem Mountains National Park, Section B, in the nominated property to ensure a more complete representation of wildlife values and to improve connectivity should the up-to-date species data confirm Siilkhem Mountains National Park, Section B, as an essential element to justify criterion (x),
c) Include in the management plan, through the ongoing revision of the current 2020-2024 management plan for the nominated property, a wildlife monitoring plan for threatened species and to prevent illegal activities, as well as a tourism management plan for key routes for low-impact tourism, zones and attraction areas, according to their carrying capacities, and including the installation of adequate visitor control mechanisms and monitoring arrangements,
d) Increase funding and staffing levels for the implementation of the revised management plan,
e) Ensure Strategic Environmental Assessments and Environmental Impact Assessments are conducted as needed, in line with the *Guidance and Toolkit for Impact Assessments in a World Heritage Context,* for development plans, projects and linear infrastructure, including the transnational road between Siilkhem Mountain National Park Section A and Section B and any planned mining project within the nominated property, its buffer zone and/or its wider setting, while noting the Committee's established position that mining exploration and exploitation are incompatible with World Heritage status;

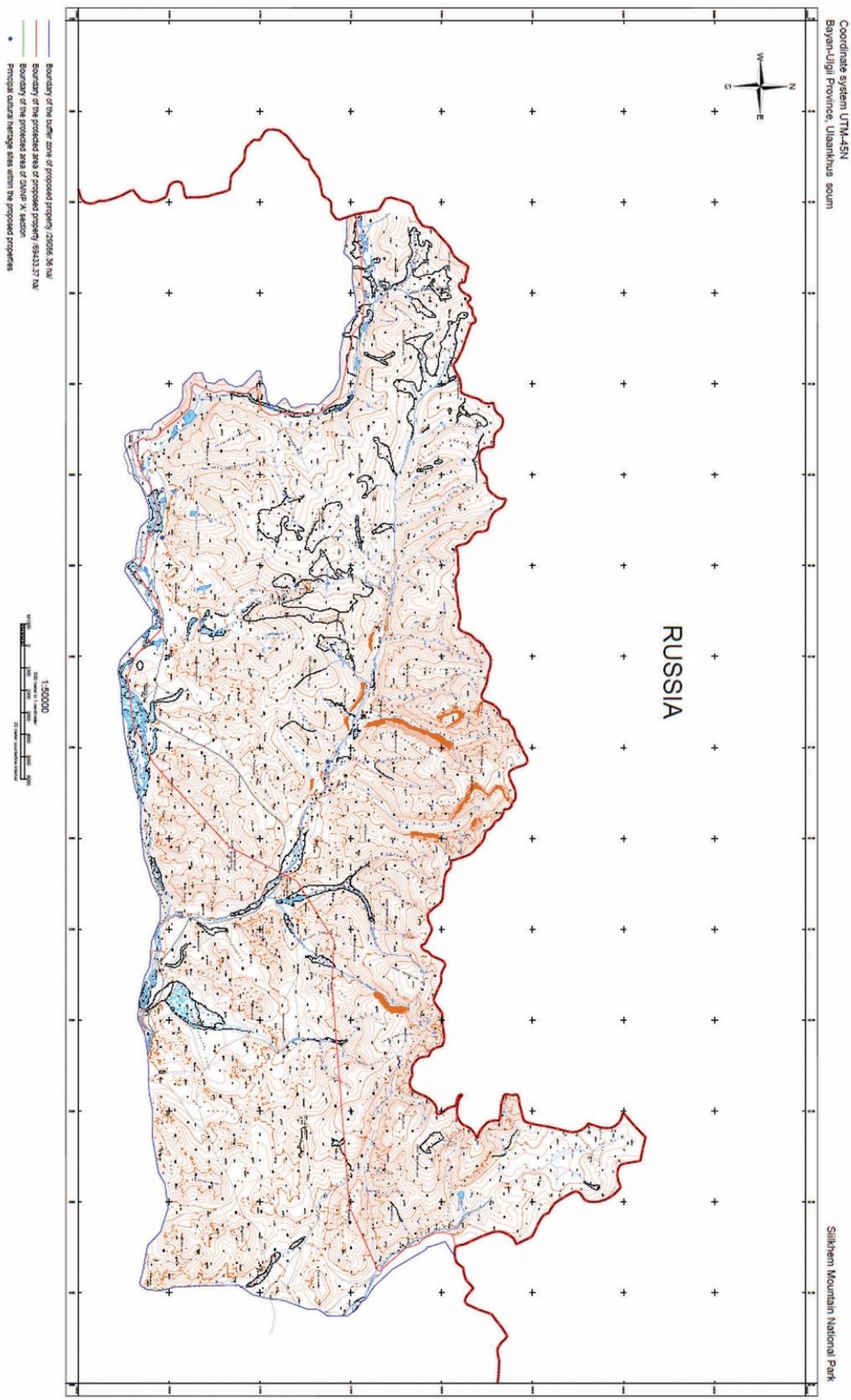
3. Recommends the State Party to

a) ensure that any proposed developments that may impact on the potential Outstanding Universal Value (OUV) of the nominated property are assessed for their potential impacts, in line with the *Guidance and Toolkit for Impact Assessments in a World Heritage Context*, prior to taking any decision that would be difficult to reverse,
b) explore the possibility of including criterion (ix) based on a comprehensive global comparative analysis, given the nominated property represents the most complete sequence of altitudinal vegetation zones in central Siberia, and further considering its significant hydrological integrity;

4. Notes with appreciation the State Party's efforts to take a comprehensive and integrated approach to protecting both the cultural and natural values of the nominated property.

Maps 1-2: Nominated property and buffer zones.




Coordinate system UTM-45N
Bayan-Ulgii Province, Ulaankhus soum
Boundary of the buffer zone of proposed property /26086.36 ha/
Boundary of the protected area of proposed property /69433.37 ha/
Boundary of the protected area of GNNP 'A' section
Principal cultural heritage sites within the proposed properties
1:50000
RUSSIA
Sillikhem Mountain National Park

EUROPE / NORTH AMERICA

ZAGORI CULTURAL LANDSCAPE

GREECE

Zagori Cultural Landscape © IUCN / Tarek Abulhawa

WORLD HERITAGE NOMINATION – IUCN TECHNICAL EVALUATION

ZAGORI CULTURAL LANDSCAPE (GREECE) – ID N° 1695

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

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

1. DOCUMENTATION

a) Date nomination received by IUCN: February 2022

b) Additional information officially requested from and provided by the States Parties: Following the session of the IUCN World Heritage Panel, a progress report was sent to the State Party on 25 January 2023. This letter advised on the status of the evaluation process and requested supplementary information on species listing in support of criterion (x), management measures on traditional grazing regimes to support conservation of plant diversity, and on the hydrological regime of the Aoos River basin. The supplementary information was provided by the States Parties on 28 February 2023.

c) Additional literature consulted: IUCN consulted a wide array of relevant reference material for the geology, biology, ecology, protection and management as well as the comparative values of the nominated property. Additional references used in this evaluation included: Barbieri, R., Vukić, J., Šanda, R., Kapakos, Y., and a Zogaris, S. (2017). Alburnoides economoui, a new species of spirlin from Central Greece and redescription of Alburnoides thessalicus (Actinopterygii: Cyprinidae). Biologia, 72, 9, doi:10.1515/biolog-2017-0113; Bobori, D. C., and& Economidis, P. S. (2006). Freshwater fishes of Greece: Their biodiversity, fisheries and habitats. Aquatic Ecosystem Health & Management, 9, 4, 407–418,. doi:10.1080/14634980601027855; P.D. Hughes, P.D., J.C. Woodward, J.C., P.C. van Calsteren, P.C. and L.E. Thomas, L.E. (2011)., The glacial history of the Dinaric Alps, Montenegro, Quaternary Science Reviews, Volume 30, Issues 23–24, 2011, https://doi.org/10.1016/j.quascirev.2011.08.016; Kati, K., Theodoropoulos, Y., Petridou M., and Bukas N., (2019).: Contribution to Biodiversity Knowledge of the Aoos River Basin. EuroNatur – European Nature Heritage Foundation and Pindos Perivalloniki; Kougioumoutzis, K.; Kokkoris, I.P.; Panitsa, M.; Kallimanis, A.; Strid, A.; and Dimopoulos, P. (2021). Plant Endemism Centres and Biodiversity Hotspots in Greece. Biology 2021, 10, 72. https://doi.org/10.3390/biology10020072; Misthos, L-M., Katsoulakos, N., Ntakis, A., Bukas, N., (2019): Report on the Ecological Flow and on Biodiversity Assessment of Aoos River downstream Aoos Springs Lake Dam. EuroNatur – European Nature Heritage Foundation and Pindos Perivalloniki; Schiemer, F., Beqiraj, S., Drescher, A. et al. (2020). The Vjosa River corridor: a model of natural hydro-morphodynamics and a hotspot of highly threatened ecosystems of European significance. Landscape Ecol 35, 953–968. https://doi.org/10.1007/s10980-020-00993-y; Shumka, S., Meulenbroek, P., Schiemer, F., & and Šanda, R. (2018). Fishes of River Vjosa – an annotated checklist. Acta ZooBot Austria, 155, 163-176; Simić, V., Simić, S., Paunović, M., Radojković, N., Petrović, A., Talevski, T., and& Milošević, D. (2016). The Alburnus benthopelagic fish species of the Western Balkan Peninsula: An assessment of their sustainable use. Science of The Total Environment, 540, 410–417. doi:10.1016/j.scitotenv.2015.07.030; Smith, G. Nance, R. and Genes, A. (2006). Pleistocene glacial history of Mount Olympus, Greece: Neotectonic uplift, equilibrium line elevations, and implications for climatic change. Geological Society of America Special Paper. 409,. 157-174,. 10.1130/2006.2409(09); Sovinc, A. (in press). Aoos River Catchment - Protection Study based on IUCN protected area standards, Gland, Switzerland: IUCN WCPA. xii+105 pp.

d) Consultations: 12 desk reviews received. The mission was able to meet with the Ministry of Culture and Sports, regional government, municipalities, national park authority, tourism sector, local associations and entrepreneurs, youth associations, livestock owners, local forestry department, and researchers.

e) Field Visit: Tarek Abulhawa (IUCN) and Pierre Marie Luciani (ICOMOS), 3 to 7 October 2022.

f) Date of IUCN approval of this report: April 2023

2. SUMMARY OF NATURAL VALUES

Located in northwestern Greece, the nominated property is an agro-pastoral landscape with an area of 41,109 ha and a buffer zone of 58,046 ha, that extends along the western slopes of the Pindus Mountain range. The landscape has been shaped by small-scale cultivation, animal husbandry and forestry, and is marked by dry-stone constructions such as terraces, mills, sheepfolds etc. The nominated property hosts 20 traditional villages known as Zagori villages and a network of stone-arched bridges and tracks. The total surface of the nominated property and its buffer zone corresponds to the administrative boundaries of the Municipality of Zagori. Zagori Cultural Landscape is nominated as a mixed site under criteria (iii), (iv), (vi), (viii) and (x).

Regarding natural values, the nomination highlights geological formations harbouring a high level of biodiversity and endemism. The physical landscape that constitutes the backdrop to the cultural heritage displayed in the nominated area is a mountainous terrain of karstified limestone rocks. It was to this rugged terrain that settlers had to adjust, and the locally available karst rocks (limestones) provided the raw materials from which their villages, monasteries, bridges, roads, mills and tracks were constructed. The geological and geomorphological features of the nominated property illustrate tectonic movements and Pleistocene-Holocene glaciation. Massifs of limestone and flysch shape the Zagori area, which create a diverse landscape of intense contrasts. Unlike the eastern section characterized by gentle slopes, the western section of Zagori is dominated by a rough relief of ravines and peaks of limestone. The mountain complex of Tymphi, the Vikos Gorge and the river Voidomatis are the dominant elements of the area. Tymphi is highlighted by the nomination as one of the best-preserved examples of Mediterranean ice-karst landscapes illustrating the last glaciation and the evolution of the Mediterranean climate. The Vikos Gorge is described as the most important and most characteristic karst element of the area and put forward by the nomination as one of the deepest ravines in the world in relation to its width. The runoff from rain and snow-melt shapes widened joints and develops caves with shafts, some of them with a depth of more than 400 m. The area of Zagori has been part of the Vikos - Aoos Geopark since 2010.

The biodiversity of the nominated property is characterized by a high level of species endemicity, the presence of emblematic species of flora and fauna and varied habitats. The Zagori Cultural Landscape includes a diverse mosaic of habitats with extensive forests, including old-growth and sacred forests interspersed with alpine meadows, undisturbed rivers and ravines, as well as areas of Mediterranean vegetation. Sacred forests are found in every settlement, according to the nomination dossier. The nominated property also features a small patch of 44 ha of old-growth Beech Forest, which contains some trees with an age of at least 270 years. There are also old-growth stands of Heldreich's Pine (*Pinus heldreichii*, LC) and Black Pine (*Sundacarpus amarus*, LC) with trees estimated at more than 300 years. More than 1,700 plant species have been recorded, including several endemic species. In addition, around 265 species of vertebrates are found, including mammals such as Brown Bear (*Ursus arctos*, LC), Grey Wolf (*Canis lupus*, LC) and Eurasian Otter (*Lutra lutra*, NT/LD[1]). Furthermore, there are numerous emblematic bird species, such as the Golden Eagle (*Aquila chrysaetos*, LC), Peregrine Falcon (*Falco peregrinus*, LC), Black Woodpecker (*Dryocopus martius*, LC).

As a mixed, natural and cultural site, traditional human activities are understood as being interconnected with nature. The Mount Tymphi area exhibits a landscape that is the result of transhumance. Beekeeping, animal husbandry and small-scale agriculture, among other activities, continue to play an important role.

3. COMPARISONS WITH OTHER AREAS

The Comparative Analysis presented in the nomination dossier uses a geographic approach focused on Europe. It does not apply an approach that would systematically compare the nominated property on the basis of clearly defined attributes under criteria (viii) and (x), described elsewhere in the nomination dossier. The comparison relies on a descriptive account with no quantitative or semi-quantitative indicators in regard to both geological and biological values. The analysis did not provide and apply a consistent methodology to demonstrate local, regional or global levels of significance in terms of geological and geomorphological formations and processes, and in terms of biodiversity and threatened species, including on the size and extent of key ecosystems and natural habitats, numbers of threatened species and species of global conservation importance. The methodology of the analysis appears to be more focused on cultural values, assessing the nominated property mainly as a cultural landscape.

Furthermore, the majority of the World Heritage properties and Tentative List sites selected for comparison are cultural sites, with only eight of 24 sites compared including natural criteria. Of the eight sites with natural criteria, five are natural sites and three are mixed sites. IUCN also notes that the comparative analysis did not include a comparison of the nominated property with mixed World Heritage properties and Tentative List sites located in Greece, namely, Mount Athos, Meteora and the broader region of Mount Olympus. A number of desk reviewers and the field evaluation mission suggested that the potential under criterion (vii) could be explored, subject to a rigorous comparison at global scale.
Regarding criterion (viii), desktop reviewers concluded that the geological values of the nominated property

[1] LD: "largely depleted" according to the IUCN Green Status Assessment. The Green Status assesses the impact of past, current and future conservation success and actual or potential recovery of the taxon.

are important at a regional level, but not at a global level. Its significance has already been recognized through its status as UNESCO Global Geopark, but this designation does not imply Outstanding Universal Value (OUV) under criterion (viii). Whilst the nominated area illustrates karst developed in high-relief terrain in a region of humid temperate climate, it is similar to that found in the Dinaric ranges further north along the eastern side of the Adriatic Sea. Vikos Gorge is presented by the nomination dossier as one of the deepest ravines in the world (in relation to its width), however, desk reviewers pointed out that it is far from being one of the world's most significant gorges. For instance, the Great Canyon of Yarlung and Namcha Barwa Gorge in the Himalayas is 5.3 km deep and 496 km long, whereas the approximately 1 km in depth and 10 km in length of the Vikos Gorge does not appear to be of global significance. At the European scale, Tara river canyon has been recognised as part of the World Heritage property of Durmitor National Park (Montenegro) for having the deepest gorges in Europe. The karst values of Zagori are also comparable to those of Durmitor National Park as well as to those of Pirin National Park (Bulgaria), and are therefore already represented on the World Heritage List. Durmitor National Park holds an abundant glacial record as well as the Durmitor flysch. Pirin National Park has an even more extensive formerly glaciated area. The terrains reach similar elevations and are deeply incised by gorges. The nominated property comprises only a relatively narrow range of karst features, not considered particularly unusual at a global scale. Therefore, IUCN considers that the nominated property is not globally significant under criterion (viii).

Regarding criterion (x), IUCN, in collaboration with UNEP-WCMC, has undertaken supplementary comparative analysis, based on spatial analyses and literature review. The WCMC Comparative Analysis concludes that the nominated property may be of global significance under criterion (x) but that better data, especially regarding species numbers and the presence of threatened and endemic species, would be needed to confirm this. Similarly, the nomination dossier notes that a complete record of the nominated property's biodiversity are still pending. A record of sacred forests and old-growth trees are also missing. The WCMC Comparative Analysis highlighted that species numbers are reported for the wider Zagori region and overlapping national parks, making it difficult to discern the biodiversity present in the nominated property. Consequently, IUCN requested supplementary information from the State Party, which provided more detailed data of species present in Zagori and Northern Pindus National Park (see also chapter 4.2).

In particular, the area appears to stand out for its plant diversity with 1,701 recorded species. The nominated property hosts individuals and clusters of the Horse Chestnut Tree (*Aesculus hippocastanum;* VU). The nomination dossier lists endemic species to the region including *Veronica bornmuelleri, Sedum tymphaeum, Silne pindicola, Onosma epirotica, Galium sacrorum, Silena intonsa, Saxifraga biflora epirotica,* and *Centaurea vlachorum* however, these species were not included in the supplementary information. Notable mammal species include the Brown Bear (*Ursus arctos*, LC), Grey Wolf (*Canis lupus*, LC), Northern Chamois (*Rupicapra rupicapra*, LC), Eurasian Otter (*Lutra lutra*, NT/LD), and European Wildcat (*Felis silvestris*, LC), none of which are globally threatened. The nominated property hosts globally important bird species, including the Egyptian vulture (*Neophron percnopterus*, EN), which is resident but not breeding. The nominated property also harbours diverse, threatened, and endemic invertebrate species. Further notable species include the Tymphi Mountain Grasshopper (*Peripodisma tymphii;* EN), which is restricted to Epirus in north-western Greece and to southern Albania. The Pindos Bright Bush-cricket (*Poecilimon pindos;* EN) is endemic to Greece and only found on three mountains in the Pindus Mountain range. The nominated property overlaps with two Important Bird Areas and two Key Biodiversity Areas that are not currently represented on the World Heritage List.

The riparian systems of the rivers Aoos and Voidomatis show high endemicity of fish, including globally threatened species such as the European Eel (*Anguilla anguilla;* CR). The Aoos River is a pan-European reference river for this species. 22 fish species have been recorded in Northern Pindus National Park, including the endemic Albanian Roach (*Pachychilon pictum*, LC), which is found only in the Aoos basin. There are also two endemic species of brown trout (*Salmo sp*.), the European Chub (*Squalius sp*.), the Vardar Nase (*Chondrostoma vardarense*, NT) as well as three species of barbel (*Barbus sp*.). The Tentative List entry for the nominated property (Zagorochoria – Northern Pindus National Park) notes the Aoos River System as the only place where the Pindus Stone Loach (*Oxynoemacheilus pindus*, VU) can be found. However, the Aoos River is located outside the property as currently nominated (see section 4.2), and therefore the nominated property cannot be seen as a complete representation of the attributes provided by the Aoos River System.

In conclusion, IUCN considers that whilst the nominated property is not globally significant under criterion (viii), it has the potential to demonstrate global significance under criterion (x).

4. INTEGRITY, PROTECTION AND MANAGEMENT

4.1. Protection

The protection and management of Zagori Cultural Landscape at the national level is based on various legal frameworks involving different competent authorities and management levels. This includes legislation on land use, forest areas, wild flora and fauna, biodiversity and protected area management. At the international level, the Vikos - Aoos Geopark, the European Landscape Convention and the European Commission's Natura 2000 Network are relevant for the nominated property. Most of the nominated property and a large section of the buffer zone are

covered by Special Protection Areas and Habitats Directives Sites under the European Union's Natura 2000 Network. These areas extend well beyond the boundaries of the nominated property and buffer zone. However, on 17 December 2020, the Court of Justice of the European Union (case C-849/19) judged that proper conservation objectives and measures for all sites designated as Special Areas of Conservation have not been established and will therefore need to be defined.

The nominated property overlaps with five Wildlife Sanctuaries. Most of the nominated area and buffer zone is encompassed by Northern Pindus National Park. In addition, Pindus National Park (also referred to as Pindus - Valia Calda), established in 1966, and Vikos-Aoos National Park, established in 1973, are situated within the wider Northern Pindus National Park, established in 1990, and in its current boundaries and status, in 2005, today covers an area of 196,974 ha. The National Park is a high-level protected area established under the provision of the law "Characterization of the land area of the mountains of Northern Pindus as a National Park, definition of protection zones and definition of uses, conditions and building restrictions". The National Park is subdivided into four zones, which partially overlap with the nominated property: Zone I ("Nature protected areas – core areas"), with one area falling under this category being fully included in the nominated property whilst other areas overlap with the buffer zone or are located outside; Zone II ("Habitat and spices [sic] conservation areas"), forming corridors across the nominated property and buffer zone as well as beyond; Zone III ("Northern Pindus National Park") and zone P ("Northern Pindus National Park Buffer Zone") cover most of the remaining sections of the nominated property. However, desk reviewers noted that the existing delineation of internal zones in the Northern Pindus National Park does not align with IUCN Protected Area Category II for national parks as the primary management objective is not applied to at least 75% of the protected area and because permitted and prohibited activities and land use principles are not clearly defined.

The set-up of various protective designations with boundaries different to those proposed for the nominated property (see section 4.2) makes the governance of the nominated property complex and requires a significant level of coordination. Whilst the national park protection regime with a clear zonation could provide an adequate protection regime to the nominated property, if enforced in accordance with relevant standards, it is not able to secure this at the moment, as it does not fully correspond with the boundaries of the nominated property. Furthermore, the nominated property also includes areas that are not subject to any of the above-mentioned protected areas; thus there are gaps in protection within the nominated property. Therefore, IUCN concludes that the protection requirements of the nominated property are currently not met.

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 and its buffer zone includes the Vikos Gorge, Tymphi mountain and Voidomatis River and embrace a number of attributes proposed under criteria (viii) and (x). As the current boundaries of the nominated property are aligned with the boundaries of the Municipality of Zagori, they exclude large parts of the Northern Pindus National Park and the UNESCO Global Geopark of Vikos-Aoos. With regard to criterion (viii), the boundaries of the nominated property and buffer zone only partially follow the boundaries of the Global Geopark. As a result, the nominated property includes only less than half of the surface area of the Global Geopark. Therefore, even if the values proposed under criterion (viii) would be of global significance, the nominated property, as currently designed, would not provide a complete representation of the geological values within its boundaries.

With regard to criterion (x), the nominated property includes a wide range of habitats, including habitats resulting from its past and present human use. The nominated property is situated in Northern Pindus National Park (196,974 ha), however, at 41,109 ha, it covers only one quarter of the national park. To evaluate the nominated property's potential under criterion (x), IUCN has requested consolidated and complete species lists as supplementary information from the State Party, to ascertain all species recorded within the boundaries of the nominated property and within Northern Pindus National Park. This also included the request for a table listing species of conservation interest that are present in those areas of Northern Pindus National Park that are not part of the nominated property, but harbours species not represented within the nominated property. IUCN reviewed the data provided to firstly establish which species are represented within the boundaries of the nominated property, and secondly to what extent this representation is complete within the boundaries proposed.

The analysis concluded that firstly, the nominated property appears to represent most of the species recorded in Northern Pindus National Park. All 13 reptiles, 59 mammals, 150 fungi and 157 butterflies recorded are present within the boundaries of the nominated property. However, eight of the 182 bird species recorded within Northern Pindus National Park are not recorded within the nominated property. Only four of the 20 fish species recorded in Northern Pindus National Park are reported as present within the boundaries of the nominated property. The endangered Skadar gudgeon (*Gobio skadarensis*, EN) is not found within the nominated property.

Second, the boundaries proposed appear to only cover a part of a wider species' distribution across the Northern Pindus National Park. All above-noted

species reported to occur in the nominated property appear to be also present in those areas of Northern Pindus National Park that are not part of the nominated property. The supplementary information confirms the presence of 28 *orthoptera* and 1,701 plant species within the nominated property, but unlike the other species lists, a differentiation regarding the wider area of Northern Pindus National Park is not provided. However, it appears to be likely that most of these species would not be exclusive to the nominated property as several of the Natura 2000 sites and Wildlife Sanctuaries are located outside the nominated property. External desktop reviewers also strongly supported the potential of the wider area for global significance under criterion (x).

Therefore, IUCN concludes that the boundaries of the nominated property would need to be revised to ensure a more complete representation and protection of the species diversity under criterion (x), including an appropriate representation of the fish fauna. IUCN recommends to align the boundaries of a revised nomination with those of Northern Pindus National Park.

In addition, IUCN took note of recent research and desk reviews suggesting that river sections, which are outside the nominated property and Northern Pindus National Park host the majority of fish species that are both threatened and endemic. Recent scientific data suggest stronger presence of the endemic West Balkan trout (*Salmo farioides*) outside of the National Park and particularly in those sections of Sarantaporos and Voidomatis and tributaries of the Aoos that are currently not protected. The same is suggested for large mammal species, such as the Brown Bear (*Ursus arctos*). Therefore, IUCN suggests to the State Party to explore the possibility of protecting the areas with conservation importance, which are currently not covered by Northern Pindus National Park and to potentially consider them for inclusion in the nominated property in future.

IUCN considers that the boundaries of the nominated property and buffer zones do not meet the requirements of the *Operational Guidelines*.

4.3 Management

The areas designated as core zone of Northern Pindus National Park have been transferred to state ownership. All other areas fall under municipal and private land ownership and tenure. The authority in charge of the management of the National Park is the Northern Pindus National Park Management Body under the Ministry of Environment and Energy with 20 scientific staff. The authority in charge of the nominated property is the Municipality of Zagori.

A special management plan has been drafted for the nominated property considering UNESCO policies for natural and cultural heritage and the Agenda 2030 Sustainable Development Goals. The municipality of Zagori will be in charge of the different functions involved in the management of the nominated property. The plan will be implemented by the Municipality of Zagori through an Independent Department of Cultural Landscape Management that will be established by focusing on objective-oriented actions over a six-year timeframe. The funding shall cover at minimum, management staff fees, operating costs and annual implementation actions. Whilst the plan includes thematic focuses such as awareness-raising, education and presentation of the nominated property's values, the structure of the plan is mainly centred on cultural values. Therefore, it is recommended to formulate SMART (specific, measurable, achievable, relevant and time-bound) objectives for the natural values of the nominated property and to address relevant threats (see section 4.5). Moreover, the monitoring of the implementation should focus on the proposed OUV and threats and not solely on the existing monitoring under the EU Habitats Directive.

The nomination dossier notes that the management plan for the two National Parks, Vikos - Aoos and Pindus - Valia Calda developed in 1996 was never implemented. However, a Special Environmental Study (SES) was completed in 2006 recording and assessing the natural environment, which resulted in the designation of Northern Pindus National Park. Currently, there is a project underway to prepare Special Environmental Studies and a Decree on protection and management plans for the Natura 2000 sites, with the aim of implementing the provisions of the protected area laws. Each Special Environmental Study shall result in a draft Management Plan for each protected area.

Therefore, IUCN notes that due to pending management plans relevant for the conservation of the nominated property's natural values, the management system for Northern Pindus National Park and thus the nominated property is currently not fully in place. As the Management Plan prepared for the nominated property does not detail the management of the nominated property in regard to its proposed OUV under criteria (viii) and (x), IUCN concludes that management requirements are currently not met.

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

4.4 Community

The nominated property is home to 3,613 inhabitants in 45 villages. The local communities have long depended on transhumance as a key part of their way of life in the mountainous environment. Hence, each community maintains a small number of livestock for each family's annual requirements in dairy, meat and wool. The field evaluation mission noted that the local communities appear to be supportive of the nomination and well-involved in the process. There is a considerable sense of ownership and support at the municipal level to the nomination to the World Heritage List. The stakeholders at the local level showed a high

level of understanding and commitment to the process and its anticipated outcomes.

4.5 Threats

Potential threats to the nominated property include hydropower, water abstraction for irrigation, changes in the traditional grazing regime, tourism, poaching, and logging. Nevertheless, the nominated property currently maintains a high level of integrity and is the second largest roadless area of Greece. The nomination dossier identifies climate change as a major threat in relation to the cultural values of the nominated property. The field evaluation mission reported that increased and prolonged periods of drought are also considered a serious threat to biodiversity, especially due to freshwater shortage, which may also be exacerbated by increasing demands on water for domestic and tourism use. Similarly, there is an increasing risk for wildfires as a result of increasing droughts.

The extraction of water for the production of energy and irrigation has significantly affected the Aoos River, which is partly crossing the buffer zone and otherwise straddling the boundary of the buffer zone. The Aoos River diversion project involving the Aoos Hydropower Plant changed the hydrological regime of the Vjosa-Aoos basin as a significant amount of water is diverted to another watershed. As a result, a minimum level of water flow in the immediate downstream of the Aoos dam cannot be ensured. An analysis on average monthly water discharges shows that only a very low water level with almost no water flow in summer months in the section of the Aoos located downstream of the dam and upstream of the confluence with Arkoudorema. This has affected the riverine environment and habitat for riparian species. Therefore, the ecological conditions of the area have altered the distribution and balance of fish populations, riverine ecological connectivity as well as the availability of suitable habitat conditions. In supplementary information provided, the State Party underlines that only a very small part of the Aoos Hydropower Plant, including the dam, is located within the Municipality of Zagori, but not within the boundaries of the nominated property. The way in which the hydroelectric dam in the Aoos springs has been constructed would make it very difficult to modify its operation as it is the first of a series of other projects in a different watershed. However, to ensure wider connectivity for the fish populations, some species of which is globally threatened, it would be important to identify solutions ensuring a minimum water flow and restoration of the Aoos. In addition, it was also noted in desk reviews that a large number of small hydropower plants are planned in the wider area. 5.68 MW is already be in operation in the municipality of Konitsa.

Furthermore, changes in the grazing regime can be detrimental to the nominated property's plant diversity as large parts of the endemic fauna and flora are adapted to the traditional grazing regimes using sheep and goat rather than cattle. Many traditional grazing areas are now forested. It will be important to maintain traditional grazing practices or to restore them as part of the management of the nominated property. While the threat of changing grazing practices is acknowledged in the nomination dossier, there appears to be no management strategy in place to mitigate the negative effects of these changes. However, the State Party provided supplementary information informing that several measures including grazing management maps, repairing rainwater tanks, creation of temporary shelters, financial support to transhumance livestock farmers, subsidies, and financial support to rare breeds are implemented to preserve the flocks of sheep and goats raised by transhumance.

Logging and other forest harvesting activities are mentioned in the nomination dossier as a threat to the sacred forests contained in the nominated property. Moreover, the dossier also indicated the threat associated with the spread of the *Metachromatic Ulcer* disease of the Plane tree and its specific impact on the forest of Voidomatis and the village square Plane trees. The dossier suggests the need for the development and deployment of proper awareness raising and law enforcement mechanisms to limit the impacts of forest harvesting and gain more local support for their protection and sustainable utilization. As mentioned in chapter 3, the nomination dossier also notes that a complete record of the nominated property's biodiversity is still pending, including a record of sacred forests and old-growth trees. In this respect, it is of concern that the field evaluation mission noted considerable levels of tree-cutting, especially in the buffer zone. Therefore, IUCN recommends that a complete record of sacred and old-growth forests is established as suggested in the nomination dossier and for these forests to be subjected to the highest protection levels and encompassed by a wide no-use zone, accompanied by evidence-based monitoring.

Finally, whilst tourism has been identified as a major threat by the nomination, it currently appears unlikely to significantly affect biodiversity values under criterion (x). However, it is important to note that there is currently no clear tourism development strategy or visitor management system adopted for the area, which could, following a potential inscription, trigger visitation increase as one factor with potentially negative impacts on the conservation of the cultural and natural values of the area.

In summary, IUCN considers that the integrity, protection and management requirements of the *Operational Guidelines* are not met.

5. ADDITIONAL COMMENTS

As for all mixed site nominations, IUCN closely collaborates with ICOMOS throughout the evaluation process, including through joint ICOMOS-IUCN evaluation missions to mixed nominated properties. Observers from each organization attend the ICOMOS and IUCN World Heritage Panel sessions respectively. However, the ICOMOS World Heritage Panel and the IUCN World Heritage Panel reach their conclusions independently, based on the technical assessment of cultural values and natural values respectively. In the present case, IUCN notes that the ICOMOS and IUCN World Heritage Panels reach a differing conclusion, in particular in regard to the nominated property's boundaries. Whilst the present IUCN evaluation suggests an extension of the boundaries, the ICOMOS evaluation suggests considering to change the boundaries of the nominated property so that the villages of Skamnéli and Eláti would be located in the buffer zone, thus implying a slight reduction in area of the nominated property. IUCN stands ready for consultations with the State Party and ICOMOS to consider options that would enable a practical and feasible way forward for a revised nomination.

6. APPLICATION OF CRITERIA

The **Zagori Cultural Landscape (Greece)** has been nominated under natural criteria (viii) and (x).

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

The nominated property partially overlaps with the UNESCO Global Geopark Vikos – Aoos and presents samples of Mediterranean ice-karst landscape, rocky massifs of limestone and flysch and tectonic movements. The mountain complex of Tymphi, the Vikos Gorge and the river Voidomatis are the most impressive landscape features of the nominated property. The area of Mount Tymphi is highlighted by the nomination as one of the best-preserved examples of ice-karst in the Mediterranean, which however does not imply significance at global scale.

The karst found in Zagori is similar to that found in the Dinaric ranges further north and to those of the World Heritage properties of Durmitor National Park and Pirin National Park, and therefore already represented on the World Heritage List. Furthermore, the nominated property presents only a narrow and an incomplete range of karst features. Therefore, IUCN considers that the status of the nominated property as Global Geopark – which covers a larger area than the nominated property – is the most appropriate level of recognition of the nominated property's geological values, but that its values do not appear to be globally significant or to stand out from existing World Heritage properties, and are thus already well-represented on the World Heritage List. In summary, it is concluded that criterion (viii) is not met as the values are of regional but not of global significance.

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

Criterion (x): Biodiversity and threatened species

The nominated property presents a cultural landscape that comprises alpine meadows and mountain pastures, traditional settlements, ravines, caves, rivers, and old-growth forests, including sacred forests, giving rise to diverse habitats hosting a high level of biodiversity. It is important to note that the dossier mainly describes the richness of plant and animal species within the context of the Northern Pindus National Park; however, only one quarter of this National Park is included within the nominated property. Based on supplementary information, IUCN considers that the nominated property is insufficient to accurately represent the attributes proposed under criterion (x). The boundaries of the nominated property would need to be revised to include the full extent of Northern Pindus National Park. The potential of the wider Aoos River basin could also be explored further. Based on such a revision, there appears to be a strong potential to demonstrate global significance under criterion (x).

As for floral diversity, at least 1,701 plant species have been recorded, including several nationally and regionally endemic taxa as well as several species of high conservation significance including globally threatened species. The nomination dossier lists endemic species to the region, including *Veronica bornmuelleri, Sedum tymphaeum, Silne pindicola, Onosma epirotica, Galium sacrorum, Silena intonsa, Saxifraga biflora epirotica,* and *Centaurea vlachorum*. However, these species were not included in the supplementary information. Traditional grazing regimes are important to maintain the plant diversity within the nominated property and the wider area. The nominated property also hosts stands of Horse Chestnut Tree (*Aesculus hippocastanum;* VU) as well as old-growth Beech and Pine Forests. As noted in the nomination dossier, a complete record of sacred and old-growth forests and biodiversity would be needed to inform the effective protection of these valuable forests.

As for the faunal diversity, there are species of global significance, including several threatened species of mammals and birds. The Pindos Bright Bush-cricket (*Poecilimon pindos;* EN) is endemic to Greece and only found on three mountains in the Pindus Mountain range. The ecosystem is completed by keystone species such as the Brown Bear (*Ursus arctos*, LC), Grey Wolf (*Canis Lupus*, LC), Northern Chamois (*Rupicapra rupicapra*, LC), Eurasian Otter (*Lutra lutra*, NT/LD), and European Wildcat (*Felis silvestris*, LC) and the Egyptian Vulture (*Neophron percnopterus*, EN). The aquatic fauna of the rivers Voidomatis (only partially included within the nominated property) and Aoos (only partially included within the buffer zone but not within the nominated property) are particularly noteworthy as they stand out with a high level of endemism. Two species of Brown Trout (*Salmo sp.*), the European Chub (*Squalius sp.*), the Vardar Nase

(*Chondrostoma vardarense*) and three species of Barbel (*Barbus sp.*) are among the endemic fish species. Further important species include European Eel (*Anguilla Anguilla*, CR), Skadar gudgeon (*Gobio skadarensis*, EN), Pindus Stone Loach (*Oxynoemacheilus pindus*, VU) and the rare Albanian Roach (*Pachychilon pictum*, LC).

IUCN considers that the nominated property has the potential to meet this criterion if it includes the entire Northern Pindus National Park and following the completion of the record of sacred and old-growth forests.

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 cultural criteria and included in the working document WHC/23/45.COM/8B:

The World Heritage Committee,

1. Having examined Documents WHC/23/45.COM/8B and WHC/23/45.COM/INF.8B2;

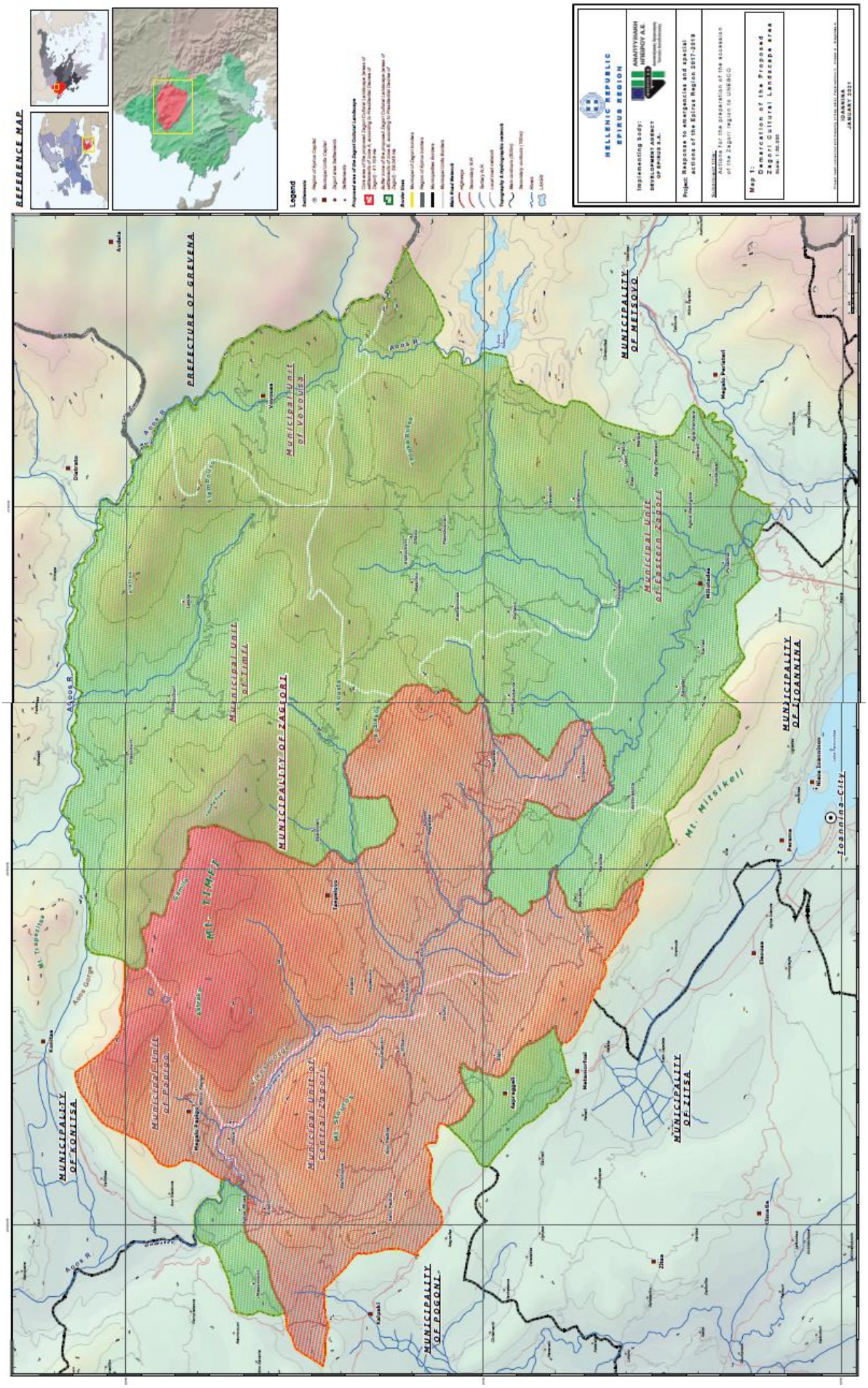
2. Defers the examination of the nomination of **Zagori Cultural Landscape, Greece,** under natural criteria, taking note of its potential to meet criterion (x), in order to allow the State Party to prepare a revised and extended nomination for a larger area, which would:

a) reconfigure the boundaries of the nominated property to include the entire Northern Pindus National Park,
b) reconsider protection and management arrangements for the revised property, ensuring that all biodiversity-related attributes of the potential Outstanding Universal Value (OUV) are subject to an appropriate and effective protection and management regime, including a management plan for the revised property that comprises measures on maintaining traditional grazing regimes;

3. Recommends the State Party to ensure a minimum ecological flow regime in the upper areas of the Aoos River to enhance connectivity for the aquatic fauna and riverine ecosystem and to review current and potential future hydropower plants, ensuring that proposals are not permitted if they could have a negative impact on the potential Outstanding Universal Value of the nominated property, including on the aquatic fauna of the wider Aoos River catchment;

4. Notes with appreciation the State Party's efforts to take a comprehensive and integrated approach to protecting both the cultural and natural values of the nominated property.

Map 1: Nominated property and buffer zone.



C. CULTURAL PROPERTIES

C1. NEW NOMINATIONS OF CULTURAL PROPERTIES

AFRICA

LE PAYSAGE CULTUREL DE SUKUR ET DIY-GID-BIY DES MONTS MANDARA [EXTENSION]

CAMEROON

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

LE PAYSAGE CULTUREL DE SUKUR ET DIY-GID-BIY DES MONTS MANDARA (CAMEROON)

IUCN considered this cultural landscape nomination based on a desk review of the nomination dossier and the input from one external desk reviewer so as to provide ICOMOS with the present comments on the natural values of the nominated property. The site is proposed as an extension of the Sukur Cultural Landscape in Nigeria, inscribed in the World Heritage in 1999. The nominated extension, Diy-Gid-Biy cultural landscape covers an area of 717.31 ha across two component parts, with a buffer zone of 3,247.73 ha. The property is nominated under criteria (iii), (v) and (vi).

The nominated property is located on the ridge of the Mandara Mountains range in the North of Cameroon. The dossier notes that local Mafas adapted their livelihood to the harsh climatic conditions of this dry and arid landscape. The area is dominated by the practice of animal husbandry, pottery and basketry, subsistence agriculture, cash crops and hunting of animals according to the seasons. Local communities cultivate sorghum and penicillary millet, cotton, peanuts, sesame, beans and cowpea (white bean) on terraces. Local populations also make use of many native plants for medicinal purposes and respect the environment through spiritual customs.

The nominated property does not overlap with any national or international protected areas. However, the Mozogo Gokoro National Park (IUCN Protected Area Category II) and the Gokoro Forest Reserve are found in the vicinity of the nominated property. The nominated property intersects with the habitat of Critically Endangered species such as the Black Rhino (*Diceros bicornis),* the White-headed Vulture (*Trigonoceps occipitalis),* Rüppell's Vulture (*Gyps rueppelli)*, and plant species such as *Saxicolella marginalis* and *Ledermanniella batangensis.* There are also many Endangered species (e.g. Secretarybird*, Sagittarius serpentarius;* Hooded Vulture, *Necrosyrtes monachus;* Lappet-faced Vulture, *Torgos tracheliotos;* African Savanna Elephant, *Loxodonta africana;* Mutela joubini) and Vulnerable species (e.g. Cheetah, *Acinonyx jubatus;* Common Pochard, *Aythya ferina;* Leopard, *Panthera pardus*) whose ranges overlap with the nominated property according to the IUCN Red List of Threatened Species.

Based on the nomination dossier, IUCN notes that the main pressures affecting the natural and cultural values of the nominated property include climate change and growing anthropogenic threats, including impacts from pollution and fertilizer use which exacerbate pressures on the farmlands. While the management plan includes actions on natural resources and values in 2022 and 2023, IUCN notes that the natural values of the nominated property do not appear to feature strongly in the management and protection of the nominated property. For instance, there do not appear to be any indicators for monitoring the state and evolution of the natural values in the nominated property. Nevertheless, the nomination dossier notes potential reforestation measures to preserve the cultural values of the nominated property, but the assessment of natural values, their past evolution, current status and trends into the future amid above-noted pressures and climate change are in IUCN's view also an important element for a successful long-term management of this cultural landscape. This is especially important as the livelihoods of the local communities depend on the natural values and related ecosystem services.

In conclusion, IUCN recommends ICOMOS raise with the State Party the possibility of setting priorities for the protection of the natural values as a basis for local community sustainable livelihoods through a participatory process with the communities and all other relevant stakeholders. This could include steps toward more integrated management of the cultural landscape deploying nature-based solutions to mitigate impacts from climate change.

ARAB STATES

DJERBA: PAYSAGE CULTUREL, TÉMOIGNAGE D'UN MODE D'OCCUPATION D'UN TERRITOIRE INSULAIRE

TUNISIA

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

DJERBA: PAYSAGE CULTUREL, TÉMOIGNAGE D'UN MODE D'OCCUPATION D'UN TERRITOIRE INSULAIRE (TUNISIA)

IUCN provides the following comments to ICOMOS based on two external desk reviewers and a review of the nomination dossier by the IUCN World Heritage Panel. The island of Djerba (51,400 ha) is located on the southern shore of the Mediterranean Sea and hosts the nominated serial property comprising 31 component parts. The nomination is presented as a cultural landscape under criterion (v), totaling 1,030.9 ha with buffer zones adding up to 4,125.23 ha. The focus of the nomination is the island's urbanism that developed from the 9th to the 18th century as an example of the adaptation and interaction of humans to the environment.

IUCN notes that Djerba hosts three Ramsar sites designated in 2007 (Djerba Ras Rmel, 1,856 ha; Djerba Bin El Ouedian, 12,082 ha; and Djerba Guellala, 2,285 ha). These Ramsar Sites, and Djerba overall, house a number of threatened species, including the Critically Endangered Slender-billed Curlew, *Numenius tenuirostris*; Fan Mussel, *Pinna nobilis* and the Endangered Egyptian Vulture, *Neophron percnopterus* as well as the insect species *Thorectes puncticollis.* The plant *Limonium steppicum* was only recently discovered in Djerba's salty marshes as a new species. The range of some of these species may overlap with the nominated property.

Whilst none of the Ramsar sites overlaps with the nominated property, two are adjacent to nominated component parts. Human activities, such as tourism pressures, pollution, sand extraction, and collection of shellfish, may affect the state of conservation of these Ramsar sites and above-listed species. As increasing tourism may exacerbate pressures on the internationally important natural values of the island, IUCN recommends ICOMOS to consider with the State Party the possibility of establishing carrying capacity indicators adapted to the context of the nominated component parts and to the island as a whole.

ASIA-PACIFIC

CULTURAL LANDSCAPE OF OLD TEA FORESTS OF THE JINGMAI MOUNTAIN IN PU'ER

CHINA

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

CULTURAL LANDSCAPE OF OLD TEA FORESTS OF THE JINGMAI MOUNTAIN IN PU'ER (CHINA)

The IUCN World Heritage Panel provides the following comments to ICOMOS based on a review of the nomination dossier and three external desk reviews received. The property is nominated under criteria (iii) and (v) and includes five old tea forests, nine traditional villages and three protective partition forests that the dossier suggests represent the traditional understory tea cultivation, practiced before the use of modern tea plantation technologies. This traditional cultivation method includes the removal of a small number of tall arbors in the forest to plant tea trees. The arbor-tea tree-herb community structure uses the natural ecosystem to prevent outbreaks of pests and diseases and provide natural nutrients, ensuring production of organic and high-quality tea leaves in a sustainable manner. The dossier states that traditional governance systems have ensured the existence and survival of this cultivated landscape. The boundaries follow natural limits such as ridgelines and rivers.

Whilst the nominated property does not overlap with protected areas, it is located within a region of significant biodiversity. The nominated area also overlaps with the range of several Critically Endangered species, such as the Clouded Leopard, *Neofelis nebulosa*; the Baer's Pochard*, Aythya baeri*; and the Sunda Pangolin, *Manis javanica*. The Sunda Pangolin is noted as a "second-class protected animal" (p. 28) in the nomination dossier. IUCN also notes the existing laws and management activities, including a monitoring program, established to protect the tea and protective forests. However, the monitoring of other species and the overall ecological condition of the protective forest does not appear to be included in such a program.

Therefore, IUCN recommends ICOMOS to raise with the State Party the possibility of integrating the conservation of the biodiversity values covered by nominated property and its buffer zone in the management and monitoring of the nominated property. IUCN also recommends ensuring strict protection and conservation measures are in place for the Sunda Pangolin and other species in and around the nominated property.

ASIA-PACIFIC

THE CULTURAL LANDSCAPE OF MASOULEHH

IRAN (ISLAMIC REPUBLIC OF)

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

THE CULTURAL LANDSCAPE OF MASOULEH (IRAN, ISLAMIC REPUBLIC OF)

IUCN provides the following comments to ICOMOS based on a desk review of the nomination dossier and three external desk reviews. Nominated under criteria (ii), (iii), (iv) and (v), the property totals an area of 22,251 ha with a buffer zone of 11,802 ha in a mountainous area with a diverse geology shared by three administrative provinces. Located to the west of the Alborz Mountains, the nominated property includes Hyrcanian forest and semi-arid ecosystems. This landscape also features a system of mountain water springs, some of which form the Masouleh Roudkhan River that flows into the Caspian Sea.

According to the nomination dossier, the Cultural Landscape Masouleh is an example of a landscape shaped by a pastoral transhumance system with a local economy based on livestock husbandry (cattle, native breeds of sheep and the Caspian horse) and trade of livestock products (e.g., wool, cheese, meat). IUCN notes that the nominated property does not overlap with any national or international protected areas. However, in addition to the highly biodiverse Hyrcanian forest, IUCN notes that this cultural landscape overlaps with the distribution range of many threatened species, including the Critically Endangered Sociable Lapwing (*Vanellus gregarius)*, the Endangered Egyptian Vulture (*Neophron percnopterus),* Steppe Eagle (*Aquila nipalensis)*, and Vulnerable species such as the Goitered Gazelle (*Gazella subgutturosa),* Eastern Imperial Eagle (*Aquila heliacal),* Leopard (*Panthera pardus),* European Turtle-Dove (*Streptopelia turtur)*; though their presence in the relatively small nominated property would need to be confirmed.

According to the nomination dossier, the protection and management of the nominated property is assured by the Forests, Rangelands and Watershed Management Organization, policies (e.g. prohibition of hunting) and strategies to conserve the values of the nominated property. A cross-sectoral steering committee facilitates the decision-making among local, regional, and national stakeholders and a technical committee. Pressures on the natural values of the nominated property include encroachment, agriculture, past mining, pollution, climate change and desertification. In addition, several natural hazards affect the nominated property, including earthquakes, landslides, floods and fires.

IUCN recommends ICOMOS to consider the following points in its evaluation: Firstly, it is recommended to explore the possibility of measures to respond to climate change, specifically in order to protect biodiversity, including consideration of the key role that nature-based solutions may play in addressing both. Monitoring of the forest, grassland and river ecosystems (e.g., forest cover change and quality, grassland cover change and quality, herd carrying capacity of grasslands) could be enhanced. In this respect, the use and impacts of coniferous trees could be re-evaluated. Furthermore, it is recommended to continuously support local communities in the regeneration of degraded forest and grassland areas, including through community involvement in monitoring, sustainable management, conservation, and decision making on the conservation of the site's natural values and their benefits for the local livelihoods.

EUROPE / NORTH AMERICA

CULTURAL LANDSCAPE OF KHINALIG PEOPLE AND "KÖÇ YOLU" TRANSHUMANCE ROUTE

AZERBAIJAN

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

CULTURAL LANDSCAPE OF KHINALIG PEOPLE AND "KÖÇ YOLU" TRANSHUMANCE ROUTE (AZERBAIJAN)

IUCN has considered this cultural landscape nomination based on a desk review of the nomination dossier. Nominated under criteria (iii) and (v), the Cultural Landscape of Khinalig People and "Köç Yolu" Transhumance Route comprises 40,443.26 ha with a proposed buffer zone of 100,491.85 ha. Embedded in five administrative districts and traversing five landscape types, the nominated property comprises the high-mountain village of Khinalig and yaylaqs (highland pasture used in the summer season), qishlaq (lowland pasture used in the winter season in the semi-desert plains in central Azerbaijan), as well as the 200-km long Köç Yolu seasonal transhumance route.

The nomination dossier notes that these areas provide the livelihoods for the semi-nomadic Khinalig, who hold the indigenous knowledge about the transhumance, seasonal plant, and fruit gathering, natural resource management, rotational grazing, and communal management of pastures in a close socio-ecological relationship. Their cultural practices have allowed optimal use of grazing pastures while keeping the environmental risk factors such as erosion and overgrazing under control. The nomination dossier indicates that water management systems provide access to drinking water in all parts of the nominated property regardless of the weather conditions.

Various legal instruments intend to protect the nominated property from urbanization and industrialization. The buffer zone is protected against the construction of industrial facilities and exploration works that can harm its functional, structural, and visual integrity. A master plan aims to ensure that any development projects in the buffer zone would be carried out in a manner that protects the property's OUV, including integrity and authenticity. Regarding the protection of natural values, IUCN notes that the "Köç Yolu" Transhumance Route of the nominated property crosses the Shahdagh National Park (IUCN Category II) established in 2006. Recreation, tourism, and other economic activities are possible in the national park as long as they do not harm the ecosystems in the national park. The Ministry of Ecology and Natural Resources controls these activities. While the presence of threatened species would need to be confirmed, IUCN also notes that the nominated property may overlap with the range of several Critically Endangered species (e.g., Ship Sturgeon, *Acipenser nudiventris;* Stellate Sturgeon, *Acipenser stellatus,* Sociable Lapwing, *Vanellus gregarious)*, and Endangered (e.g., Egyptian Vulture, *Neophron percnopterus*) and Vulnerable species (e.g., Goitered Gazelle, *Gazella subgutturosa;* Oak Polypore, *Buglossoporus quercinus*). The nomination indicates that the Khinalig people protect the natural environment thanks to 'non-use values'; for instance, the hunting of vultures and felling of trees are considered a sin and are consequently banned.

Nevertheless, IUCN noted a range of pressures on the pastures and other key ecosystems of the nominated property, including the construction of a new road from the village of Susay to Khinalig, the increase in livestock grazing (i.e. from 10,000 sheep in the 1920s to 55,000 thousand in 2020), climate change, and the increasing risk of wildfires in pasture areas. In turn, these impacts may threaten the livelihood of the Khinalig. To address such challenges, the nomination proposes a new integrated protection mechanism for the nominated area by expanding the border of the existing Khinalig reserve and including the entire nominated property in a single administrative unit by 2023. In addition, modifications to the Land Code have been proposed to enable the continuation of the functions of the summer and winter pastures.

IUCN recommends ICOMOS encourages the State Party to establish an integrated approach to the management of the landscape in which the nominated property's carrying capacity is scientifically determined and managed to sustain the livelihoods of the Khinalig, including monitoring of threatened species and freshwater biodiversity in the rivers along the transhumance route. The carrying capacity would set and guide the limits for tourism and inform the response and adaptation to climate change. IUCN also recommends ICOMOS consider with the State Party commissioning an Environmental Impact Assessment (EIA) for a new road that is being constructed from the village of Susay to Khinalig to ensure no impact on the nominated property's proposed OUV.

EUROPE / NORTH AMERICA

ALPINE AND PRE-ALPINE MEADOWS, PASTURES AND WETLANDS IN THE AMMERGAU, THE LAKE STAFFELSEE AREA AND THE WERDENFELSER LAND

GERMANY

WORLD HERITAGE NOMINATION – IUCN COMMENTS TO ICOMOS

ALPINE AND PRE-ALPINE MEADOWS, PASTURES AND WETLANDS IN THE AMMERGAU, THE LAKE STAFFELSEE AREA AND THE WERDENFELSER LAND (GERMANY)

IUCN provides the following comments to ICOMOS based on a review of the nomination by the IUCN World Heritage Panel and the views of one external desk reviewer. The nominated property is a serial site consisting of 54 component parts proposed under criterion (v). There are seventeen individual component parts and 37 component parts grouped in 11 clusters that the nomination dossier suggests represent as a whole the proposed Outstanding Universal Value, which is centered on the local grassland farming system. The nominated component parts total an area of 19,403.95 ha with no buffer zone proposed. According to the nomination dossier, traditional grassland farming and livestock husbandry has sustained the livelihoods of small communities in alpine and pre-alpine meadows and pastures for centuries bearing testament of the connection of the local population to this Upper Bavarian cultural landscape.

The nominated property overlaps with several protected areas: Landschaft südlich des Estergebirges; Wettersteingebiet einschließlich Latschengürtel bei Mittenwald; Murnauer Moos; Estergebirge and Ammergebirge; Wettersteingebirge. In this respect, IUCN notes the presence of several different habitats resulting from the varied landscape comprising raised bogs, alpine hummock meadows, mountain meadows, alluviums and moors and original wet meadows as well as litter meadows. In the 'Murnau Moor' area, the nominated property comprises litter meadows and raised bogs. Raised bogs are the final ecosystem resulting from a succession starting from lakes that have progressively silted up. However, raised bogs have been reduced by more than 98% since 1750 and have been assessed as Critically Endangered on the IUCN Red List of Ecosystems. The remaining alpine raised bogs are therefore a conservation priority. They currently have a favorable conservation status according to the second national report to the EU Habitats Directive. The raised bogs of the 'Murnauer Moos' Nature Reserve enjoy protection status under German Federal Nature Conservation Law and the EU Habitats Directive (habitat type 7110), which recognizes the reserve as the largest, largely intact bog complex in Central Europe and as habitat for meadow-breeding bird species. The nominated property also includes areas that host a number of threatened species, such as butterflies, including the Endangered *Lycaena helle*, the Near-threatened *Phengaris nausithous*, the Vulnerable *Phengaris teleius*, and plant species, including the Vulnerable Creeping Marshwort, *Apium repens*, and the Near-threatened Fen Orchid, *Liparis loeselii*.

Whilst the nomination dossier highlights the biodiversity values of the nominated property, it also draws particular attention to human-wildlife conflict in relation to the return of the Grey Wolf (*Canis lupus*, LC), other predators, and the Eurasian Beaver (*Castor fiber*, LC), which the dossier suggests can undermine the maintenance of traditional land use. IUCN notes that the nomination dossier includes a summary of management plans for managing large predators as well as beaver management guidelines. IUCN also notes that the wolf and other large predators are provided with a strict protection status under the Bern Convention and the EU Habitats Directive. In addition, the wolf is strictly protected through the Federal Nature Conservation Law of Germany. In this respect, IUCN notes that the dossier presents the grassland farming system as "a harmonious interaction of man with the environment (…) which has been maintained for centuries" and whose essential features date back to prehistoric time. However, the previously extinct keystone species are portrayed as a threat to the nominated property even though they were evidently interacting with this system before they became extinct. Therefore, IUCN recommends ICOMOS to explore if the reintroduction and presence of top predators, beavers and the species found in the overlapping protected areas could be integrated as an essential element of the proposed cultural attributes, managed through species and habitat monitoring and careful management and compensation measures to mitigate human-wildlife conflict. Regarding the protection and management of the proposed cultural landscape, IUCN notes with concern that no buffer zone is foreseen for the 54 component parts. Ecological connectivity does not appear to be reflected through the nominated property's configuration and the protection regime does not appear to explicitly support this. Therefore, IUCN recommends ICOMOS consider with the State Party how a buffer zone could be established to serve as an additional layer of protection ensuring both ecological connectivity between the nominated component parts and the integrity of the wider cultural landscape overall.

Finally, IUCN notes that the nomination dossier states that essential prerequisite for the preservation of the Outstanding Universal Value of the nominated property is the continuation of the centuries-old system of grassland farming and animal husbandry. However, it goes on to note that the inscription of the nominated property on the UNESCO World Heritage List would not imply "any obligation on the part of the farmers to continue to cultivate the land (in any form whatsoever), nor does World Heritage status lead to the introduction or designation of additional restrictions, protected areas or legal levels". IUCN recommends ICOMOS seek to clarify with the State Party this seemingly contradictory statement which appears to be at odds with the framing of the property's proposed OUV and the need for management objectives which would maintain these values.

INTERNATIONAL UNION
FOR CONSERVATION OF NATURE

WORLD HEADQUARTERS
Rue Mauverney 28
1196 Gland, Switzerland
Tel +41 22 999 0000
Fax +41 22 999 0002
www.iucn.org