Natural World Heritage in Africa

PROGRESS AND PROSPECTS

BIOPAMA
From Knowledge to Action for a Protected Planet

IUCN

European Commission

Natural World Heritage in Africa

PROGRESS AND PROSPECTS

PETER C. HOWARD, BASTIAN BERTZKY

APRIL 2020

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

This publication has been produced under the Biodiversity and Protected Areas Management (BIOPAMA) Programme with support of the 11th European Development Fund (EDF) and does not necessarily reflect the views of the European Union nor of the African, Caribbean and Pacific (ACP) Group of States.

The views expressed in this publication do not necessarily reflect those of IUCN or other participating organisations. The contents of this publication are solely the responsibility of the authors and should not be interpreted as reflecting the views of any of the individuals or organizations that contributed to the publication or any of its elements. The recommendations are without prejudice whatsoever to either the decision of any State Party to consider nominations on its territory, whether mentioned or not mentioned in this volume, or to the potential evaluation of IUCN's World Heritage Panel (or of the equivalent body in ICOMOS) regarding any future nomination of any property for World Heritage status.

Published by the Biodiversity and Protected Areas Management (BIOPAMA) Programme, an initiative jointly implemented by the International Union for Conservation of Nature (IUCN) and the Joint Research Centre (JRC) of the European Commission.

Photos and maps: All photos © Peter C. Howard except photos on pages 6, 69 and 76 © Gregoire Dubois; in Table 1 and/or Figure 4 site photo 2 © Jerker Tamelander, photo 35 © Omari Ilambu, photo 36 © Alfonso González (CC BY-NC-ND-2.0), photo 37 © Thomas Aveling and photo 42 © David Coulson; in Box 2 and/or Figure 10 site photo C © Powell.Ramsar (CC-BY-SA-4.0), photo D © WCS/Mike Kock, photo E © Pier Lorenzo Marasco, photo K © Luca Battistella, photo N © Conrad Aveling, photo P © WCS Nigeria Program, photo R © wildbirdtrust.com, photo S © Andreas Brink and photo T © Miss Helena (CC-BY-2.0). The maps in Figures 4 and 10 were made with Natural Earth.

Design by Penrose CDB

Available from: https://www.iucn.org/resources/publications and www.biopama.org

Citation: 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.

Lion cubs, Tanzania

EXECUTIVE SUMMARY

The World Heritage Convention promotes international cooperation in conserving the world's most important natural and cultural heritage by maintaining a list of sites considered to be of 'Outstanding Universal Value'. One hundred and ninety three countries have ratified the Convention since its inception in 1972, and it has become one of the world's most successful conservation instruments. By the end of 2019, a total of 1,121 World Heritage Sites had been inscribed, including 252 under natural/mixed criteria, of which 48 are located across the 54 countries in Africa. This report provides a synthesis of key information on the implementation of the World Heritage Convention in Africa, and some guidance on how it might contribute to global conservation efforts and sustainable development in the future.

The first chapter of the report provides a general introduction to World Heritage. To be inscribed on the World Heritage List a site must be nominated by the State Party concerned and satisfy three requirements to demonstrate its 'Outstanding Universal Value' in a global context. In the case of a natural site it must prove to be exceptional in respect of at least one (of four) criteria, as well as meeting the required 'conditions of integrity' and having in place the necessary arrangements to provide for its long-term protection and management. The relevant natural criteria allow for recognition of sites that are exceptional in terms of: (a) natural phenomena and/or aesthetic values; (b) geological features; (c) ecological processes; or (d) biodiversity and threatened species.

The development and characteristics of Africa's portfolio of 48 natural/mixed sites is described in Chapter 2 and their locations shown on a map. Compared with other regions of the world, the rate of new inscriptions from Africa has slowed, and the continent is now slightly under-represented on the World Heritage List in terms of the number of sites. Two thirds of Africa's sites are found in just four biomes – savannas, forests, mountains and freshwater environments – while geological, coastal/marine and desert sites are significantly under-represented. Africa's sites are significantly larger than those in other parts of the world and tend to be listed more often on biodiversity criteria.

In terms of their protection and management status, the IUCN World Heritage Outlook 2 (released in 2017) indicates that slightly more than half of Africa's natural/mixed sites are in a critical condition or giving cause for 'significant concern'. Africa has 12 natural sites on the List of World Heritage in Danger, more than any other region, accounting for 70% of the global total. This is the result of various factors including civil unrest, poaching, infrastructure development, mining and uncontrolled timber harvesting.

The future development of World Heritage in Africa is considered in Chapter 3 in respect of possible priorities for new nominations, the opportunities to extend and consolidate existing sites, and the need to address shortcomings in management effectiveness. An illustrative shortlist of 20 possible priorities for new nominations is provided with site descriptions, and locations shown on a map. In addition, the potential for possible extensions to 17 sites is described.

The final chapter of the report describes the nomination and evaluation process and provides practical guidelines on preparing nominations. It highlights some of the challenges in developing nominations and notes the availability of technical and financial assistance from the World Heritage Centre, African World Heritage Fund and IUCN under the 'upstream process'. Finally, a list of useful online and documentary resources is provided in the Annexes.

Fynbos vegetation, Cape Floral Region Protected Areas, South Africa

1 INTRODUCTION

1.1 Background and purpose

The World Heritage Convention[1] has become one of the most important global conservation instruments. It embodies a visionary idea – that some cultural or natural heritage sites are so important that their protection is not only the responsibility of a single nation, but a duty of the international community as a whole, and not only for this generation, but for all those to come. Thus, the primary mission of the Convention is to identify and conserve the world's natural and cultural heritage sites of "Outstanding Universal Value", recognizing the linkages between nature conservation and the preservation of cultural sites.

The opportunity to review the contribution of Africa's natural World Heritage Sites to this mission and the broader goals of sustainable development has been provided by the Biodiversity and Protected Areas Management (BIOPAMA) Programme. This programme is an initiative of the African, Caribbean and Pacific (ACP) Group of States financed by the European Union's 11th European Development Fund, jointly implemented by the International Union for Conservation of Nature (IUCN) and the Joint Research Centre (JRC) of the European Commission. The programme is founded on the recognition that protected areas are one of the cornerstones and fundamental strategies for conserving biodiversity, maintaining ecosystem services and promoting human well-being – at local and global scale. The BIOPAMA Programme therefore aims to improve the long-term conservation and sustainable use of natural resources in ACP countries, with particular focus on protected areas and their neighbouring communities.

By late 2019 a total of 252 of the world's most outstanding protected natural areas had been inscribed as natural or 'mixed' (natural/cultural) sites on the UNESCO World Heritage List. The list includes 48 sites on the African continent, including iconic places such as Botswana's Okavango Delta wetlands; the 'endless plains' of Tanzania's Serengeti[2] savannas; the steamy Rainforests of the Atsinanana in Madagascar; the magical Lakes of Ounianga in the heart of the Sahara desert (Chad), the coastal wetlands of Mauritania's Banc d'Arguin and the extraordinary fossils at Egypt's Wadi Al-Hitan (Whale Valley). The international recognition gained by these places through their inscription on the World Heritage List is an important element in the wider goal of ensuring their long-term conservation and maximizing their contributions to sustainable development.

Within this context, the present report is intended to provide a highly accessible, short and simple synthesis of key information on the implementation of the World Heritage Convention in Africa since its inception in 1972, and provide some guidance on how it might contribute to global conservation efforts and sustainable development in the future. Specifically, the purpose of the report is to provide a summary of information that addresses the following questions:

- What is the World Heritage Convention and how does it work?
- How can World Heritage status benefit people and nature?
- What are the existing natural and mixed World Heritage Sites in Africa?
- What challenges do they face?
- How well are these sites being protected and managed?
- How could their conservation be enhanced (including through extensions)?
- What are some of the possible priorities for new World Heritage Sites in Africa?
- Why and how should countries prepare new World Heritage nominations?

By addressing these questions and summarizing the progress, opportunities and challenges of implementing the World Heritage Convention in

1 Full name: Convention Concerning the Protection of the World Cultural and Natural Heritage

2 Abbreviated names are used for some World Heritage Sites throughout this report, for improved readability, and the full names of sites referred to in the text are provided in Annex 1.

Photo: Dead trees, Sossusvlei, Namib Sand Sea, Namibia

the 54 countries of Africa, the report serves as a key reference for decision makers and others interested in Africa's rich natural heritage.

The report is based on information available from a variety of existing documentary sources, rather than original fieldwork. The most important of these sources are publically available through the websites of the World Heritage Centre and IUCN (which serves as Technical Advisory Body on nature, see below). They include the Convention's Operational Guidelines; manuals on topics such as managing natural World Heritage and preparing World Heritage nominations; expert reports on the potential for new sites for major global biomes/themes; and a wealth of site-specific information, including nomination dossiers, IUCN evaluation reports, Statements of Outstanding Universal Value and World Heritage Committee Decisions (available on the World Heritage Centre website). An important previous analysis on possible priorities for new natural/mixed sites that satisfy biodiversity criteria in Africa was undertaken by IUCN in collaboration with the United Nations Environment Programme's World Conservation Monitoring Centre (UNEP-WCMC) in 2011[3]. The main online and documentary sources are fully referenced in Annex 2 to this report.

1.2 How the World Heritage Convention works

The World Heritage Convention is a conservation instrument that promotes international cooperation in the protection and management of natural and cultural heritage by maintaining a list of the world's most outstanding sites. By the end of 2019, a total of 193 countries had ratified the Convention, becoming 'States Parties'. Each site on the World Heritage List is nominated by the country(ies) in which it is located, and its inclusion on the List follows a rigorous, independent evaluation procedure to determine whether it has 'Outstanding Universal Value' and fully satisfies the criteria and requirements for listing (see below). The protection and management of each World Heritage Site (or 'property', as it is known officially) remains the responsibility of the State Party concerned.

Maintaining the World Heritage List and monitoring the conservation status of listed properties is the responsibility of the World Heritage Committee. The Committee meets once a year to review the state of conservation of existing World Heritage Sites, to consider new nominations, to oversee the World Heritage Fund, and to develop policies to promote the Convention and its role in sustainable development[4]. The Committee is made up of

3 IUCN and UNEP-WCMC (2011). African Natural Heritage: Possible priorities for the World Heritage List. Foldout colour brochure. IUCN, Gland, Switzerland and UNEP-WCMC, Cambridge, UK.

4 The policy on sustainable development is provided at: http://whc.unesco.org/en/sustainabledevelopment/

representatives from 21 States Parties, with rotating membership[5]. It is supported by a Secretariat, the Paris-based World Heritage Centre, and three Technical Advisory Bodies. These are the International Union for Conservation of Nature (IUCN), the International Council on Monuments and Sites (ICOMOS) and the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM).

Guidance on the implementation of the Convention is provided in detail in its Operational Guidelines[6]. The World Heritage Centre maintains a very comprehensive website which catalogues resources for every 'property' (including a Statement of Outstanding Universal Value; the full text of Committee Decisions, nomination and evaluation documents, state of conservation and mission reports, maps, photographs and videos). It also provides details of all Committee meetings (including live streaming services when meetings are underway), policies, news items, and downloadable publications (including, for example, the resource manuals on Managing Natural World Heritage and Preparing World Heritage Nominations).

1.3 Benefits of World Heritage listing

There are many benefits of having a site on the World Heritage List[7], which are shared by a range of different stakeholders. For example, World Heritage recognition may:

- Instil a sense of pride and prestige amongst the general public and (especially) those more directly involved in a site's protection and management;
- Serve an important role in 'branding' and marketing a site as a globally recognised tourism destination;
- Assist national management authorities to gain preferential political and budgetary support for a site, thereby improving its protection and management;
- Attract international donor support;
- Facilitate access to international networks of expertise and technical support, thereby helping build national and local capacity for natural heritage management, including the strengthening of national legislation, policies and governance systems;
- Enable international cooperation over management of shared resources, such as transboundary protected areas, or migratory bird species that move between key sites;
- Support disadvantaged local communities to achieve recognition, retain access rights and maximize local benefits from a site;
- Limit the number and scale of potentially damaging infrastructure development activities that are proposed and/or undertaken at a site;
- Ensure appropriate environmental and social safeguards are incorporated into any infrastructure development activities affecting a site (such as new roads, dams, tourism facilities, etc.), through enhanced environmental impact assessment procedures;
- Help protect a site against the potentially damaging impacts of mining, oil/gas and mineral exploitation as well as other large-scale resource extraction activities such as logging; and
- Draw attention to threats affecting a site, thereby mobilizing local, national and international support.

5 States Parties meet biannually at the General Assembly to elect Committee members: http://whc.unesco.org/en/ga/

6 The Operational Guidelines are available at: https://whc.unesco.org/en/guidelines/

7 A useful publication on this topic is: Galla, A. (2012). World Heritage: Benefits Beyond Borders. UNESCO, Paris, France and Cambridge University Press, Cambridge, UK.

1.4 Criteria and requirements for World Heritage listing

In order to be inscribed on the World Heritage List, a site must be considered to have 'Outstanding Universal Value' (OUV). This is defined as being 'cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity.' The onus of proving that a proposed site is really exceptional in a global context and has the necessary OUV rests with the State Party making a nomination. It involves detailed comparison of the proposed site with similar sites that are already inscribed and other places that share similar attributes. OUV is established in terms of ten World Heritage criteria (four of which relate to natural sites) and also requires that a site satisfies 'conditions of integrity' (in terms of wholeness and intactness) and is adequately protected and managed. These elements constitute the 'three pillars' of a site's OUV (Figure 1).

As far as natural sites are concerned, nominated sites must satisfy at least one of the following four criteria:

Criterion (vii): contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance. Two distinct concepts are embodied in this criterion. The first, 'superlative natural phenomena', can often be objectively measured and assessed (e.g. deepest canyon, highest mountain, largest cave system, highest waterfall, etc.). The second concept, that of 'exceptional natural beauty and aesthetic importance', is harder to assess, and tends to be rather subjective. This criterion is usually applied in combination with at least one other criterion. It has been applied to 146 natural/mixed sites (58% of the global total), but only used as a sole criterion for eight sites, including two in Africa: Chad's Lakes of Ounianga and Kilimanjaro National Park in Tanzania.

Criterion (viii): be outstanding examples representing major stages of Earth's history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic feature. This criterion involves four distinct elements:

- **Earth's history:** geological features that record important events in the past development of the planet such as the record of crustal dynamics, the genesis and development of

Photo: Fossil whale skeleton, Wadi Al-Hitan (Whale Valley), Egypt

mountains, plate movements, continental movement and rift valley development, meteorite impacts, and changing climate in the geological past.

- **The record of life:** palaeontological (fossil) sites from different periods in the evolution of life on Earth.

- **Significant ongoing geological processes in the development of landforms:** features involving active geomorphological processes such as those associated with glaciers, mountains, deserts, active volcanoes, rivers and deltas, islands and coasts.

- **Significant geomorphic or physiographic features:** features resulting from earlier or longstanding periods of activity, such as relict glacial landforms, extinct volcanic systems, waterfalls and karst features.

Criterion (ix): be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animal. This criterion is interpreted in a variety of ways and tends to be applied in combination with at least one other criterion (most commonly biodiversity criterion (x)). It has been used to recognise unusually large and intact landscapes and seascapes, globally unique or threatened ecosystems and communities, and other areas with globally significant ongoing

Figure 1. The 'three pillars' required to establish a site's 'Outstanding Universal Value' (Source: UNESCO / ICCROM / ICOMOS / IUCN, 2011). Integrity is applicable to both natural and cultural sites, but authenticity is only required for cultural sites.

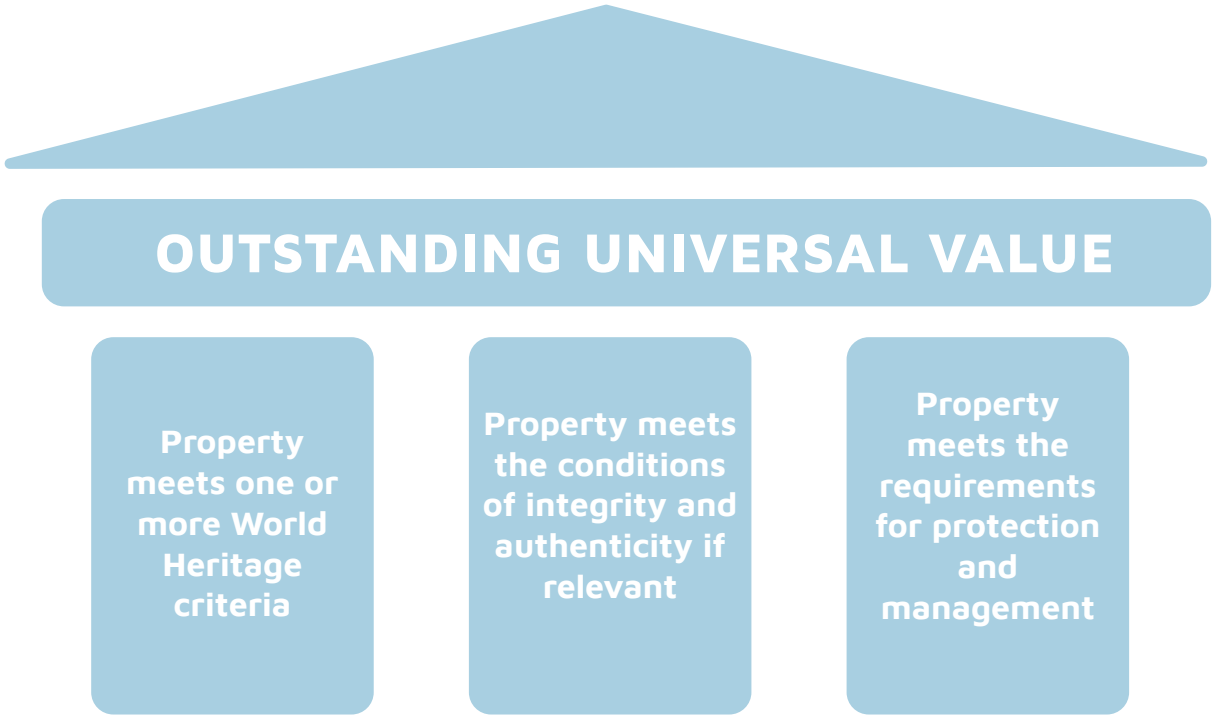
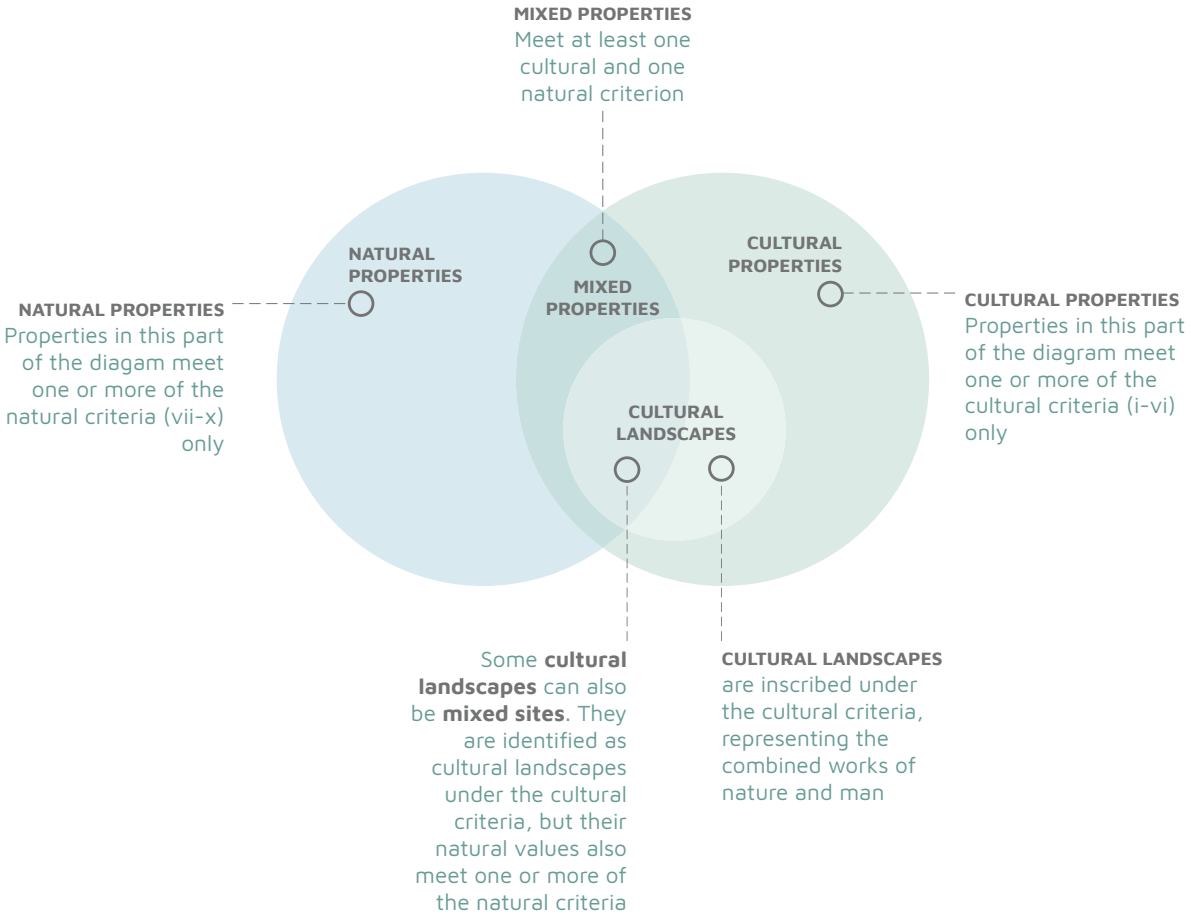


Illustration of the three pillars of Outstanding Universal Value within the World Heritage Convention. All three must be in place for a property to be judged as of Outstanding Universal Value.

Figure 2. Types of World Heritage Sites and the relationships between them (Source: UNESCO / ICCROM / ICOMOS / IUCN, 2011).



ecological and biological processes[8]. It has been applied to 128 natural/mixed sites (51% of the global total), but only used as a sole criterion for six sites, none of them in Africa[9].

Criterion (x): contain the most important and significant natural habitats for *in situ* conservation of biological diversity, including those containing threatened species of Outstanding Universal Value from the point of view of science or conservation. This criterion is applied to sites that are outstandingly important for biodiversity conservation, most commonly measured in terms of total species richness of plants and animals, the number and proportion of endemic species, and the number and proportion of species that are recognized as globally threatened with extinction. This criterion can be assessed relatively objectively by reference to existing global biodiversity datasets such as the IUCN Red List of Threatened Species, the World Database of Key Biodiversity Areas (KBAs), BirdLife International's Endemic Bird Areas (EBAs), Conservation International's Biodiversity Hotspots, and WWF's Global 200 Priority Ecoregions.

The application of these criteria, and other aspects of the nomination process, are discussed in more detail later in this report.

8 See also Table 2.1 in Bertzky et al. (2013). Terrestrial Biodiversity and the World Heritage List. IUCN, Gland, Switzerland and UNEP-WCMC, Cambridge, UK.

9 Three of these are small island sites, subject to island biogeographic processes, the evolution of endemic species, and colonization (East Renell, Ogasawara Islands and Surtsey), while three others all exemplify the evolution of temperate forests in (evolutionarily) recent times (European Beech Forests, Shirakami-Sanchi and Hyrcanian Forests).

1.5 Types of World Heritage Sites

World Heritage Sites are typically single land and/or sea areas located within the borders of a single country. They are usually nominated as either 'natural' or 'cultural' sites, with some 'mixed' sites (about 4% of the total) inscribed under at least one 'natural' and one 'cultural' criterion. In addition, 'cultural landscapes' (which explicitly recognize the linkages between nature, culture and people in the use of the natural environment) are normally inscribed under cultural criteria but may (in a few cases) be 'mixed' cultural landscapes that satisfy at least one natural criterion as well as cultural criteria. The relationship between these types of sites is illustrated in Figure 2.

Occasionally sites may be configured as:

- **Transboundary properties** involving single land and/or sea areas that lie across an international border (such as Mosi-oa-Tunya/Victoria Falls shared between Zimbabwe and Zambia, or the W-Arly-Pendjari Complex shared between Benin, Burkina Faso and Niger);
- **Serial properties** involving multiple separate land and/or sea areas within a single country (such as South Africa's Cape Floral Region Protected Areas); or
- **Serial transnational properties** involving multiple separate land and/or sea areas spread between two or more countries (there are currently no African examples, but the Talamanca Range - La Amistad Reserves/La Amistad National Park site straddling the border between Costa Rica and Panama provides a good example).

1.6 The List of World Heritage in Danger

Of particular interest to Africa is the provision for inscription on the List of World Heritage in Danger. This is a mechanism used to highlight serious, specific dangers threatening a site and to encourage support for remedial action. This may include provision of financial and technical assistance from the international community and/or specific management actions that are domestically-driven. As will be shown later in this report, Africa has experienced more Danger listing than any other region. Amongst other things, inscription on the Danger List allows the World Heritage Committee to allocate immediate assistance from the World Heritage Fund to the endangered property at the State Party's request.

Inscription of a site on the List of World Heritage in Danger requires the World Heritage Committee to agree a programme of corrective measures developed by the State Party concerned, and monitor progress as these measures are implemented. The aim is to eliminate and/or mitigate the threats and enable its removal from the List of World Heritage in Danger as soon as possible. The listing of a site as World Heritage in Danger allows the conservation community to respond to the specific identified threats in an efficient manner. Sometimes the mere prospect of inscribing a site on the Danger List can be effective in stimulating conservation action at national and international levels.

Inscription on the List of World Heritage in Danger is not viewed in the same way by all countries. Sometimes the country concerned may request it as a way to focus attention on a site's problems and obtain necessary assistance in solving them. Others, however, wish to avoid listing as they consider it an embarrassment. The listing of a site as World Heritage in Danger should in any case not be considered in a negative way, but as a call for concerted action by all concerned to address specific conservation needs.

2 TAKING STOCK: 40 YEARS OF PROGRESS

Rainbow at Mosi-oa-Tunya/Victoria Falls, Zambia and Zimbabwe

2.1 Development of the natural World Heritage network in Africa

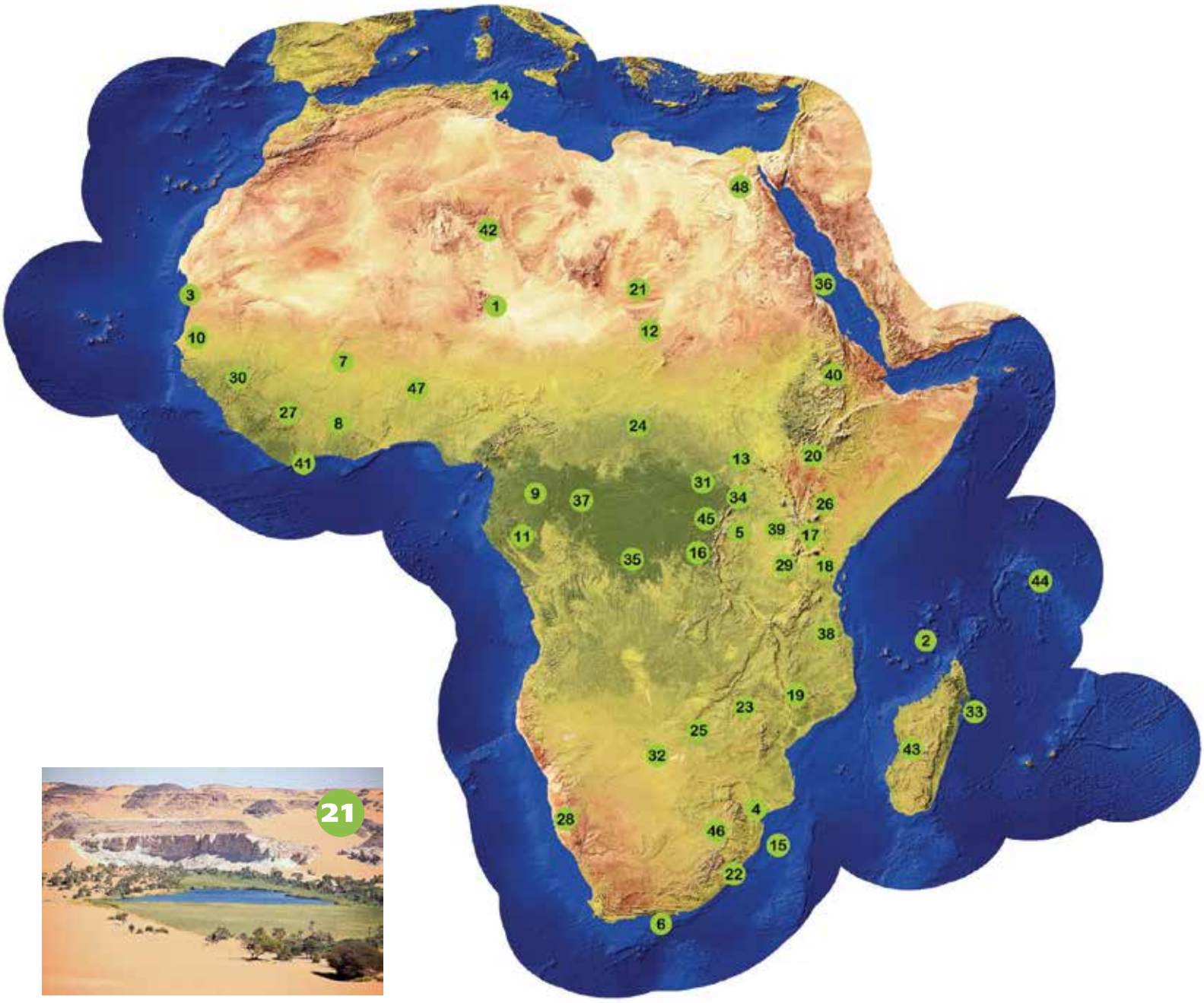
Ethiopia's Simien National Park became Africa's first natural World Heritage Site when it was inscribed in 1978 alongside Ecuador's Galápagos Islands, the United States' Yellowstone National Park and Canada's Nahanni National Park. Since then the network in Africa has grown to include 48 natural and mixed sites in 30 countries across the continent[10] – spectacular places from the snow-capped summits of Kilimanjaro, Mount Kenya and the Rwenzori Mountains to the dense rainforests of the Congo Basin, the wide open spaces of Africa's great savannas, and the vast deserts of the Namib and Sahara.

The charts in Figure 3 illustrate the development of this impressive network of sites over its first 40 years (1978-2017), drawing comparisons between Africa and the rest of the world. By the end of 2017, Africa held 47 (19.5%) of the 241 natural/mixed sites on the World Heritage List at that time, adding one further site (the Barberton Makhonjwa Mountains) in 2018. The location of all 48 African natural/mixed sites is shown in the map in Figure 4, and a short profile for each site is provided in Table 1 at the end of this chapter.

10 This report does not cover the five natural/mixed sites on the Canary Islands (Spain), Madeira (Portugal), Réunion (France) and Socotra (Yemen), although geographically these islands also belong to Africa.

Figure 3. Development of the natural World Heritage network in Africa, compared with the rest of the world. *Left*: Cumulative number of natural/mixed sites inscribed in Africa and the rest of the world in each 5-year period from 1978 to 2017. *Right*: Proportion of the global cumulative total of inscribed natural/mixed sites located in Africa in each 5-year period from 1978 to 2017.

Figure 4. Map of existing African natural and 'mixed' (natual/cultural) World Heritage Sites (as of 2019).



1. **Aïr and Ténéré Natural Reserves** NIGER
2. **Aldabra Atoll** SEYCHELLES
3. **Banc d'Arguin National Park** MAURITANIA
4. **Barberton Makhonjwa Mountains** SOUTH AFRICA
5. **Bwindi Impenetrable National Park** UGANDA
6. **Cape Floral Region Protected Areas** SOUTH AFRICA
7. **Cliff of Bandiagara (Land of the Dogons)** MALI
8. **Comoé National Park** CÔTE D'IVOIRE
9. **Dja Faunal Reserve** CAMEROON
10. **Djoudj National Bird Sanctuary** SENEGAL
11. **Ecosystem and Relict Cultural Landscape of Lopé-Okanda** GABON
12. **Ennedi Massif: Natural and Cultural Landscape** CHAD
13. **Garamba National Park** DEMOCRATIC REPUBLIC OF THE CONGO
14. **Ichkeul National Park** TUNISIA
15. **iSimangaliso Wetland Park** SOUTH AFRICA
16. **Kahuzi-Biega National Park** DEMOCRATIC REPUBLIC OF THE CONGO
17. **Kenya Lake System in the Great Rift Valley** KENYA
18. **Kilimanjaro National Park** TANZANIA
19. **Lake Malawi National Park** MALAWI
20. **Lake Turkana National Parks** KENYA
21. **Lakes of Ounianga** CHAD
22. **Maloti-Drakensberg Park** LESOTHO AND SOUTH AFRICA
23. **Mana Pools National Park, Sapi and Chewore Safari Areas** ZIMBABWE
24. **Manovo-Gounda St Floris National Park** CENTRAL AFRICAN REPUBLIC
25. **Mosi-oa-Tunya / Victoria Falls** ZAMBIA AND ZIMBABWE
26. **Mount Kenya National Park/Natural Forest** KENYA
27. **Mount Nimba Strict Nature Reserve** CÔTE D'IVOIRE AND GUINEA
28. **Namib Sand Sea** NAMIBIA
29. **Ngorongoro Conservation Area** TANZANIA
30. **Niokolo-Koba National Park** SENEGAL
31. **Okapi Wildlife Reserve** DEMOCRATIC REPUBLIC OF THE CONGO
32. **Okavango Delta** BOTSWANA
33. **Rainforests of the Atsinanana** MADAGASCAR
34. **Rwenzori Mountains National Park** UGANDA
35. **Salonga National Park** DEMOCRATIC REPUBLIC OF THE CONGO
36. **Sanganeb Marine National Park and Dungonab Bay - Mukkawar Island Marine National Park** SUDAN
37. **Sangha Trinational** CAMEROON, CENTRAL AFRICAN REPUBLIC AND CONGO
38. **Selous Game Reserve** TANZANIA
39. **Serengeti National Park** TANZANIA
40. **Simien National Park** ETHIOPIA
41. **Taï National Park** CÔTE D'IVOIRE
42. **Tassili n'Ajjer** ALGERIA
43. **Tsingy de Bemaraha Strict Nature Reserve** MADAGASCAR
44. **Vallée de Mai Nature Reserve** SEYCHELLES
45. **Virunga National Park** DEMOCRATIC REPUBLIC OF THE CONGO
46. **Vredefort Dome** SOUTH AFRICA
47. **W-Arly-Pendjari Complex** BENIN, BURKINA FASO AND NIGER
48. **Wadi Al-Hitan (Whale Valley)** EGYPT

2.2 Characteristics of Africa's natural and mixed World Heritage Sites

Many of Africa's natural/mixed sites recognize the special global significance of the continent's unique megafauna – its rhino, elephant, hippo and giraffe – which are unrivalled by anything elsewhere in the world. Ten sites (Figure 5) extend across vast tracts of Africa's savanna and woodland habitats, from the Serengeti/Ngorongoro in the east, via Garamba and Manovo-Gounda St Floris on the northern margins of the Congo Basin to the W-Arly-Pendjari Complex, Comoé and Niokolo-Koba in West Africa, and southwards through the miombo woodlands of the Selous to Mana Pools in the Zambezi Valley.

Equally important at a continental scale are Africa's rich tropical forests, which are represented by 11 sites. Each of these places supports a distinctive suite of species, none more iconic than the great apes – gorillas, chimpanzees and bonobos – as well the curious lemurs of Madagascar, the strange giraffe-like okapi of eastern Congo and the miniature pygmy hippo in West Africa.

Mountains are the third major category in Africa's World Heritage network, with seven sites on the List. These include the continent's three highest mountains (Kilimanjaro, Mount Kenya and the Rwenzori Mountains) as well as spectacular mountains elsewhere from Ethiopia (Simien) to Lesotho/South Africa (Maloti-Drakensberg) and Guinea/Côte d'Ivoire (Mount Nimba). These mountain environments often serve as isolated 'habitat islands' where evolutionary processes result in a great diversity of endemic fauna and flora.

African lakes and freshwater wetlands on the World Heritage List are as diverse as the environments in which they occur. Some of them are important

Figure 5. Number of African natural/mixed World Heritage Sites representing major biomes and themes. Some sites cover multiple biomes and/or themes.

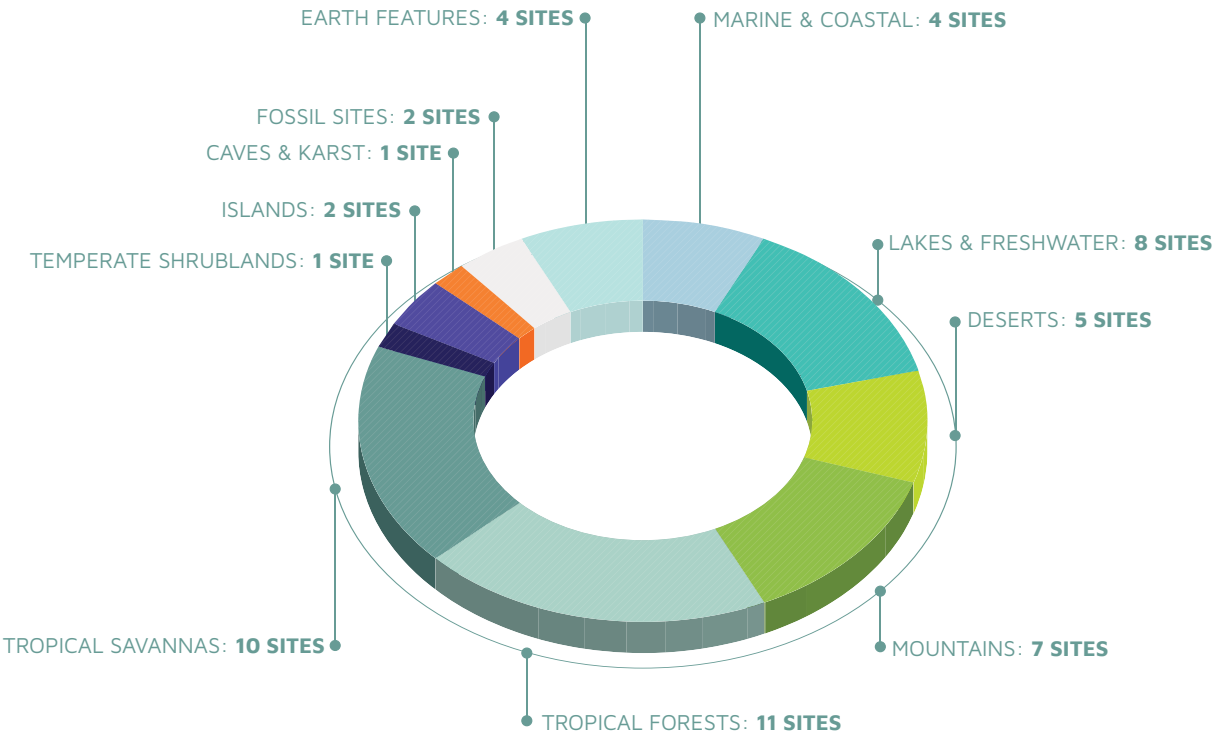


Figure 6. Application of the four World Heritage natural criteria in Africa (left; 48 sites) and the rest of the world (right; 204 sites). Note that some sites satisfy more than one criterion.

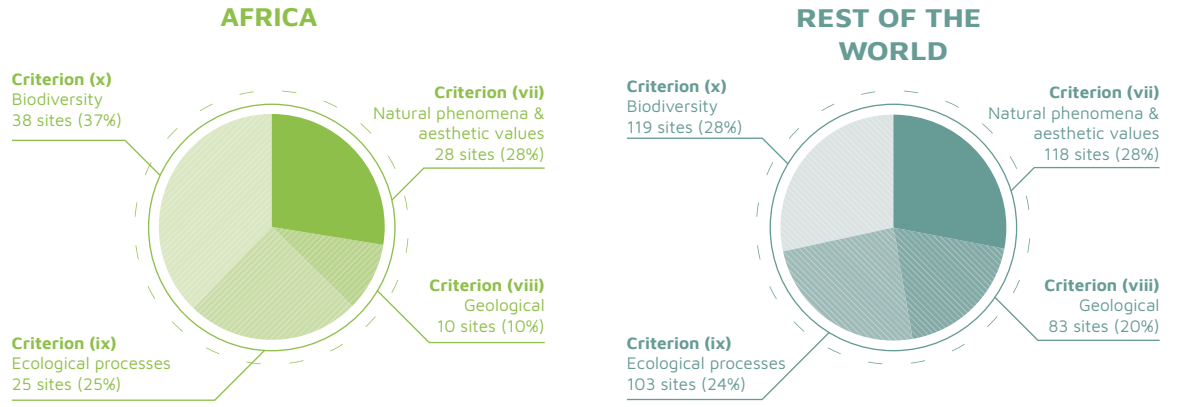
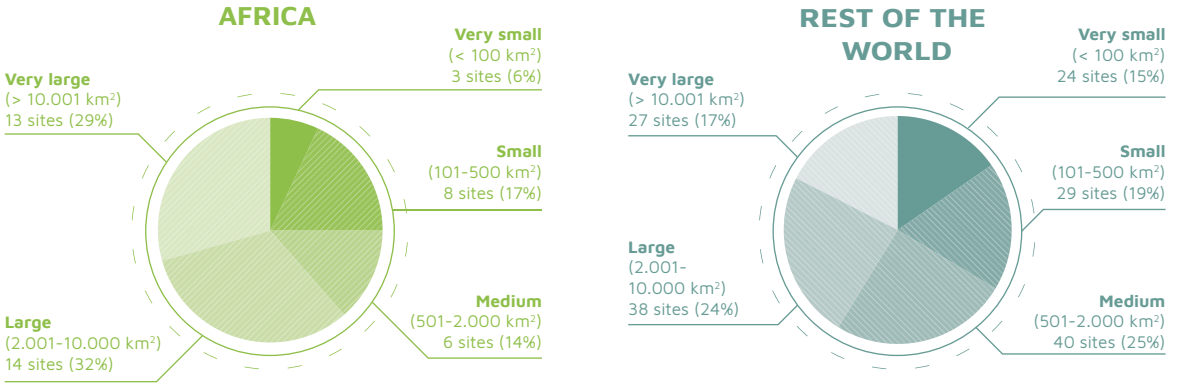


Figure 7. Size distributions of terrestrial natural/mixed World Heritage Sites in Africa (left; 44 sites) and the rest of the world (right; 158 sites). Predominantly marine sites were omitted from this figure.



bird sanctuaries near the coast (Tunisia's Ichkeul; Senegal's Djoudj and South Africa's iSimangaliso), while others are found along the Great Rift Valley – ancient inland 'seas' that serve as evolutionary laboratories for a huge diversity of endemic fish and other biota (Lakes Malawi and Turkana). Other Rift Valley Lakes are shallow saline basins that support vast flocks of flamingos (Kenya's Lake System). Two other extraordinary freshwater systems are included on the List – Chad's Lakes of Ounianga, maintained in the heart of the Sahara through seepage of fossil water from underground aquifers, and Botswana's Okavango Delta, a huge wetland in the Kalahari where seasonal waters from the Angolan highlands spill over and disappear into the desert sands.

Three quarters of Africa's natural sites represent these four biomes (savannas, forests, mountains and freshwater environments). Other biomes and themes are less well represented (Figure 5). Deserts, for example, which cover more than 25% of the continent's land area, are represented by just five sites (such as the Namib Sand Sea and Niger's Aïr and Ténéré Reserves), while the coastal and marine environment has only four sites (including Sudan's Red Sea site at Sanganeb and Mauritania's Banc d'Arguin).

In terms of the four criteria used in determining OUV, African sites are distinctive from those elsewhere with a much higher proportion of sites listed for their outstanding biodiversity values, and significantly fewer for their geological values (Figure 6). In general, terrestrial sites in Africa are bigger than those elsewhere in the world, with 61% exceeding 2,000 km^2 (compared with 41% in the rest of the world, Figure 7). Africa has only three (6%) very small sites, whereas a much higher proportion (15%) of sites elsewhere fall into this size category (smaller than 100 km^2).

2.3 State of conservation and outlook assessments

World Heritage Sites may be developed as 'models of best practice' in conservation management, and given priority by national authorities and partner institutions because of their internationally-recognised status. Providing the necessary protection and management to sustain a site's OUV is an obligation for the States Parties concerned, and monitoring the state of conservation of the

Photo: Leaf-tailed gecko, Rainforests of the Atsinanana, Madagascar

key attributes of OUV is necessary to ensure that management programmes are effective. The two main provisions for monitoring under the Convention are the periodic reporting and reactive monitoring processes[11]. The periodic reporting process requires States Parties to report every ten years or so on the state of conservation of their 'properties', using an online reporting tool. They are also required to inform the World Heritage Centre if they plan to undertake any development that could affect the OUV of the property so that appropriate advice can be provided to mitigate any possible negative impacts. Occasionally the World Heritage Centre or Advisory Body will receive a report of developments affecting a property from another source, in which case the State Party will be requested to comment on the information and consider what action may need to be taken.

Whenever a specific threat is identified, the reactive monitoring process is triggered. This provides for the State Party to submit state of conservation reports and to seek expert advice by inviting a reactive monitoring mission (or technical advisory mission) to visit the site. Such missions usually involve at least one expert appointed by the World Heritage Centre and another from the relevant Technical Advisory Body(ies) (IUCN for natural sites). The outcome of such missions, which is reported to the Committee and formally agreed as a Committee Decision, is normally the identification of a course of remedial action to mitigate any potential/ongoing threat. In some cases, this might result in a recommendation for inscription on the List of World Heritage in Danger (see Section 2.4 below). In most cases, further reactive monitoring missions will be invited from time to time to assess progress with implementation of the agreed actions and decide on adjustments as necessary. For sites on the Danger List, the State Party is required to submit annual state of conservation reports, which are summarized and consolidated with information from other sources for the Committee's attention. Furthermore, for Danger-listed sites specific indicators are identified to signify adequate progress in addressing threats to the site, allowing its eventual removal from the Danger List. As shown in Table 1, 27 of Africa's 48 natural/mixed sites (56%) have benefitted from reactive monitoring missions.

In 2014 IUCN launched its World Heritage Outlook, a global assessment of natural and mixed World Heritage Sites, which is updated on a three-year cycle[12]. In compiling these assessments, IUCN draws on independent experts who are familiar with the sites, as well as official reports and consultation with IUCN Members, IUCN Commissions, the IUCN Secretariat, site managers and other stakeholders such as researchers, NGOs, community groups and international agencies. The overall outlook assessment score for each site is based on: (a) detailed analysis of the current state and trend of World Heritage values; (b) an assessment of existing and potential threats; and (c) evaluation of protection and management arrangements and effectiveness.

The most recent IUCN World Heritage Outlook 2 report was published in 2017, providing assessments for the 47 natural/mixed sites in Africa at the time. The overall conservation outlook for each of these is reported in Table 1 at the end of this chapter, and compared with other regions of the world in Figure 8. Almost half (23 sites, 49%) of Africa's natural/mixed sites are considered to be either in a critical condition (26%) or giving cause for significant concern (23%). The relatively poor conservation status of African sites is attributed to a wide range of threats, the most important being poaching, unsustainable levels of hunting, uncontrolled fires, logging, invasive species and climate change[13]. Importantly, the 2017 assessment highlights management shortcomings, with just 32% of the continent's sites having 'mostly effective' or 'highly effective' protection and management. Between the 2014 and 2017 assessments, the overall outlook for African sites showed a slight improvement as the threats to four sites abated and the status of only one site deteriorated (Table 1).

11 See details at: https://whc.unesco.org/en/periodicreporting/ and http://whc.unesco.org/en/reactive-monitoring/

12 See details and results at: https://www.worldheritageoutlook.iucn.org/

13 According to the IUCN World Heritage Outlook 2 report (2017), although there are many other factors involved.

2.4 African World Heritage Sites in Danger

Africa has 12 natural sites on the List of World Heritage in Danger, more than any other region, accounting for 70% of the global total of 17 Danger-listed natural sites. More than half of these sites are in areas of civil unrest or recent conflict (where the impacts of unrest may be persisting beyond the cessation of hostilities). Five sites in the Democratic Republic of the Congo (Garamba, Kahuzi-Biega, Okapi, Salonga and Virunga), one in the Central African Republic (Manovo-Gounda St Floris) and one in Niger (Aïr and Ténéré) fall into this category. Five sites are listed in Danger for a variety of other reasons:

- Poaching has decimated wildlife populations in Niokolo-Koba and Selous;
- Infrastructure developments (large dams) threaten Lake Turkana and Selous;
- Mining has resulted in excisions and continues to affect Mount Nimba and Selous;
- Illegal logging is impacting the Rainforests of the Atsinanana.

In all these cases, the management response to address the ongoing threats has not yet been sufficient to allow the site's removal from the List of World Heritage in Danger. This may be due to the scale and severity of the challenges and the grossly inadequate funding, staff and other resources required to address them. For example, Selous Game Reserve covers 51,200 km^2, seventeen times the size of the USA's Yosemite National Park, but operates on a small fraction of Yosemite's budget.

Figure 9 provides a chronology of the application of Danger listing for 18 African sites since 1978. Seven African sites have been removed from the Danger List (although Comoé and Garamba were re-inscribed a few years after their initial removal). Those that have been removed include: (a) two wetlands (Djoudj and Ichkeul) where competing demands for water had serious short-term consequences that were resolved by better water management; (b) three sites that were adversely affected by periods of civil unrest (Rwenzori, Comoé and Simien). In each of these cases management staff had to be withdrawn allowing 'open access', which resulted in significant degradation of resources and required a long period of ecological restoration after effective management was reinstated; and (c) one site (Ngorongoro) which suffered a period of rapid decline as management was unable to deal with poaching and other threats (in this case quickly resolved following the Danger listing). More details on three African examples of Danger listing are provided in Box 1.

Figure 8. Conservation outlook for the natural/mixed World Heritage Sites in Africa as of 2017 (left; 47 sites) compared with those in the rest of the world (right; 194 sites) (IUCN, 2017).

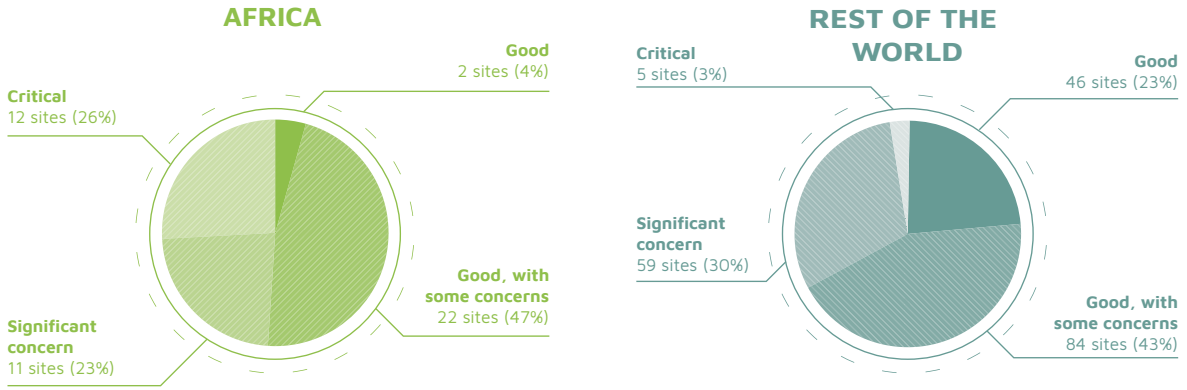
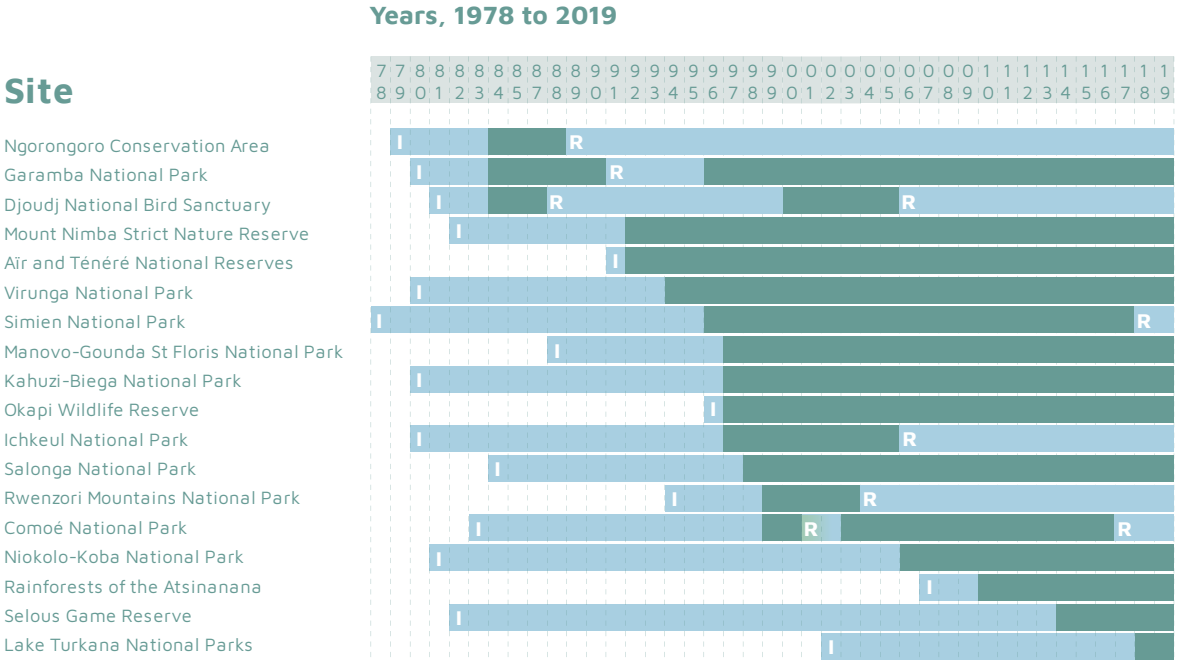


Figure 9. Periods of inscription on the List of World Heritage in Danger since 1978 for the 18 African sites that have been listed.



Key: **I** = year of inscription on the World Heritage List; **light blue bar** = years on the World Heritage List; **dark blue bar** = years on the List of World Heritage in Danger; **R** = year of removal from the List of World Heritage in Danger.

Photo: Flamingos, Lake Bogoria, Kenya Lake System in the Great Rift Valley, Kenya

Aerial view of Okavango Delta, Botswana

BOX 1

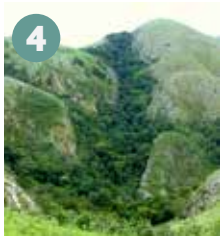
IN DANGER LISTING: SOME EXAMPLES

Djoudj National Bird Sanctuary (Senegal). This wetland site in the Senegal River estuary is a key area for overwintering waterfowl on the West African coast. It has been inscribed on the List of World Heritage in Danger on two occasions, covering the periods 1984-88 and 2000-06. On the first occasion the water regime of the wetland was severely affected by the construction of dams. It took several years for the impact of this to be mitigated through a range of interventions including the construction of dykes and sluices that enabled the water regime to be artificially managed. At the same time, WWF sponsored a wide-ranging management review and development of a management plan to address a range of other issues, enabling the site to be removed from the Danger List after just four years. However, the site was re-inscribed on the List in 2000 when it suffered a massive infestation of the alien invasive plant, *Salvinia molesta*. This was brought under control with the introduction of biological control agents and, following other necessary management improvements, the site was again removed from the Danger List in 2006.

Lake Turkana National Parks (Kenya). The three national parks that make up this site (Sibiloi, Central and South Islands) protect key habitats associated with Africa's fourth deepest and most saline lake. The lake serves as an important stopover location for migratory waterfowl, an important breeding location for Nile crocodile, and home to a diversity of unusual aquatic biota as well as desert fauna and flora. Sibiloi is also an important fossil site, contributing significantly to our understanding of paleo-environments during the Pliocene-Pleistocene eras (from 4 to 1 million years ago). After several earlier recommendations by the World Heritage Centre and IUCN to inscribe the site on the List of World Heritage in Danger, this was finally decided in 2018 when the lake water levels were dropping rapidly as Ethiopia's new Gibe III dam was being filled and the massive new Kuraz irrigation scheme was drawing increasing amount of water from the lower reaches of the Omo River. A Strategic Environmental Assessment process has been initiated as a cooperative effort between Ethiopia and Kenya, noting that two further dams in the Ethiopian highland catchment areas of the lake are planned, and there is a threat of further expansion of agricultural irrigation schemes, which would further impact the lake inflow. The purpose of Danger listing in this case is to draw attention to the need for measures to mitigate the impact of upstream water use by a neighbouring State Party, thereby protecting the OUV of the Kenyan property.

Simien National Park (Ethiopia). The dramatic Simien Mountains escarpment in the north of Ethiopia was the first African site to be inscribed on the World Heritage List (in 1978) and supports a wealth of Ethiopia's highland endemic species including the Walia ibex, Ethiopian wolf and Gelada baboon. Like many other African sites on the Danger List Simien suffered a catastrophic loss of wildlife as a result of civil conflict. Through the 1980s, until the overthrow of the Marxist Derg government in 1991, a protracted war brought widespread famine to this part of Ethiopia and made wildlife protection impossible. As the new Ethiopian government was established in the early 1990s it sought the support of the international community to help restore management capacity and rebuild wildlife populations. The site's inscription on the Danger List in 1996 was part of that effort. The scale of the challenge was immense and involved a variety of international partners, donors, researchers and NGOs as well as strong political will from regional and national government. Over the next 22 years park infrastructure and management capacity was rebuilt, wildlife and habitats protected, communities involved and plans for a significant extension of the site developed. By 2017 populations of key threatened species such as Walia ibex and Ethiopian wolf were increasing sufficiently to allow the site to be removed from the Danger List (although significant ongoing threats remain).

Table 1. Annotated list of African natural and 'mixed' (natural/cultural) World Heritage Sites (as of 2019), with IUCN Conservation Outlook Assessment (COA) results and dates of World Heritage Centre/IUCN monitoring missions. Map labels refer to the map in Figure 4.

Map label and thumbnail photo	Name, type and status, country and short description (usually at time of inscription, abbreviated from http://whc.unesco.org/en/list/, see footnote regarding changes since inscription)
	**Aïr and Ténéré Natural Reserves (Natural Site in Danger, Niger).** This is the largest protected area in Africa, covering some 7.7 million ha, though the area considered as a protected sanctuary constitutes only one-sixth of the total area. It includes the volcanic rock mass of the Aïr, a small Sahelian pocket, isolated as regards its climate and flora and fauna, and situated in the Saharan desert of Ténéré. The reserves boast an outstanding variety of landscapes, plant species and wild animals such as the critically endangered addax antelope and dama gazelle. For details see: http://whc.unesco.org/en/list/573
	**Aldabra Atoll (Natural Site, Seychelles).** The atoll is comprised of four large coral islands which enclose a shallow lagoon; the group of islands is itself surrounded by a coral reef. Due to difficulties of access and the atoll's isolation, Aldabra has been protected from human influence and thus retains some 152,000 giant tortoises, the world's largest population of this reptile. For details see: http://whc.unesco.org/en/list/185
	**Banc d'Arguin National Park (Natural Site, Mauritania).** Fringing the Atlantic coast, the park comprises sand-dunes, coastal swamps, small islands and shallow coastal waters. The contrast between the harsh desert environment and the biodiversity of the marine zone has resulted in a land- and seascape of outstanding natural significance. A wide variety of migrating birds spend the winter there. Several species of sea turtle and dolphin, used by the fishermen to attract shoals of fish, can also be found. For details see: http://whc.unesco.org/en/list/506
	**Barberton Makhonjwa Mountains (Natural Site, South Africa).** Situated in north-eastern South Africa, the Barberton Makhonjwa Mountains comprise 40% of the Barberton Greenstone Belt, one of the world's oldest geological structures. The property represents the best-preserved succession of volcanic and sedimentary rock dating back 3.6 to 3.25 billion years and forms a diverse repository of information on surface conditions, meteorite impacts, volcanism, continent-building processes and the environment of early life. For details see: http://whc.unesco.org/en/list/1575
	**Bwindi Impenetrable National Park (Natural Site, Uganda).** Located in south-western Uganda, Bwindi covers 32,000 ha of montane forest and is known for its exceptional biodiversity, with more than 160 species of trees and over 100 species of ferns. Many types of birds and butterflies can also be found there, as well as many globally threatened species, including the endangered mountain gorilla. For details see: http://whc.unesco.org/en/list/682
	**Cape Floral Region Protected Areas (Serial Natural Site, South Africa).** The property is one of the world's great centres of terrestrial biodiversity. The extended property includes national parks, nature reserves, wilderness areas, State forests and mountain catchment areas. It supports a significant number of endemic species associated with the Fynbos vegetation, a fine-leaved sclerophyllic shrubland adapted to both a Mediterranean climate and periodic fires, which is unique to the Cape Floral Region. For details see: http://whc.unesco.org/en/list/1007

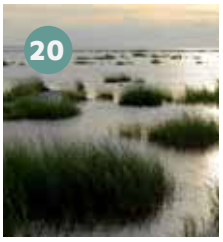
	Year of inscription (extension)	Area (km²)	Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	COA (2014)	COA (2017)	Monitoring missions
	1991	77,360	✔		✔	✔	🔴	🔴	1995 1997 1998 2001 2015
	1982	350	✔		✔	✔	🟢	🟢	–
	1989	12,000			✔	✔	🟡	🟡	2014
	2018	1,131		✔					–
	1994	321	✔			✔	🟢	🟢	–
	2004 (2015)	10,947			✔	✔	🟢	🟢	–

Map label and thumbnail photo	Name, type and status, country and short description (usually at time of inscription, abbreviated from http://whc.unesco.org/en/list/, see footnote regarding changes since inscription)
	**Cliff of Bandiagara (Land of the Dogons) (Mixed Site, Mali).** The Bandiagara site is an outstanding landscape of cliffs and sandy plateaux with some beautiful architecture (houses, granaries, altars, sanctuaries and *Togu Na*, or communal meeting-places). Several age-old social traditions live on in the region (masks, feasts, rituals, and ceremonies involving ancestor worship). The geological, archaeological and ethnological interest, together with the landscape, make the Bandiagara plateau one of West Africa's most impressive sites. For details see: http://whc.unesco.org/en/list/516
	**Comoé National Park (Natural Site, Côte d'Ivoire).** One of the largest protected areas in West Africa, this park is characterized by its great plant diversity. Due to the presence of the Comoé River, it contains plants which are normally only found much farther south, such as shrub savannas and patches of thick rainforest. For details see: http://whc.unesco.org/en/list/227
	**Dja Faunal Reserve (Natural Site, Cameroon).** This is one of the largest and best-protected rainforests in Africa, with 90% of its area left undisturbed. Almost completely surrounded by the Dja River, which forms a natural boundary, the reserve is especially noted for its biodiversity and a wide variety of primates. It contains 107 mammal species, at least five of which are globally threatened. For details see: http://whc.unesco.org/en/list/407
	**Djoudj National Bird Sanctuary (Natural Site, Senegal).** Situated in the Senegal River delta, the Djoudj Sanctuary is a wetland of 16,000 ha, comprising a large lake surrounded by streams, ponds and backwaters. It forms a living but fragile sanctuary for some 1.5 million birds, such as the white pelican, the purple heron, the African spoonbill, the great egret and the great cormorant. For details see: http://whc.unesco.org/en/list/25
	**Ecosystem and Relict Cultural Landscape of Lopé-Okanda (Mixed Site, Gabon).** The property demonstrates an unusual interface between dense and well-conserved tropical rainforest and relict savanna environments with a diversity of species, including endangered large mammals. It illustrates ecological processes in terms of species and habitat adaptation to post-glacial climatic changes. It contains evidence of the successive passages of different peoples including a remarkable collection of some 1,800 petroglyphs (rock carvings). For details see: http://whc.unesco.org/en/list/1147
	**Ennedi Massif: Natural and Cultural Landscape (Mixed Site, Chad).** The sandstone Ennedi Massif has been sculpted over time by water and wind erosion into a plateau featuring canyons and valleys that present a spectacular landscape marked by cliffs, natural arches and pitons. In the largest canyons, the permanent presence of water plays an essential role in the Massif's ecosystem, sustaining flora and fauna as well as human life. The site protects one of the largest ensembles of rock art in the Sahara. For details see: http://whc.unesco.org/en/list/1475

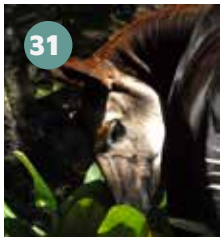
	Year of inscription (extension)	Area (km²)	Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	COA (2014)	COA (2017)	Monitoring missions
	1989	3,274	✔				🟡	🟡	–
	1983	11,500			✔	✔	🔴	🟡	2013 2017
	1987	5,260			✔	✔	🔴	🔴	1998 2006 2012 2015 2019
	1981	160	✔			✔	🟡	🟡	2000 2001 2005
	2007	4,913			✔	✔	🟢	🟢	2015
	2016	24,412	✔		✔			🟡	–

Map label and thumbnail photo	Name, type and status, country and short description (usually at time of inscription, abbreviated from http://whc.unesco.org/en/list/, see footnote regarding changes since inscription)
 13	**Garamba National Park (Natural Site in Danger, Democratic Republic of Congo).** The park's immense savannas, grasslands and woodlands, interspersed with gallery forests along the river banks and the swampy depressions, are home to large mammals such as elephant, hippo and giraffe. At the time of inscription, Garamba also supported the last surviving population of the northern sub-species of the white rhino, but this population is now considered extinct (see footnote). For details see: http://whc.unesco.org/en/list/136
 14	**Ichkeul National Park (Natural Site, Tunisia).** The Ichkeul lake and wetland are a major stopover point for hundreds of thousands of migrating birds, such as ducks, geese, storks and pink flamingos, who come to feed and nest there. Ichkeul is the last remaining lake in a chain that once extended across North Africa. For details see: http://whc.unesco.org/en/list/8
 15	**iSimangaliso Wetland Park (Natural Site, South Africa).** The ongoing fluvial, marine and aeolian processes in the site have produced a variety of landforms, including coral reefs, long sandy beaches, coastal dunes, lake systems, swamps, and extensive reed and papyrus wetlands. The mosaic of landforms and habitat types creates breathtaking scenic vistas. The site contains critical habitats for a range of species from Africa's marine, wetland and savanna environments. For details see: http://whc.unesco.org/en/list/914
 16	**Kahuzi-Biega National Park (Natural Site in Danger, Democratic Republic of Congo).** A vast area of primary tropical forest dominated by two spectacular extinct volcanoes, Kahuzi and Biega, the park has a diverse and abundant fauna. One of the last populations of critically endangered eastern lowland or Grauer's gorillas (now estimated at 1,220 individuals; see footnote) lives at between 2,100 and 2,400m above sea-level. For details see: http://whc.unesco.org/en/list/137
 17	**Kenya Lake System in the Great Rift Valley (Serial Natural Site, Kenya).** The site comprises three inter-linked shallow lakes (Lake Bogoria, Lake Nakuru and Lake Elementaita) in the Rift Valley. The property is home to 13 globally threatened bird species and some of the highest bird diversities in the world. It is the single most important foraging site for the lesser flamingo. The property features sizeable mammal populations, including black rhino, Rothschild's giraffe, greater kudu, lion, cheetah and wild dogs. For details see: http://whc.unesco.org/en/list/1060
 18	**Kilimanjaro National Park (Natural Site, United Republic of Tanzania).** At 5,895 m, Kilimanjaro is the highest point in Africa. This volcanic massif stands in splendid isolation above the surrounding plains, with its snowy peak looming over the savanna. The mountain is encircled by mountain forest. Numerous mammals, many of them endangered species, live in the park. For details see: http://whc.unesco.org/en/list/403
 19	**Lake Malawi National Park (Serial Natural Site, Malawi).** Located at the southern end of the great expanse of Lake Malawi, with its deep, clear waters and mountain backdrop, the national park is home to many hundreds of fish species, nearly all endemic. Its importance for the study of evolution is comparable to that of the Galápagos Islands. For details see: http://whc.unesco.org/en/list/289

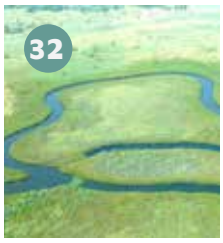
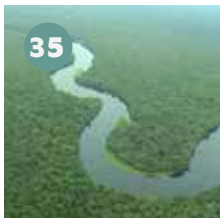
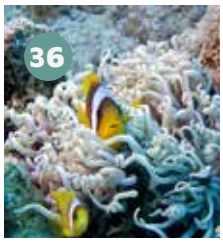
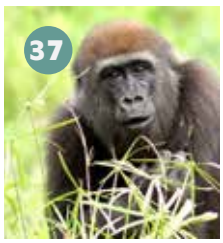
	Year of inscription (extension)	Area (km²)	Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	COA (2014)	COA (2017)	Monitoring missions
	1980	5,000	✔			✔	🔴	🔴	1996 2000 2001 2016
	1980	126				✔	🟡	🟢	1997 1999 2002 2003
	1999	2,396	✔		✔	✔	🟢	🟢	–
	1980	6,000				✔	🔴	🔴	1996 2000 2001 2017
	2011	320	✔		✔	✔	🟢	🟢	–
	1987	756	✔				🟢	🟢	–
	1984	94	✔		✔	✔	🟡	🟡	1995 2014

Map label and thumbnail photo	Name, type and status, country and short description (usually at time of inscription, abbreviated from http://whc.unesco.org/en/list/, see footnote regarding changes since inscription)
 20	**Lake Turkana National Parks (Serial Natural Site in Danger, Kenya).** The most saline of Africa's large lakes, Turkana is an outstanding laboratory for the study of plant and animal communities. The three national parks serve as a stopover for migrant waterfowl and are major breeding grounds for the Nile crocodile, and other species. The Koobi Fora deposits, rich in mammalian, molluscan and other fossil remains, have contributed more to the understanding of paleo-environments than any other site on the continent. For details see: http://whc.unesco.org/en/list/801
 21	**Lakes of Ounianga (Serial Natural Site, Chad).** The site includes eighteen interconnected lakes in a hyper arid region of the Sahara desert. It constitutes an exceptional natural landscape of great beauty with striking colours and shapes. The saline, hyper saline and freshwater lakes are supplied by groundwater and are found in two groups 40 km apart. With their high quality freshwater, some of these lakes are home to aquatic fauna, particularly fish. For details see: http://whc.unesco.org/en/list/1400
 22	**Maloti-Drakensberg Park (Transboundary Mixed Site, Lesotho & South Africa).** The site has exceptional natural beauty in its soaring basaltic buttresses, incisive dramatic cutbacks, and golden sandstone ramparts, while the site's diversity of habitats protects a high level of endemic and globally important plants, and several endangered animal species. This spectacular natural site contains many caves and rock-shelters with the largest and most concentrated group of paintings in Africa south of the Sahara. For details see: http://whc.unesco.org/en/list/985
 23	**Mana Pools National Park, Sapi and Chewore Safari Areas (Natural Site, Zimbabwe).** On the banks of the Zambezi River, great cliffs overhang the river and the floodplains. The area is home to a remarkable concentration of wild animals, including elephant, buffalo, leopard and cheetah. An important concentration of Nile crocodiles is also found in the area. For details see: http://whc.unesco.org/en/list/302
 24	**Manovo-Gounda St Floris National Park (Natural Site in Danger, Central African Republic).** The importance of this park derives from its wealth of flora and fauna. Its vast savannas are home to a wide variety of species: elephant, cheetah, leopard, wild dog, red-fronted gazelle and buffalo, while various types of waterfowl are found in the northern floodplains. At the time of inscription, the park also supported a population of the western sub-species of the black rhino, but this sub-species is now considered extinct (see footnote). For details see: http://whc.unesco.org/en/list/475
 25	**Mosi-oa-Tunya/Victoria Falls (Transboundary Natural Site, Zambia & Zimbabwe).** These are among the most spectacular waterfalls in the world. The Zambezi River, which is more than 2 km wide at this point, plunges noisily down a series of basalt gorges and raises an iridescent mist that can be seen more than 20 km away. For details see: http://whc.unesco.org/en/list/509

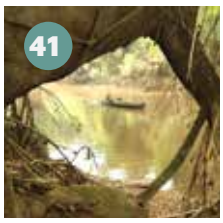
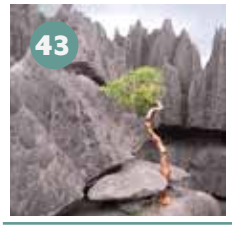
	Year of inscription (extension)	Area (km²)	Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	COA (2014)	COA (2017)	Monitoring missions
	2001	1,615		✔		✔	🔴	🔴	2012 2015
	2012	628	✔				🟢	🟢	–
	2000 (2013)	2,493	✔			✔	🟢	🟢	–
	1984	6,766	✔		✔	✔	🟡	🟡	2011
	1988	17,400			✔	✔	🔴	🔴	1995 2019
	1989	69	✔	✔			🟢	🟢	2000 2006

Map label and thumbnail photo	Name, type and status, country and short description (usually at time of inscription, abbreviated from http://whc.unesco.org/en/list/, see footnote regarding changes since inscription)
 26	**Mount Kenya National Park/Natural Forest (Natural Site, Kenya).** Mount Kenya is the second highest peak in Africa, an ancient extinct volcano. There are 12 remnant glaciers on the mountain, all receding rapidly, and four secondary peaks that sit at the head of U-shaped glacial valleys. With its rugged glacier-clad summits and forested middle slopes, Mount Kenya is one of the most impressive landscapes in East Africa. The evolution and ecology of its afro-alpine flora provide an outstanding example of ecological and biological processes. For details see: http://whc.unesco.org/en/list/800
 27	**Mount Nimba Strict Nature Reserve (Transboundary Natural Site in Danger, Côte d'Ivoire & Guinea).** Located on the borders of Guinea, Liberia and Côte d'Ivoire, Mount Nimba rises above the surrounding savanna. Its slopes are covered by dense forest at the foot of grassy mountain pastures. They harbour an especially rich flora and fauna, with endemic species such as the viviparous toad and chimpanzees that use stones as tools. For details see: http://whc.unesco.org/en/list/155
 28	**Namib Sand Sea (Natural Site, Namibia).** Namib Sand Sea is the only coastal desert in the world that includes extensive dune fields influenced by fog. The site features gravel plains, coastal flats, rocky hills, inselbergs within the sand sea, a coastal lagoon and ephemeral rivers, resulting in a landscape of exceptional beauty. Fog is the primary source of water in the site, accounting for a unique environment in which endemic invertebrates, reptiles and mammals adapt to an ever-changing variety of microhabitats and ecological niches. For details see: http://whc.unesco.org/en/list/1430
 29	**Ngorongoro Conservation Area (Mixed Site, United Republic of Tanzania).** This multiple land use area, with wildlife coexisting with semi-nomadic Maasai pastoralists practicing traditional livestock grazing, includes the spectacular Ngorongoro Crater, the world's largest caldera. The property adjoins Serengeti National Park and hosts the annual migration of wildebeest, zebra, and gazelle on its northern plains for part of the year. The site provides evidence of human evolution, including early hominid footprints dating back 3.6 million years. For details see: http://whc.unesco.org/en/list/39
 30	**Niokolo-Koba National Park (Natural Site in Danger, Senegal).** Located in a well-watered area along the banks of the Gambia River, the gallery forests and savannas of Niokolo-Koba National Park have a very rich fauna, among them Derby eland (largest of the antelopes), chimpanzee, lion, leopard and elephant, as well as many birds, reptiles and amphibians. For details see: http://whc.unesco.org/en/list/153
 31	**Okapi Wildlife Reserve (Natural Site in Danger, Democratic Republic of Congo).** The Okapi Wildlife Reserve occupies about one-fifth of the Ituri forest in the north-east of the Democratic Republic of the Congo. The reserve contains threatened species of primates and birds and about 5,000 of the estimated 30,000 okapi surviving in the wild. It also has some dramatic scenery, including waterfalls on the Ituri and Epulu rivers. The reserve is inhabited by traditional nomadic pygmy Mbuti and Efe hunters. For details see: http://whc.unesco.org/en/list/718

	Year of inscription (extension)	Area (km²)	Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	COA (2014)	COA (2017)	Monitoring missions
	1997 (2013)	2,023	✔		✔		🟢	🟢	2008
	1981 (1982)	180			✔	✔	🔴	🔴	1992 1993 1994 2000 2007 2013 2019
	2013	30,777	✔	✔	✔	✔	🟢	🟢	–
	1979 (2010)	8,094	✔	✔	✔	✔	🟢	🟢	1986 2007 2012 2017 2019
	1981	9,130				✔	🔴	🔴	1989 1992 2001 2007 2010 2015
	1996	13,726				✔	🔴	🔴	2000 2001 2014

Map label and thumbnail photo	Name, type and status, country and short description (usually at time of inscription, abbreviated from http://whc.unesco.org/en/list/, see footnote regarding changes since inscription)
	**Okavango Delta (Natural Site, Botswana).** This delta comprises permanent marshlands and seasonally flooded plains. It is one of the very few major interior delta systems that do not flow into a sea or ocean, with a wetland system that is almost intact. It is an exceptional example of the interaction between climatic, hydrological and biological processes. The Okavango Delta is home to some of the world's most threatened species of large mammal, such as the cheetah, white rhino, black rhino, African wild dog and lion. For details see: http://whc.unesco.org/en/list/1432
	**Rainforests of the Atsinanana (Serial Natural Site in Danger, Madagascar).** The site comprises six national parks that protect relict forests that are critically important for maintaining ongoing ecological processes necessary for the survival of Madagascar's unique biodiversity. Madagascar's plant and animal life evolved in isolation and many species are rare and globally threatened, especially the iconic lemurs. The rainforests are important to both ecological and biological processes as well as their biodiversity and the threatened species they support. For details see: http://whc.unesco.org/en/list/1257
	**Rwenzori Mountains National Park (Natural Site, Uganda).** The Rwenzori Mountains National Park covers nearly 100,000 ha in western Uganda and comprises the main part of the Rwenzori mountain chain, which includes Africa's third highest peak (Mount Margherita: 5,109 m). The region's glaciers, waterfalls and lakes make it one of Africa's most beautiful alpine areas. The park has many natural habitats of endangered species and a rich and unusual flora comprising, among other species, the giant heather. For details see: http://whc.unesco.org/en/list/684
	**Salonga National Park (Natural Site in Danger, Democratic Republic of Congo).** Salonga National Park is Africa's largest tropical rainforest reserve. Situated at the heart of the central basin of the Congo River, the park is very isolated and accessible only by water. It is the habitat of many endemic and endangered species, such as the bonobo, the Congo peacock, the forest elephant and the African slender-snouted or 'false' crocodile. For details see: http://whc.unesco.org/en/list/280
	**Sanganeb Marine National Park and Dungonab Bay – Mukkawar Island Marine National Park (Serial Natural Site, Sudan).** The property consists of two separate areas: Sanganeb is an isolated coral atoll in the central Red Sea while the Dungonab Bay and Mukkawar Island component includes a diverse system of coral reefs, mangroves, seagrass beds, beaches and islets. The site provides a habitat for an important population of dugongs, as well as seabirds, marine mammals, fish, sharks, turtles and manta rays. For details see: http://whc.unesco.org/en/list/262
	**Sangha Trinational (Transboundary Natural Site, Cameroon, Central African Republic & Congo).** The site encompasses three contiguous national parks mostly unaffected by human activity. It features a wide range of humid tropical forest ecosystems with rich flora and fauna, including sizeable populations of globally threatened species such as forest elephant, western lowland gorilla, and chimpanzee. The site's environment has preserved the continuation of ecological and evolutionary processes on a huge scale. For details see: http://whc.unesco.org/en/list/1380

	Year of inscription (extension)	Area (km²)	Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	COA (2014)	COA (2017)	Monitoring missions
	2014	20,236	✔		✔	✔	●	●	–
	2007	4,797			✔	✔	●	●	2011 2015
	1994	996	✔			✔	●	●	–
	1984	36,000	✔		✔		●	●	2000 2001 2007 2012
	2016	2,607	✔		✔	✔		●	–
	2012	7,463			✔	✔	●	●	2016

Map label and thumbnail photo	Name, type and status, country and short description (usually at time of inscription, abbreviated from http://whc.unesco.org/en/list/, see footnote regarding changes since inscription)
	**Selous Game Reserve (Natural Site in Danger, United Republic of Tanzania).** Large numbers of elephant, black rhino, cheetah, giraffe, hippo and crocodile live in this immense sanctuary, which measures 50,000 km^2 and is relatively undisturbed by human impact. The park has a variety of vegetation zones, ranging from dense thickets to open wooded grasslands. For details see: http://whc.unesco.org/en/list/199
	**Serengeti National Park (Natural Site, United Republic of Tanzania).** The vast plains of the Serengeti comprise 1.5 million ha of savanna. The annual migration to permanent water holes of vast herds of herbivores (wildebeest, gazelle and zebra), followed by their predators, is one of the most impressive natural events in the world. For details see: http://whc.unesco.org/en/list/156
	**Simien National Park (Natural Site, Ethiopia).** Massive erosion over millions of years on the Ethiopian plateau has created one of the most spectacular landscapes in the world, with jagged mountain peaks, deep valleys and sharp precipices dropping some 1,500 m. The park is home to some extremely rare animals such as the Gelada baboon, the Ethiopian wolf and the Walia ibex, a goat found nowhere else in the world. For details see: http://whc.unesco.org/en/list/9
	**Taï National Park (Natural Site, Côte d'Ivoire).** This park is one of the last major remnants of the primary tropical forest of West Africa. Its rich natural flora, and globally threatened mammal species such as the pygmy hippo and 11 species of monkey, are of great scientific interest. For details see: http://whc.unesco.org/en/list/195
	**Tassili n'Ajjer (Mixed Site, Algeria).** Located in a strange lunar landscape of great geological interest, this site has one of the most important groupings of prehistoric cave art in the world. More than 15,000 drawings and engravings record the climatic changes, the animal migrations and the evolution of human life on the edge of the Sahara from 6000 BC to the first centuries of the present era. The geological formations are of outstanding scenic interest, with eroded sandstones forming 'forests of rock'. For details see: http://whc.unesco.org/en/list/179
	**Tsingy de Bemaraha Strict Nature Reserve (Natural Site, Madagascar).** This property comprises karstic landscapes and limestone uplands cut into impressive 'tsingy' peaks and a 'forest' of limestone needles, the spectacular canyon of the Manambolo River, rolling hills and high peaks. The undisturbed forests, lakes and mangrove swamps are the habitat for rare and endangered lemurs and birds. For details see: http://whc.unesco.org/en/list/494
	**Vallée de Mai Nature Reserve (Natural Site, Seychelles).** In the heart of the small island of Praslin, the reserve has the vestiges of a unique natural palm forest preserved in almost its original state. The famous *coco de mer*, from a palm-tree once believed to grow in the depths of the sea, is the largest seed in the plant kingdom. For details see: http://whc.unesco.org/en/list/261

	Year of inscription (extension)	Area (km²)	Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	COA (2014)	COA (2017)	Monitoring missions
	1982	51,200			✔	✔	🔴	🔴	2007 2008 2013 2017
	1981	14,763	✔			✔	🟡	🟢	–
	1978	136	✔			✔	🟡	🟡	1981 1996 1997 2017
	1982	3,300	✔			✔	🟢	🟢	2006
	1982	72,000	✔	✔			🟢	🟢	1985
	1990	1,520	✔			✔	🟢	🟢	–
	1982	0.2	✔	✔	✔	✔	🟢	🟢	–

Map label and thumbnail photo	Name, type and status, country and short description (usually at time of inscription, abbreviated from http://whc.unesco.org/en/list/, see footnote regarding changes since inscription)
 45	**Virunga National Park (Natural Site in Danger, Democratic Republic of Congo).** Virunga National Park (covering an area of 790,000 ha) comprises an outstanding diversity of habitats, ranging from swamps and steppes to the snowfields of the Rwenzori Mountains at an altitude of over 5,000 m, and from lava plains to the savannas on the slopes of volcanoes. Mountain gorilla are found in the park, some 2,000 hippo live in the rivers (compared to over 20,000 at the time of inscription; see footnote), and birds from Siberia spend the winter there. For details see: http://whc.unesco.org/en/list/63
 46	**Vredefort Dome (Natural Site, South Africa).** Vredefort Dome is a representative part of a meteorite impact structure, or astrobleme. It provides evidence of the world's greatest known single energy release event, which had devastating global effects including, according to some scientists, major evolutionary changes on Earth. Dating back 2,023 million years, it is the oldest astrobleme yet found and, with a radius of 190 km, it is also the largest and the most deeply eroded. For details see: http://whc.unesco.org/en/list/1162
 47	**W-Arly-Pendjari Complex (Transboundary Natural Site, Benin, Burkina Faso & Niger).** This transboundary site covers a major expanse of intact Sudano-Sahelian savanna, with vegetation types including grasslands, shrub lands, wooded savanna and extensive gallery forests. The property is a refuge for wildlife species that have disappeared elsewhere in West Africa or are highly threatened including the region's largest population of elephant and other species such as the African manatee, cheetah, lion and leopard. For details see: http://whc.unesco.org/en/list/749
 48	**Wadi Al-Hitan (Whale Valley) (Natural Site, Egypt).** The site contains invaluable fossil remains of the earliest, and now extinct, suborder of whales, Archaeoceti. These fossils represent one of the major stories of evolution: the emergence of the whale as an ocean-going mammal from a previous life as a land-based animal. The number, concentration and quality of these fossils is unique, as is their accessibility and setting in an attractive and protected landscape. For details see: http://whc.unesco.org/en/list/1186

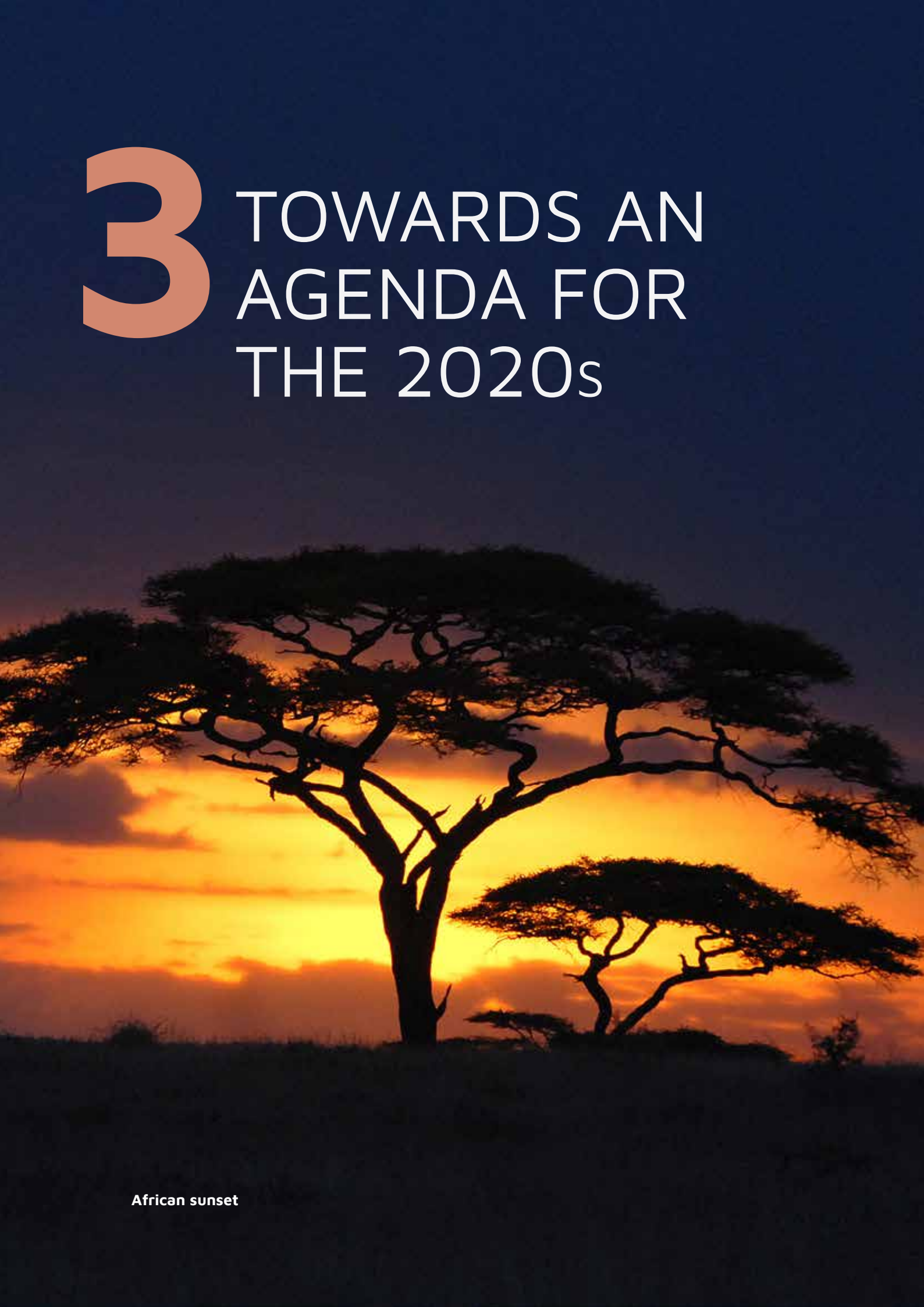
Footnotes

Conservation Outlook Assessment (COA): Symbols used: ● = Good; ● = Good, with some concerns; ● = Significant concern; ● = Critical

Site descriptions may no longer be accurate for sites which have been subject to change since inscription. In particular, populations of key species may have changed, and our knowledge of species represented at each site may have increased. For example, Garamba National Park and Manovo-Gounda St Floris National Park have lost all of their rhinos since inscription; the population of hippo in Virunga National Park has been reduced to 2,000; and a recent census from Kahuzi-Biega National Park reveals an estimated population of Grauer's gorillas of 1,220 (rather than the 250 quoted in the original site description). We have updated the above descriptions for these sites but not for others.

	Year of inscription (extension)	Area (km²)	Criterion (vii)	Criterion (viii)	Criterion (ix)	Criterion (x)	COA (2014)	COA (2017)	Monitoring missions
	1979	8,000	✔	✔		✔	●	●	1996 2000 2001 2007 2014 2018
	2005	300		✔			●	●	–
	1996 (2017)	14,948			✔	✔	●	●	–
	2005	200		✔			●	●	–

3 TOWARDS AN AGENDA FOR THE 2020s



African sunset

3.1 Overview

The aim of this chapter is to identify some possible priorities for the natural World Heritage network in Africa over the next 5-10 years. This involves three main objectives:

First, to present an illustrative selection of possible priorities for new nominations based on the best scientific knowledge currently available and consolidation of expert opinion developed over many years and documented in the series of World Heritage 'thematic studies' published by IUCN or UNESCO (see Annex 2 for bibliography). The list of possible new sites is intended to illustrate the diversity of opportunity for new sites in major regions across the continent, under each World Heritage criterion. It is not intended to be comprehensive, as other sites are likely to be identified in future with equally compelling claims of OUV. Furthermore, the short illustrative list presented here is focused on sites that fill significant gaps in World Heritage coverage and contribute to the Committee's 1994 Global Strategy to 'develop a representative, balanced and credible' World Heritage List. In doing so it is not intended to preclude the nomination of new sites that are similar to those already on the List which may also prove to have OUV.

Second, to present a selection of possible extensions to existing sites based on past Committee Decisions and the authors' first-hand understanding of opportunities that may exist at other sites. The purpose of such extensions would be to confer the benefits of World Heritage status on a wider land- or seascape, enhancing the site's ecological integrity, the viability of its animal and plant populations, its suite of values and its resilience to climate change and other external factors.

Third, to highlight a small selection of priority issues that could contribute to improving management effectiveness at existing sites. There are clearly significant shortcomings in present management arrangements at many sites (as reflected in IUCN's World Heritage Outlook Assessments; see Chapter 2) and, although this is not the primary focus of this particular study, it is helpful to identify some of the ways to address these shortcomings. Indeed it is imperative that major efforts are directed towards these issues if World Heritage is to fulfil its promise on the African continent.

Photo: Elephants, Serengeti National Park, Tanzania

3.2 Identification of possible priorities for new nominations

The following procedure was used to identify an illustrative shortlist of sites that might be considered as priorities for nomination within the next 5-10 years:

Step 1. Compile a comprehensive list of possible candidate sites included on States Parties' Tentative Lists and/or IUCN/UNESCO thematic studies. As a starting point, a total of 158 natural/mixed sites are included in the Tentative Lists of 41 African States Parties (12 States Parties have not identified any natural/mixed sites and one country (Somalia) had not yet ratified the Convention at the time of writing (2019)). IUCN/UNESCO thematic studies have been undertaken periodically since 1996, aimed at identifying gaps in World Heritage coverage for selected biomes or themes. The initial series of studies included fossils (1996), forests (1997, 2005), wetland and marine (1997), mountains (2002), caves and karst (2008), volcanoes (2009) and deserts (2011). These initial studies were used in combination with expert consultations and other reports[14] to develop the 2011 UNEP-WCMC brochure on possible priorities for World Heritage listing in Africa under biodiversity and ecological process criteria. Subsequently there have been further studies on marine World Heritage in the Western Indian Ocean (2012), terrestrial and marine biodiversity (2013), wilderness (2017) and an update on volcanoes (2019). Full references of these resources are provided in Annex 2.

Step 2. Develop an initial 'shortlist' of possible priority sites by reviewing the eligibility of each site against the following requirements. To qualify for the shortlist a site should be sufficiently well known to achieve a 'reasonable expectation' that it would, under closer examination, prove to have clear potential to meet one or more of the natural World Heritage criteria and:

- Have clear potential to satisfy the conditions of integrity;
- Have the required level of political support for nomination;
- Be likely to have local community support for nomination;
- Be located in an area free from insecurity and civil unrest;
- Be clearly distinctive and likely to fill a thematic gap in the World Heritage List; and
- Be located in the territory of a State Party(ies) or prospective State Party(ies).

In addition, the following considerations were applied in each case to further inform a decision on short-listing:

- Would the site be the first nomination of a natural/mixed site for the country concerned?
- Is the site located in an under-represented biogeographical/thematic region of the continent?
- In the case of possible transnational nominations, is there likely to be good cooperation between the States Parties concerned (perhaps through existing regional organizations such as the Southern African Development Community (SADC), the Economic Community of West African States (ECOWAS), and the East African Community (EAC)?
- Is the site located in a priority area for biodiversity conservation, as established through other global priority-setting programmes such as BirdLife International's Endemic Bird Areas (EBAs), Conservation International's Biodiversity Hotspots and WWF's Global 200 Priority Ecoregions?
- Has the site's potential to be considered of OUV already been identified through peer-reviewed scientific publication and/or expert consensus?
- Is there an imminent threat to the site that

14 Such as the UNESCO-CAWHFI workshop report on World Heritage potential for Central African forests (White and Vande weghe, 2008). See details at http://whc.unesco.org/en/activities/591/ and reference in Annex 2.

might be averted through World Heritage inscription?
- Has there been enough preparatory work (on identification etc.) to enable development of a nomination in the short-to-medium term (3-10 years)?

Step 3. Carry out additional desk review work on all short-listed sites where available information is insufficient to further inform a decision on final selection. Eliminate any site that does not seem to be a strong enough candidate.

Step 4. Finalise a draft list of possible priorities based on the perceived strengths of each candidate site, taking into consideration the degree of thematic and geographic representation of the portfolio of sites and the preference for under-represented categories (such as geological and marine sites).

Step 5. Carry out a final check of the proposed list of possible priorities through consultation and review by other experts.

Photo: Young Grauer's gorilla, Kahuzi-Biega National Park, Democratic Republic of the Congo

3.3 The list of possible priorities for new nominations

Twenty possible priority sites are identified, of which eight are single locality sites, two are serial sites, and ten are priority regions that would ideally be nominated as transnational serial sites (but might involve single locality nominations, at least initially). The location of these sites is shown in the map in Figure 10, and short descriptions are provided in Box 2. Additional information is provided for each site in Table 2, including details of:

- The type of natural site envisaged (i.e. whether single area or serial; national or transnational);
- The criteria under which it would probably be nominated;
- The relevant biome or theme that would be represented by the proposed site;
- Where already identified, the name(s) of site(s) on existing States Parties' Tentative Lists that might be included in a nomination, and/or other areas that should be considered for inclusion;
- Reference to the specific thematic study and/or source of previous recommendations for the site to be considered for World Heritage listing;
- Previous recognition of the site's importance for biodiversity conservation as an Endemic Bird Area (EBA), Biodiversity Hotspot or Global 200 Priority Ecoregion;
- A short selection of existing World Heritage Sites that share similar attributes and values that might form the basis of a preliminary comparative analysis to help establish whether the proposed site is likely to have OUV prior to the development of a full nomination.

The list is intended to illustrate the potential for further development of the World Heritage List across the African continent with a suite of sites that: (1) fills identified gaps in existing biogeographical/thematic representation; (2) exemplifies the application of all four natural criteria; (3) provides a balanced 'portfolio' of sites across the major geographical regions of the continent; (4) includes gap 'biogeographical provinces' where further work is required to identify specific localities for nomination (individually or as components of a serial site); and (5) includes sites from States Parties' Tentative Lists as far as possible. The list includes:

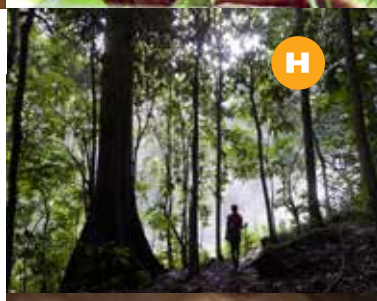
- Sites that exemplify 11 major biomes and themes including: tropical forests (4 sites); deserts and semi-deserts (3); montane forests (2); volcanoes (2); freshwater lakes and wetlands (2); marine environments (2); coastal wetlands (1); flooded grasslands (1); dry forests (1); mountains (1 site); and fossils (1);
- Sixteen sites that would probably be nominated under biodiversity and/or ecological process criteria (x) and (ix); seven sites that may satisfy geological criterion (viii); and four sites that may demonstrate outstanding natural phenomena and/or aesthetic values (criterion vii) (noting that most sites could potentially satisfy multiple criteria);
- Thirty one sites from States Parties' Tentative Lists that might be included in nominations, as stand-alone sites or components of serial sites;
- Eighteen sites that have been identified as candidates for World Heritage listing in at least one of the IUCN/UNESCO thematic studies (referenced in Table 2 and Annex 2);
- Fourteen sites that overlap with priority areas for biodiversity conservation identified in the BirdLife International, Conservation International and WWF priority-setting programmes;
- Two exceptional sites in the new nation of South Sudan where progress with nomination now seems feasible, at least in the medium-term; and
- A transnational serial site in the Upper Guinean part of the 'Guinean Forests of West Africa' biodiversity hotspot to: (a) complement the existing site at Taï National Park, (b) recognize the ecological gradients and differences in species composition between localities across the hotspot, and (c) provide an opportunity for three States Parties to simultaneously list their first natural site.

Eroded sandstone landscape, Ennedi Massif, Chad

Figure 10. Map of possible priority sites for new nominations and existing sites for proposed extensions.

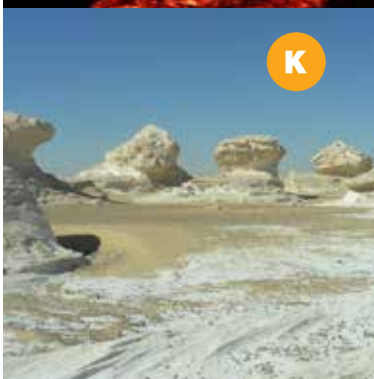
Possible priorities for new sites

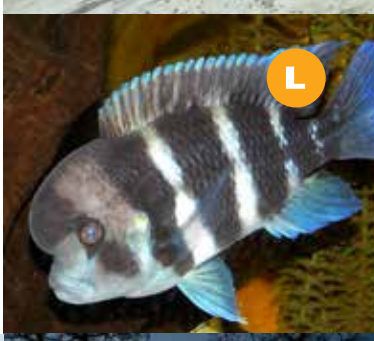
- A **Bale Mountains National Park** ETHIOPIA
- B **Benguela Current Marine Sites** NAMIBIA
- C **Bijagós Archipelago** GUINEA-BISSAU
- D **Boma-Badingilo Migratory Landscape** SOUTH SUDAN
- E **Chott el Jerid** TUNISIA
- F **Dinosaur Fossil Beds of Niger** NIGER
- G **East African Coastal Forests** KENYA AND TANZANIA
- H **Eastern Arc Mountains** KENYA AND TANZANIA
- I **Equatorial Atlantic Coastal Forests** CONGO AND GABON
- J **Erte Arle and the Danakil Depression** ETHIOPIA
- K **Great Western Desert** EGYPT
- L **Lake Tanganyika** BURUNDI, DEMOCRATIC REPUBLIC OF THE CONGO, TANZANIA AND ZAMBIA
- M **Madagascar Dry Forests** MADAGASCAR
- N **Montane Forests of the Southern Albertine Rift** BURUNDI, DEMOCRATIC REPUBLIC OF THE CONGO AND RWANDA
- O **Mozambique Channel** COMOROS, FRANCE, MADAGASCAR, MOZAMBIQUE AND TANZANIA
- P **Protected Forests of the Gulf of Guinea** CAMEROON AND NIGERIA
- Q **Succulent Karoo** NAMIBIA AND SOUTH AFRICA
- R **Sudd Wetland** SOUTH SUDAN
- S **Tropical Moist Forests of the Upper Guinea Biodiversity Hotspot** CÔTE D IVOIRE, GHANA, GUINEA, LIBERIA AND SIERRA LEONE
- T **Volcanic Islands and Forests of the Gulf of Guinea and Cameroon Highlands** CAMEROON, EQUATORIAL GUINEA, NIGERIA AND SÃO TOMÉ AND PRÍNCIPE

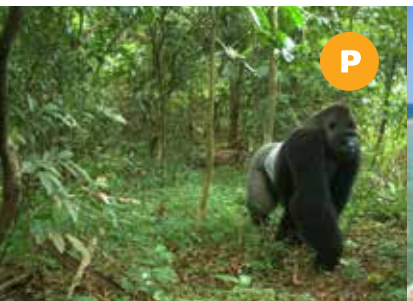


Opportunities for extension of existing sites

- 4 **Barberton Makhonjwa Mountains** SOUTH AFRICA
- 10 **Djoudj National Bird Sanctuary** SENEGAL
- 12 **Ennedi Massif: Natural and Cultural Landscape** CHAD
- 15 **iSimangaliso Wetland Park** SOUTH AFRICA
- 17 **Kenya Lake System in the Great Rift Valley** KENYA
- 18 **Kilimanjaro National Park** TANZANIA
- 19 **Lake Malawi National Park** MALAWI
- 23 **Mana Pools National Park, Sapi and Chewore Safari Areas** ZIMBABWE
- 26 **Mount Kenya National Park/Natural Forest** KENYA
- 30 **Niokolo-Koba National Park** SENEGAL
- 32 **Okavango Delta** BOTSWANA
- 33 **Rainforests of the Atsinanana** MADAGASCAR
- 36 **Sanganeb Marine National Park and Dungonab Bay - Mukkawar Island Marine National Park** SUDAN
- 39 **Serengeti National Park and Ngorongoro Conservation Area** TANZANIA
- 40 **Simien National Park** ETHIOPIA
- 45 **Virunga National Park and Rwenzori Mountains National Park** DEMOCRATIC REPUBLIC OF THE CONGO AND UGANDA
- 48 **Wadi Al-Hitan (Whale Valley)** EGYPT



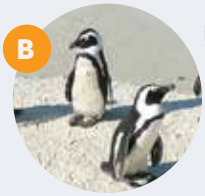




BOX 2

DESCRIPTIONS OF POSSIBLE PRIORITY SITES FOR NEW NOMINATIONS

Bale Mountains National Park (Ethiopia). The Bale Mountains support a wide range of habitats including the largest expanse of Afroalpine vegetation in Africa. The area is home to a large number of threatened and endemic species in many taxonomic groups. These include the mountain nyala, an antelope which occurs only in Ethiopia, and the Ethiopian wolf, also present in the existing World Heritage Site in the Simien Mountains. A previous nomination was deferred in 1980. See Committee Decision CONF 016 V.14 at: http://whc.unesco.org/en/decisions/5204/

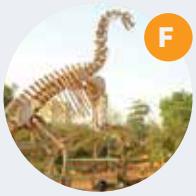


Benguela Current Marine Sites (Namibia). The Benguela marine ecosystem is one of the most productive coastal upwelling zones in the global oceans, with exceptionally high levels of primary productivity supporting a large biomass and diversity of zooplankton, fish, sea birds and marine mammals. These include rich stocks of fish such as sardines, anchovies and horse mackerel that feed large populations of Cape gannets, African penguins, cormorants, dolphins and Cape fur seals.

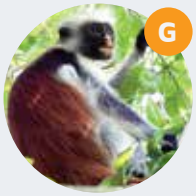
Bijagós Archipelago (Guinea-Bissau). The Bijagós Archipelago lies on one of the most mangrove-rich coastlines in the world and is composed of 88 islands and large areas of mangrove and mudflat. This is one of the most important areas in West Africa for migratory birds, with up to a million birds overwintering in the archipelago. The archipelago also supports important breeding colonies of gulls, terns and herons, five turtle species, marine mammals, such as the West African manatee, and hippo. A previous nomination was deferred in 2013. See Committee Decision 37 COM 8B.17 at: http://whc.unesco.org/en/decisions/5132/

Boma-Badingilo Migratory Landscape (South Sudan). The vast landscape of flooded grasslands and savanna woodlands in this part of the Upper Nile supports one of the last great mammal migrations on Earth, involving about a million white-eared kob, which move between Boma and Badingilo National Parks. A second great migration, involving several hundred thousand tiang (antelope) and Mongalla gazelle, coincides at Badingilo National Park during the animal's breeding season. The landscape supports a great diversity of other large mammals typical of the African savanna, including threatened species such as African elephant, Rothschild's giraffe, Beisa oryx and wild dog.

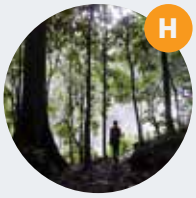
Chott el Jerid (Tunisia). The Chott el Jerid is a vast salt depression, the largest of a string of such depressions that are characteristic of the northern Sahara between the steppe and the desert. The geomorphological features of this 'lunar landscape' have been the subject of much classic research. They are notable as outstanding examples of saline basins, with some of the best world examples of gypsum crusts and gypsum dunes.



Dinosaur Fossil Beds of Niger (Niger). The fossil deposits of northern Niger provide a record of the evolution of life on Earth from the late Triassic (237-201 million years ago, MYA) through the Cretaceous period (145 -66 MYA). During these periods, Africa broke away from South America (180 MYA), and dinosaurs dominated the animal kingdom. Notable fossil discoveries include a 20m-long herbivorous dinosaur (Jobaria tiguidensis), an 11m-long carnivorous one (Suchomimus tenerensis), and a giant crocodilian (Sarcosuchus imperator) amongst many others. The deposits are remarkable for the quality of specimens found, and the fact that a series of four or five adjacent localities covers the entire duration of the Cretaceous period.



East African Coastal Forests (Kenya and Tanzania). Like the forests of the Eastern Arc Mountains, these moist lowland forests have long been isolated from other tropical moist forest regions by expanses of drier savannas and grasslands. Thus, much of the biodiversity is globally distinct and endemic to the region, and there are massive concentrations of threatened plant and animal species.

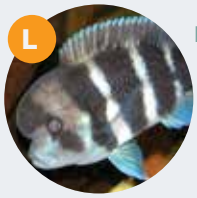


Eastern Arc Mountains (Kenya and Tanzania). Like the East African coastal forests, these moist mountain forests and montane grasslands have long been isolated from other tropical moist forest regions by expanses of drier lowland savannas. The biodiversity of this ancient complex of mountain ranges is noted for very high levels of endemism, with many species of plants and animals restricted to single mountain ranges. Only a serial site is likely to be appropriate to capture the full range of values of this region, which includes important concentrations of threatened species.

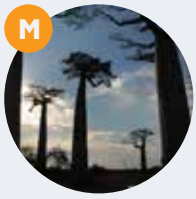
Equatorial Atlantic Coastal Forests (Congo and Gabon). These forests form the western fringes of the vast Central African rainforests, and support a wide range of habitats, including coastal waters, beaches, mangroves, lagoons, swamp forests and rainforests. This dynamic environment has led to high levels of species diversity and endemism, with significant populations of critically endangered western lowland gorilla, endangered chimpanzee, and forest elephant as well as important nesting sites for leatherback turtles.

Erte Arle and the Danakil Depression (Ethiopia). Erte Arle is an active volcano in the north of Africa's Great Rift Valley, which is remarkable for having been in a more-or-less continuous state of eruption for more than 100 years, and because it has the world's longest-lived lava lake. The name of this fiery natural cauldron means 'gateway to hell' in the local Afar language. It is located in the barren Danakil Depression, at a triple junction of geological rifts, surrounded by other exemplary geological features associated with rifting and the break-up of Earth's tectonic plates.

Great Western Desert (Egypt). Egypt's western desert has been identified as a priority site for its exemplary Aeolian geomorphology (sand and rock forms created by wind action), and for the diversity of desert features that arise from its extremely dry conditions. The area is remarkable for its classic barchans and linear dunes, as well as features that include spring mounds, tufa spreads, closed depressions, yardangs, relict karst and sandstone topography.

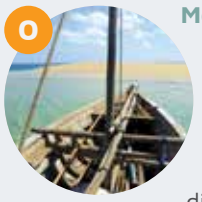


Lake Tanganyika (Burundi, Democratic Republic of the Congo, Tanzania and Zambia). Lake Tanganyika is the world's second-oldest freshwater lake, the second-largest by volume and the second-deepest, in all cases behind Russia's Lake Baikal (a World Heritage Site). Its waters support an extraordinary diversity of aquatic life, with most species occurring nowhere else on Earth. Its fishes include some 330 species (compared with 80 for Lake Baikal) and much of the lake's biodiversity remains to be documented. Along with other African Great Lakes, its 250 species of cichlid fishes represent the world's most extreme example of adaptive radiation in vertebrate animals, with Lake Tanganyika notable for having the highest number of endemic cichlid genera. A serial site would be required to represent the diversity of life in different localities around the lake shore.

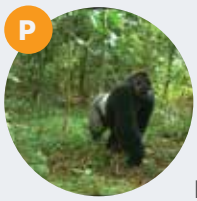


Madagascar Dry Forests (Madagascar). The dry forests of western Madagascar are among the world's most exceptional forests and support hundreds of threatened and endemic plant and animal species, including several endemic genera and families. Several of Madagascar's characteristic lemur species occur in these forests, together with seven species of baobab trees. As in the Madagascar rainforests further east, only a serial site is likely to be appropriate to capture the full range of values of the dry forests, and a study is needed to identify the most important sites that would best reflect the region's unique values.

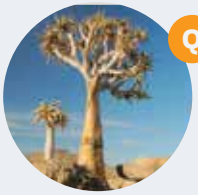
Montane Forests of the Southern Albertine Rift (Burundi, Democratic Republic of the Congo and Rwanda). The Itombwe Mountains, Kabobo Massif and the Nyungwe and Kibira National Parks are among the most diverse and important forest areas in the Albertine Rift Mountains. They are characterised by a wide range of habitats that support a high diversity of plants, birds (over 500 species) and primates, including the critically endangered eastern lowland or Grauer's gorilla and endangered chimpanzee. Many of the threatened and endemic species in these mountains are not present in any of the existing World Heritage Sites in the region.



Mozambique Channel (Comoros, France, Madagascar, Mozambique and Tanzania). The Mozambique Channel is a priority marine site in the Western Indian Ocean. Its complex geology and oceanography have resulted in a biodiversity centre second in absolute numbers to the Coral Triangle region. The unique eddy dynamics of the channel and upwelling on the Madagascar Plateau create the conditions for highly productive shallow benthic and pelagic marine communities, with diverse coral reefs, concentrations of large fish, marine turtles, seabirds and marine mammals. Six specific localities have been identified which would ideally be incorporated into a single transboundary serial site.



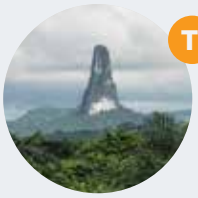
Protected Forests of the Gulf of Guinea (Cameroon and Nigeria). The Cross River, Korup and Takamanda National Parks are three exceptionally important protected areas in the 'Guinean Forests of West Africa' biodiversity hotspot. The rainforests here are characterised by high plant and animal diversity, including over 400 bird species and over 150 mammal species, and they are home to many threatened and endemic species. The critically endangered Cross River gorilla and endangered chimpanzee find refuge here, whilst the Okwangwo part of Cross River National Park has the highest diversity of primates recorded at a single site in Africa, with 18 recorded species.



Succulent Karoo (Namibia and South Africa). The Succulent Karoo, which consists primarily of winter rainfall desert, is one of only two desert biodiversity hotspots. For an arid region, it has extraordinarily high plant diversity and endemism, including the richest succulent flora in the world. Among the over 6,000 plant species are some 1,700 species of leaf succulents as well as remarkable stem succulents known as the halfmens. Some 40 percent of the plant species occur nowhere else on the planet. A serial site would be necessary to capture the full range of values of the Succulent Karoo, and a study is needed to identify the most important sites that would best reflect the region's unique values. See also Committee Decision 31 COM 8B.20 at: http://whc.unesco.org/en/decisions/1318/

Sudd Wetland (South Sudan). The Sudd is Africa's largest wetland and one of the largest tropical wetlands in the world. It is located in the middle reaches of the White Nile, and varies in extent from about 42,000 km^2 to 90,000 km^2 during periods of flood. It provides habitat for an enormous diversity of wetland species including large populations of the endemic Nile lechwe (antelope), and a large proportion of the world's 5-8,000 endangered shoebill storks, as well as migratory populations of white-eared kob and tiang. The indigenous people have developed lifestyles and cultural practices adapted to life in the wetlands, with its seasonally variable conditions.

Tropical Moist Forests of the Upper Guinea Biodiversity Hotspot (Côte d'Ivoire, Ghana, Guinea, Liberia and Sierra Leone). The Upper Guinea forests of West Africa are important for their biological diversity and the high degree of endemism in most groups of flora and fauna, resulting from the area's ecological separation from the main Congolian forests of Central Africa. A serial site is required, incorporating the range of distinctive forest types and species occurring across the ecological gradients that characterize the remaining fragments of this highly threatened biodiversity hotspot.



Volcanic Islands and Forests of the Gulf of Guinea and Cameroon Highlands (Cameroon, Equatorial Guinea, Nigeria and São Tomé and Príncipe). The volcanic islands in the Gulf of Guinea (notably Annobón, São Tomé, Príncipe, and Bioko), together with Mount Cameroon and other volcanic peaks on the adjacent mainland are outstandingly important from geological and biodiversity perspectives. From a geological perspective, they provide an outstanding example of a 'hot spot trace' that migrates from oceanic to continental plates along the distinctive 'Cameroon Line'. In terms of biodiversity, each oceanic island and 'forest habitat island' on the mainland supports its own suite of species, including many threatened and endemic taxa. A number of plant and bird species show typical island adaptations such as gigantism and dwarfism. Since the flora and fauna of each 'island' is highly distinctive, and the geological characteristics vary along the length of the 'Line', a serial site would be needed to capture the full range of values.

The list includes a large number of regions/biogeographical provinces with potential for transnational serial sites. This is intended to highlight the potential of these regions and recognize that different localities within them exhibit distinctive characteristics that would ideally each be represented through a serial listing. Nevertheless, it is important to recognize that transnational serial sites are the most difficult category of site to develop and manage, especially if they involve multiple relatively small reserves (which are more difficult to protect than single large sites). In addition, international cooperation and coordination is often difficult to achieve in practice because of procedural and political differences between governments. So some of the transnational serial sites listed here might, more realistically be initiated through nomination of a single 'core element' of a site that could subsequently be extended to involve other areas and States Parties. In all cases, areas that are included in the initial phase of a complex serial nomination would need to demonstrate OUV on their own merits.

Two examples illustrate how serial sites are often developed with an initial inscription and later phases of extension. First, Africa's most fragmented serial site covers the Cape Floral Region Protected Areas in South Africa. It was developed in two phases and now includes 157 separate components in 17 'clusters' spread across the region. Second, the Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe illustrates the most extreme case of international cooperation and management complexity. This was initiated as a transnational site with ten separate components shared between Slovakia and Ukraine. It went through two phases of expansion to eventually include 63 component parts across 12 European countries.

The list of possible priorities presented here is, of course, illustrative rather than definitive. The method used in developing it places emphasis on previous recommendations from IUCN and UNESCO thematic studies, some of which are founded on broad-based expert knowledge rather than rigorous scientific analysis. Of necessity this list of priority sites leaves out places that may prove to be more exceptional as new evidence emerges. Much of Africa's natural heritage, perhaps more than in any other region, remains 'undiscovered' and little known to science. The continent's fossil deposits, for example, have only been documented in a very few places (often incidentally as part of research on human origins). Likewise, Africa's marine realm is largely unknown. Three of the sites on this priority list (Lake Tanganyika, the Upper Guinea forests, and Niger's dinosaur fossil site) have not been specifically identified as priorities in previous thematic studies but are included because the available evidence suggests they clearly possess potential to be considered of OUV and fill important gaps in the World Heritage List.

Occasionally, anecdotal reports emerge of extraordinary places in 'hidden corners' of the continent that may yet prove to be outstanding candidates for the World Heritage List. These include, for example, the giant peat-swamps that flank the middle reaches of the Congo River; the world's deepest river gorge downstream of Kinshasa; and the rich lowland rainforests of Congo's new Lomami National Park and Tshuapa–Lomami–Lualaba (TL2) Conservation Landscape. Elsewhere the mass congregation of fruit bats in Zambia's Kasanka National Park; the 'sardine run' along South Africa's eastern coast; Namibia's cavernous sink holes and associated karst geology; the special isolated biodiversity of the Atlas Mountains; and the huge concentration of succulent aloes and other plants in the semi-desert regions in the Horn of Africa all deserve careful consideration as possible future nominations (even if none of them has yet been recognized on a Tentative List).

Hippos, Serengeti National Park, Tanzania

Table 2. Possible priorities for new African nominations to the World Heritage List.

Map label, site name and type (see footnote)	Countries	Possible criteria	Principal biome/ theme	Possible configuration: Tentative List (TL) sites and other areas that might be included
A **Bale Mountains National Park (N)**	Ethiopia	(ix) (x)	Mountains	TL site: Bale Mountains National Park (Ethiopia)
B **Benguela Current Marine Sites (S)**	Namibia	(ix) (x)	Marine	TL site: Benguela Current Marine Ecosystem Sites (Namibia)
C **Bijagós Archipelago (N)**	Guinea-Bissau	(ix) (x)	Coastal wetlands	TL site: Réserve de Biosphère de l'Archipel des Bijagos (Guinea-Bissau)
D **Boma-Badingilo Migratory Landscape (N)**	South Sudan	(vii) (ix) (x)	Flooded grasslands	TL site: Boma-Badingilo Migratory Landscape (contiguous site) (South Sudan)
E **Chott el Jerid (N)**	Tunisia	(viii)	Desert geomorphology	TL site: Chott el Jerid (Tunisia)
F **Dinosaur Fossil Beds of Niger (N)**	Niger	(viii)	Fossil site	TL site: Gisements des dinosauriens (Niger)
G **East African Coastal Forests (TS)**	Kenya and Tanzania	(ix) (x)	Tropical forests	TL sites: The Eastern Arc Coastal Forests (Arabuko-Sokoke and Shimba Hills) (Kenya); The Tana Delta and Forests Complex (Kenya) and the Jozani-Chwaka Bay Conservation Area (Tanzania). Other areas: additional protected forests to be determined.
H **Eastern Arc Mountains (TS)**	Kenya and Tanzania	(ix) (x)	Montane forests	TL sites: Eastern Arc Mountains Forests of Tanzania (Tanzania); The Eastern Arc Coastal Forests (Arabuko-Sokoke and Shimba Hills) (Kenya)

IUCN/ UNESCO Thematic Studies etc. (see footnote)	Endemic Bird Areas	Biodiversity Hotspots	WWF Global 200 Ecoregions	Existing World Heritage Sites with similar attributes, for preliminary comparative analysis
(2) (5)	–	Eastern Afromontane	Ethiopian Highlands	Simien; Maloti-Drakensberg; Kilimanjaro; Mount Kenya; Rwenzori; Mount Nimba; Central Highlands of Sri Lanka; Sumatra; Talamanca Range; Sangay; Manas; Gondwana Rainforests
(3) (9)	–	–	Benguela Current	Península Valdés; Ningaloo Coast; Shark Bay; iSimangaliso; Banc d'Arguin
(3) (5) (13)	–	–	–	Banc d'Arguin; Djoudj; Ichkeul; Wadden Sea; Doñana; Yellow Sea
(9)	–	–	Sudd-Sahelian Flooded Grasslands and Savannas	Serengeti; Ngorongoro; Qinghai Hoh Xil; Laponian Area; Yellowstone
(6)	–	–	–	Namib Sand Sea; Aïr and Ténéré; Lut Desert; Tassili n'Ajjer; Wadi Rum; Lakes of Ounianga; Ennedi Massif
–	–	–	–	Dinosaur Provincial Park; Ischigualasto / Talampaya; Monte San Giorgio; Wadi Al-Hitan; The Dolomites
(5) (11)	111 East African Coastal Forests	Coastal Forests of Eastern Africa	East African Coastal Forests, East African Mangroves	Atlantic Forests; Discovery Coast; Western Ghats; Sinharaja; Atsinanana
(2) (5) (11)	105 Tanzania-Malawi Mountains	Eastern Afromontane	Eastern Arc Montane Forests	Atlantic Forests; Discovery Coast; Western Ghats; Sinharaja; Atsinanana; Sumatra

Map label, site name and type (see footnote)	Countries	Possible criteria	Principal biome/ theme	Possible configuration: Tentative List (TL) sites and other areas that might be included
I **Equatorial Atlantic Coastal Forests (TS)**	Congo and Gabon	(ix) (x)	Tropical forests	TL sites: Conkouati-Douli National Park (Congo), Moukalaba-Doudou National Parks (Gabon). Other areas: Mayumba National Park and possibly Loango National Parks (Gabon).
J **Erte Arle and the Danakil Depression (N)**	Ethiopia	(viii)	Volcanoes	No TL site. Areas to be determined.
K **Great Western Desert (N)**	Egypt	(viii)	Desert geomorphology	TL sites: Southern and Smaller Oases, the Western Desert; Kharga Oasis and the Small Southern Oases; Great Desert Landscapes (Egypt)
L **Lake Tanganyika (TS)**	Burundi, Democratic Republic of the Congo, Tanzania and Zambia	(vii) (viii) (ix) (x)	Freshwater lakes	TL site: Le lac Tanganyika (Burundi). Other areas: Sumbu National Park (Zambia), Mahale Mountains and Gombe Stream National Parks (Tanzania) with offshore extensions. Possible future extensions to include additional lake shore areas in the DRC.
M **Madagascar Dry Forests (S)**	Madagascar	(ix) (x)	Dry tropical savannas and woodlands (dry forests)	TL site: Les forêts sèches de l'Andrefana (Madagascar)
N **Montane Forests of the Southern Albertine Rift (TS)**	Burundi, Democratic Republic of the Congo, and Rwanda	(ix) (x)	Montane forests	TL site: Kibira National Park (Burundi). Other areas: Itombwe Natural Reserve, Kabobo and Ngandia Reserves (DRC) and Nyungwe National Park (Rwanda).
O **Mozambique Channel (TS)**	Comoros, France, Madagascar, Mozambique and Tanzania	(viii) (ix) (x)	Marine	TL sites: The Quirimbas Archipelago (Mozambique); Ecosystemes marins de l'archipel des Comores (Comoros); NOSYnaka (Sahamalaza, Nosy Hara, Nosy Tanikely, Lokobe, Ambodivahibe, Ankarea, Ankivonjy) (Madagascar). Other areas: Tofo-Bazaruto (Mozambique); Madagascar Plateau (the deep south) (Madagascar); Îles Éparses (French Indian Ocean Territory).

IUCN/ UNESCO Thematic Studies etc. (see footnote)	Endemic Bird Areas	Biodiversity Hotspots	WWF Global 200 Ecoregions	Existing World Heritage Sites with similar attributes, for preliminary comparative analysis
(5) (11) (14)	–	–	Congolian Coastal Forests, Gulf of Guinea Rivers and Streams	Lopé-Okanda; Dja; Sangha Trinational; Salonga; Okapi; Virunga; Kahuzi-Biega; Central Amazon; Central Suriname; Darien; Atlantic Forests; Discovery Coast; Sumatra; Dong Phayayen; Thungyai-Huai
(1)	–	–	–	Virunga; Kilimanjaro; Kenya Lakes; Hawaii; Aeolian Islands; Teide; Chaîne des Puys; Yellowstone; Galápagos; Jeju; Tongariro; Mount Etna; Sangay; Vatnajökull; Kamchatka; El Pinacate
(6) (7)	–	–	–	Namib Sand Sea; Aïr and Ténéré; Lut Desert; Tassili n'Ajjer; Wadi Rum; Lakes of Ounianga; Ennedi Massif
(9)	–	–	Rift Valley Lakes	Lake Baikal; Lake Malawi; Lake Turkana; Kenya Lakes; Ohrid Region
(2) (5) (12)	093 West Malagasy Dry Forests, 097 South Malagasy Spiny Forests	Madagascar and the Indian Ocean Islands	Madagascar Forests and Shrublands, Madagascar Dry Forests, Madagascar Spiny Thicket, Madagascar Freshwater	Atsinanana; Tsingy; Cape Floral Region; Niokolo-Koba; Kakadu; Guanacaste; Calakmul; Central Highlands of Sri Lanka; El Pinacate; Cerrado
(5) (11) (14)	106 Albertine Rift Mountains	Eastern Afromontane	Albertine Rift Montane Forests	Virunga; Kahuzi-Biega; Bwindi; Rwenzori
(4)	092 South-east African Coast, 096 West Malagasy Wetlands, 098 Comoro Islands	Madagascar and the Indian Ocean Islands	East Africa Marine, West Madagascar Marine, Madagascar Mangroves	Aldabra Atoll; iSimangaliso; Galápagos; Coiba; Cocos; Malpelo; Brazilian Atlantic Islands; French Austral; Great Barrier Reef; Gulf of California; New Caledonia; Phoenix Islands; Sanganeb; Ningaloo Coast; Shark Bay; Sian Ka'an; Península Valdés

Map label, site name and type (see footnote)		Countries	Possible criteria	Principal biome/ theme	Possible configuration: Tentative List (TL) sites and other areas that might be included
P	**Protected Forests of the Gulf of Guinea (TS)**	Cameroon and Nigeria	(ix) (x)	Tropical forests	TL sites: Korup National Park (Cameroon); Takamanda National Park (Cameroon); Oban Hills/Korup (Nigeria). Other areas: Cross River National Park (Okwangwo Division), Afi River Forest Reserve (Nigeria).
Q	**Succulent Karoo (TS)**	Namibia and South Africa	(ix) (x)	Semi-desert	TL site: Succulent Karoo Protected Areas (Namibia, South Africa)
R	**Sudd Wetland (N)**	South Sudan	(vii) (ix) (x)	Freshwater wetlands	TL site: Sudd Wetland (South Sudan)
S	**Tropical Moist Forests of the Upper Guinea Biodiversity Hotspot (TS)**	Côte d'Ivoire, Ghana, Guinea, Liberia and Sierra Leone	(ix) (x)	Tropical forests	TL sites: Kakum National Park (Assin Attandanso Reserve) (Ghana); Gola Rainforest National Park, Tiwai Island Wildlife Sanctuary, Western Area Peninsula National Park (Sierra Leone). Other areas: key protected forests in Liberia, Guinea, Côte d'Ivoire and Ghana (Ankasa and Bia National Parks).
T	**Volcanic Islands and Forests of the Gulf of Guinea and Cameroon Highlands (TS)**	Cameroon, Equatorial Guinea, Nigeria and São Tomé and Príncipe	(vii) (viii) (ix) (x)	Volcanoes	No TL sites. Areas to be considered: São Tomé, Príncipe and Annobón, Bioko, Mount Cameroon and other Cameroon Highland Mountains.

Footnotes

Type: N - single site; S - serial site; TS - transnational serial site

Criteria: (vii) natural phenomena and/or aesthetic values; (viii) geological features; (ix) ecological processes; (x) biodiversity and threatened species

IUCN / UNESCO Thematic Studies etc. (see Annex 2 for full references): (1) Volcanoes (Casadevall et al., 2019); (2) Terrestrial Biodiversity (Bertzky et al., 2013); (3) Marine Biodiversity (Abdulla et al., 2013); (4) Western Indian Ocean (Obura et al., 2012); (5) African Natural Heritage (IUCN and UNEP-WCMC, 2011); (6) Deserts (Goudie and Seely, 2011); (7) Caves and Karst (Williams, 2008); (8) Geological World Heritage (Dingwall et al., 2005); (9) Future Priorities (Thorsell, 2004); (10) Mountains (Thorsell and Hamilton, 2002); (11) Forests (CIFOR and UNESCO, 1999); (12) Forests (Thorsell and Sigaty, 1997); (13) Wetlands and Marine (Thorsell et al., 1997); (14) Central African Forests (White and Vande weghe, 2008)

	IUCN/ UNESCO Thematic Studies etc. (see footnote)	Endemic Bird Areas	Biodiversity Hotspots	WWF Global 200 Ecoregions	Existing World Heritage Sites with similar attributes, for preliminary comparative analysis
	(5) (11) (12) (14)	085 Cameroon and Gabon Lowlands	Guinean Forests of West Africa	–	Lopé-Okanda; Dja; Sangha Trinational; Salonga; Okapi; Virunga; Kahuzi-Biega; Bwindi; Atlantic Forests; Discovery Coast; Sumatra; Dong Phayayen; Thungyai-Huai
	(5) (9)	s047 Karoo (secondary EBA)	Succulent Karoo	Namib-Karoo-Kaokoveld Deserts	Namib Sand Sea; Cape Floral Region; El Pinacate; Uluru-Kata Tjuta
	(9) (13)	–	–	–	Okavango Delta; iSimangaliso; Djoudj; Pantanal; Everglades; Ahwar of Southern Iraq; Danube; Doñana; Srebarna
	–	084 Upper Guinea Forests	Guinean Forests of West Africa	Guinean Moist Forests, Upper Guinea Rivers and Streams	Taï; Lopé-Okanda; Dja; Sangha Trinational; Salonga; Okapi; Virunga; Kahuzi-Biega; Bwindi; Atlantic Forests; Discovery Coast; Sumatra; Dong Phayayen; Thungyai-Huai
	(1) (2) (3) (5) (11)	081 Annobón, 082 São Tomé, 083 Príncipe, 086 Cameroon Mountains	Guinean Forests of West Africa	Congolian Coastal Forests, Cameroon Highland Forest, Gulf of Guinea Rivers and Streams	Vallée de Mai; Atsinanana; Galápagos; Teide; Aeolian Islands; Mount Etna; Hawaii; Taï; Dja; Rwenzori; Bwindi; Kahuzi-Biega

3.4 Opportunities for extension and consolidation of existing sites

In addition to new nominations, there are important opportunities for extension of some existing sites, as shown in the map in Figure 10 and detailed in Box 3. Some of these extensions have already been the subject of Committee Decisions. These are sometimes made at the time of inscription as a result of observations during the evaluation process, or may arise from reactive monitoring missions. Other possible extensions are included here on the basis of the authors' knowledge of each site. The aim would be to build on the initial inscription by either: (a) including important areas of adjacent habitat to enhance the site's ecological integrity and resilience within a wider landscape or seascape, or (b) for serial extensions, including important complimentary components that would provide a more complete representation of the attributes that contribute to the site's OUV. In some cases the proposed extensions are clearly challenging, long-term, ambitious and visionary, but they nevertheless deserve a place on the agenda for World Heritage on the continent.

Photo: Giant Senecio plants, Mount Kenya National Park/Natural Forest, Kenya

BOX 3

OPPORTUNITIES FOR EXTENSION OF EXISTING SITES

Barberton Makhonjwa Mountains (South Africa). It was recognized at the time of inscription (2018) that this geological site would benefit from extension to encompass additional areas, possibly also in Swaziland, in order to better reflect the site's OUV. See Committee Decision 42 COM 8B.5 at http://whc.unesco.org/en/decisions/7118

Djoudj National Bird Sanctuary (Senegal). Situated in the Senegal River delta, the Djoudj sanctuary is a 16,000 ha wetland, comprising a large lake surrounded by streams, ponds and backwaters. It forms a living but fragile sanctuary for some 1.5 million birds including white pelican, purple heron, African spoonbill, great egret and great cormorant. The site would benefit from transboundary extension to include Mauritania's adjacent Diawling National Park (the two protected areas are already cooperating within the framework of the UNESCO Man and the Biosphere (MAB) Programme as the Senegal River Delta Biosphere Reserve). See the 1985 Committee Decision CONF 008 XIII.A at: https://whc.unesco.org/en/decisions/3875/

Ennedi Massif: Natural and Cultural Landscape (Chad). It was recognized at the time of inscription (2016) that this site would benefit from extension to incorporate adjacent areas that were included in the original nomination, but had to be excluded from the inscribed area as they were unduly threatened at the time. As these threats have subsequently abated, the additional areas should be added, thereby providing additional protection to a significantly larger wilderness area. See Committee Decisions 40 COM 8B.15 at: https://whc.unesco.org/en/decisions/6793/

iSimangaliso Wetland Park (South Africa). This park covers extensive areas of wetland from the Lake St Lucia estuary northwards to the Mozambique border, incorporating extensive areas of coastal dunes and offshore marine reserves. The ecological integrity of this coastal wetland system could be enhanced through better transboundary coordination with similar protected areas in Mozambique, including extension of the existing World Heritage Site. See the 1999 Committee Decision CONF 209 VIII.A.1 at: https://whc.unesco.org/en/decisions/2548

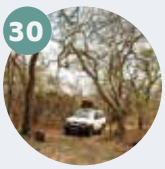
Kenya Lake System in the Great Rift Valley (Kenya). The existing World Heritage Site (WHS) covers just three of the 10-12 'flamingo lakes' in the central portion of Africa's Great Rift Valley. The flamingo lakes are saline alkaline lakes, the environmental conditions of each changing cyclically depending on localised rainfall and other climatic factors, producing relatively short-lived algal blooms. The flamingos take advantage of these cyclical changes in food supply and habitat conditions by moving between lakes, so the existing WHS is insufficient in itself to ensure the protection and integrity of the itinerant flamingo population (which is the primary element of the site's OUV). The flamingos main nesting site is Tanzania's Lake Natron, while the flocks also move south to Lakes Manyara and Eyasi and northwards into the southern parts of Ethiopia, notably Lakes Abijatta, Shalla, Metehara, Chitu, and Aranguade. Ideally, as many as possible of these lakes should be incorporated into an extended WHS, with extension to include the Lake Natron breeding area being especially important. See Committee Decision 35 COM 8B.6 at: https://whc.unesco.org/en/decisions/4277

Kilimanjaro National Park (Tanzania). Kilimanjaro National Park was extended in 2005 to incorporate much of the remaining montane forest on the mountain slopes, previously designated as forest reserve. The World Heritage Site boundaries pre-date this extension and cover only the summit of the mountain above 2,700m with six access corridors through the forested lower slopes. In order to improve the ecological integrity of the site it would be beneficial to extend it to coincide with the new boundaries of the national park. See the 1987 Committee Decision CONF 005 VII.A at: https://whc.unesco.org/en/decisions/3754/

Lake Malawi National Park (Malawi). The small existing WHS in Malawi would benefit from a serial extension to encompass additional shoreline areas elsewhere, particularly along the northern and eastern shores of the lake (in Tanzania and Mozambique) to more fully represent the extraordinary cichlid evolutionary radiation. The extension would recognise the fact that many cichlid varieties and species (as well as other taxa) have evolved in isolation in very restricted geographical localities around the lake. See Committee Decision 42 COM 7B.93 at: https://whc.unesco.org/en/decisions/7322/

Mana Pools National Park, Sapi and Chewore Safari Areas (Zimbabwe). Mana Pools forms part of a transboundary conservation complex that extends across the Zambezi Valley into Zambia's Lower Zambezi National Park (LZNP). Whilst there were serious poaching problems on the Zambian side at the time Mana Pools was listed, these have now abated and it would improve the viability and integrity of the conservation complex if the WHS were extended to include LZNP. See Committee Decision 42 COM 7B.97 at: https://whc.unesco.org/en/decisions/7326/

Mount Kenya National Park/Natural Forest (Kenya). The existing WHS covers the higher slopes of the mountain from an elevation of about 2,000-2,400m to the summit (1,824 km^2), together with a separate component comprising the Ngare Ndare Forest Reserve and the Lewa Wildlife Conservancy. This area (198 km^2, at 2,200m to 1,700m) was added as a serial extension in 2013. The extension is (very tentatively) linked to the main block via a 9.8 km-long 'elephant corridor' that runs through commercial farmland that separates the two component parts. A further extension would seek to consolidate this link by expanding the elephant corridor (through necessary land acquisition) and perhaps incorporate other areas at lower elevations (particularly the Imenti Forest and areas on the southeast slopes of the mountain). A more visionary and ambitious extension could envisage the establishment of a corridor linking Mount Kenya with Meru National Park via the Imenti Forest and Nyambeni Hills. See for example Committee Decision 37 COM 8B.9 at https://whc.unesco.org/en/decisions/5125



Niokolo-Koba National Park (Senegal). Niokolo-Koba is listed in Danger after losing much of its large mammal fauna to poaching, and will require a prolonged period of effective protection and management to allow for recovery. Nevertheless, its long-term ecological viability and prospects could be enhanced through the addition of Guinea's Badiar National Park. This is a contiguous area that includes important floodplain habitats along the Koulountou River.

Okavango Delta (Botswana). The Okavango Delta is a large site that already includes significant areas of mopane deciduous woodland bordering the delta. However, the maintenance of its remarkable seasonal flooding phenomenon depends on seasonal rains higher up the catchment in Angola's southern highlands. A transboundary extension of the site to protect this vital catchment area would bring significant long-term benefits (see http://whc.unesco.org/en/events/1493/).

Rainforests of the Atsinanana (Madagascar). The Rainforests of Atsinanana is a serial site with six components spread along the moist easterly 'spine' of Madagascar, with each component including numerous locally-endemic species of flora and fauna. The site could benefit from the inclusion of one or more further components as scientific evidence reveals further local centres of endemism that would

ensure the site is more fully representative of all key elements of the island's unique rainforest biota. A Tentative List site (Reserve Speciale d'Anjanaharibe-Sud) has been proposed as an initial site to be added. See Committee Decision 31 COM 8B.9 at http://whc.unesco.org/en/decisions/1307/

Sanganeb Marine National Park and Dongonab Bay - Mukkawar Island Marine National Park (Sudan). The potential of the Red Sea for World Heritage listing has long been recognised, but it was not until 2016 that Sudan's (relatively small) Sanganeb site was listed as the first such site. There is clearly scope for extension of this site to include serial elements in other priority areas of the Red Sea. Considerable preparatory work has already been done on this through the Regional Organisation for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA), which should lead to the identification of suitable areas. Egypt's Ras Mohammed (deferred in 2003) and Saudi Arabia's Farasan Islands are already included on Tentative Lists. See Committee Decision 40 COM 8B.6 at http://whc.unesco.org/en/decisions/6785/

Serengeti National Park/Ngorongoro Conservation Area (Tanzania). These two adjoining WHSs cover much of the conservation landscape that protects the great Serengeti migration, but parts of the migration route lie in adjoining areas with less effective protection. As part of an ongoing strategy to ensure complete protection of the migratory herds, it would be beneficial to extend World Heritage status to these areas, or at least recognise them within a formally designated buffer zone. The areas concerned would include Kenya's Maasai Mara National Reserve, already on the country's Tentative List, as well as Tanzania's Maswa, Grumeti and Ikorongo Game Reserves, Loliondo Game Controlled Area and some of the wildlife conservancy areas adjoining the Maasai Mara. In addition, the 2019 'gap analysis' of World Heritage volcanoes (see Annex 2) identifies Oldonyo Lengai as a site 'worthy of consideration' as an extension of Ngorongoro Conservation Area.

Simien National Park (Ethiopia). A recent (2015) significant extension to the national park (eastwards to incorporate Ethiopia's highest peak (Ras Dejen, 4533m) and contiguous highland areas) has provided valuable additional protected habitat for endangered species such as Walia ibex and Ethiopian wolf. The World Heritage Site boundaries pre-date this extension and should be modified to reflect this change. See for example Committee Decision 42 COM 7B.91: https://whc.unesco.org/en/decisions/7320

Virunga National Park/Rwenzori Mountains National Park (Democratic Republic of the Congo, Uganda). These two adjacent parks create a single transboundary conservation landscape of unrivalled importance. This could be further enhanced with the addition of several other critically important adjoining areas including the two remaining segments of the Virunga volcanoes (Mgahinga National Park, already included on Uganda's Tentative List, and Rwanda's Volcanoes National Park, both key areas for endangered mountain gorilla). Further possible extensions on the Ugandan side of the border should be considered covering the contiguous areas of Queen Elizabeth, Kibale and Semliki National Parks. This would build on existing collaboration between management authorities across the Greater Virunga Landscape that has been ongoing for at least the past ten years.

Wadi Al-Hitan (Whale Valley) (Egypt). The Wadi Al-Hitan fossil site lies adjacent to Gebel Qatrani, another important fossil area featuring strata from the early Oligocene period (29-30 million years ago). This period has been identified as a 'gap' in World Heritage coverage for fossils, so extension of the existing site to include Gebel Qatrani would contribute significantly to World Heritage representation of the record of life on Earth. Gebel Qatrani is an ancient Egyptian quarry, where a diverse fauna of fossilised early primates, elephants, other mammals, birds, reptiles and fish has been discovered. See for example Committee Decision 34 COM 7B.8 at http://whc.unesco.org/en/decisions/4116/

3.5 Enhancing management effectiveness in existing sites

As noted in previous chapters, States Parties have an obligation to provide effective protection and management for their sites, as part of their commitment to the wider global community. And yet, the majority of African sites are suffering significant management shortcomings. So the desire to build on the initial success of World Heritage in Africa by inscribing additional sites, or extending existing ones, must be accompanied by renewed efforts to provide enhanced management for those already on the List.

A comprehensive manual on Managing Natural World Heritage[15] and the 'Enhancing our Heritage' Toolkit[16] provide detailed guidelines for practitioners and are available from the World Heritage Centre website. It is clearly beyond the scope of this report to do more than highlight a small selection of issues that seem particularly relevant in the African context. Effective site management requires three fundamental elements - a strong political commitment, adequate resource allocation, and appropriate governance and institutional arrangements. Within this broad framework four particular issues deserve mention here because they are often areas of weakness that deserve priority attention.

Monitoring and evaluation. Monitoring key ecological indicators on a regular basis is a crucial element of assessing the effectiveness of management and evaluating the need for changes in management strategy. In many sites, monitoring programmes are weak and it is not possible to tell, for example, whether populations of key large mammals are being maintained. Priority attention should be given to identifying a few key measurable indicators and developing cost effective ways of monitoring them so that information is available to guide management.

Sustainable financing. Many of the challenges facing Africa's World Heritage Sites are directly related to budget constraints and shortages of personnel. Donor support continues to be critically important and is likely to be required for some time to come. Trust funds are playing a crucial role in some sites (e.g. Bwindi and Sangha Trinational) and might provide a 'safety net' for other places where the prospects of self-financing from tourism revenues or other sources may be a distant prospect. Several African sites are now also managed by long-term public-private partnerships (e.g. Ennedi Massif and Garamba).

Civil society involvement. There is a need to empower and strengthen civil society organizations, including local conservation and community groups, indigenous peoples, tourism operators and other private sector operators so that they can play a more effective role in supporting (and where necessary challenging) management authorities. This will be a key element of ensuring that World Heritage Sites contribute to sustainable development goals in a meaningful way.

Ecological restoration. Many sites have suffered loss of significant elements that contribute to their OUV since they were inscribed, and now require ecological restoration. This may mean prolonged periods of sustained protection so that wildlife populations can recover after episodes of poaching, illegal logging or encroachment; or the introduction of mitigation measures to offset the impacts of development activities outside a site; or, in a few cases, re-introduction of species lost to poachers. Ecological restoration is a long-term goal that is likely to remain a core management objective for many of Africa's World Heritage Sites for decades to come.

15 UNESCO / ICCROM / ICOMOS / IUCN (2012) Managing Natural World Heritage. UNESCO World Heritage Centre, Paris, France. See: https://whc.unesco.org/en/managing-natural-world-heritage/

16 Hockings, M., James, R., Stolton, S., Dudley, N., Mathur, V., Makombo, J., Courrau, J. and Parrish, J. (2008). Enhancing our Heritage Toolkit: Assessing management effectiveness of natural World Heritage Sites. World Heritage Papers 23. UNESCO World Heritage Centre, Paris, France. See: https://whc.unesco.org/en/eoh/

Common zebra, Zimbabwe

4 PREPARING NOMINATIONS

4.1 Purpose of nomination

A World Heritage nomination is, in essence, the formal application for World Heritage status. It is an official document that is submitted to UNESCO by the relevant State Party, or two or more States Parties in the case of transnational and transboundary nominations.

The purpose of the nomination dossier is to set out as clearly as possible:

- What the property consists of and how it is documented;
- How it has potential Outstanding Universal Value;
- The state of conservation and the factors affecting the property; and
- How the property is to be protected, conserved, managed, presented and monitored in relation to its potential Outstanding Universal Value.

The nomination is the basis for the evaluation of the property for the World Heritage List and the subsequent decision by the World Heritage Committee on whether to inscribe it.

4.2 Recommended stages in the nomination process

The Operational Guidelines prescribe the format and information required for nominations. The official manual on Preparing World Heritage Nominations[17] provides more detailed guidelines on meeting the requirements and the processes involved, with specific examples to illustrate particular aspects of the nomination process. There are many ways to prepare successful nominations, but it is helpful to consider three main stages, namely:

1) Tentative Listing. Before any site can be nominated it must first be included on a country's official Tentative List. The list for each State Party is maintained by the World Heritage Centre, and serves as a way to register a list of possible candidates for future nomination. Currently (late 2019) there are some 158 sites listed under natural (or mixed) criteria on the Tentative Lists of 41 African States Parties, while 12 States Parties have no natural/mixed sites identified on their Tentative Lists, and Somalia is not a State Party yet. Some preparatory work is required for tentative listing, to justify the selection of sites in terms of their potential OUV. Ideally a fully developed Statement of Outstanding Universal Value would be prepared before tentative listing, as this can serve as a useful 'background check' on potential OUV and may lead to some potential sites being reconsidered before they are submitted.

2) Preparatory Stage. Once a State Party is ready to move forward with a nomination, it is best to carry out a more detailed assessment (or feasibility study) of the proposed site's potential OUV, in terms of the 'three pillars' mentioned in Chapter 1. The intention should be to confirm the site's potential for World Heritage inscription before too much time and effort are wasted on a full nomination that subsequently turns out to be unsuccessful. This stage is likely to include:

- A significant amount of research towards a preliminary 'comparative analysis' which confirms that the site's values are as exceptional as originally thought;
- Definition of site boundaries to ensure that the conditions of integrity can be met;
- A preliminary review of protection and management arrangements, and assessment of any shortcomings that may need to be addressed as part of the site's preparation for nomination;
- Initial discussions with local communities, including indigenous peoples if present, and other rights holders and stakeholders within and around the site to ensure their interests will be protected and local support for the nomination will be forthcoming (as required for example by the Operational Guidelines §123 concerning the Free Prior and Informed

17 UNESCO / ICCROM / ICOMOS / IUCN (2011) Preparing World Heritage Nominations (Second edition). UNESCO World Heritage Centre, Paris, France. See: https://whc.unesco.org/en/preparing-world-heritage-nominations/

Consent, FPIC, of indigenous peoples);
- Identification of a planning team to work on the nomination, and the necessary budgetary provisions to undertake the work; and
- Consultations with international experts and advisory bodies concerning the initial findings of the preparatory stage, to assist in reaching a decision on whether to proceed with a full nomination.

3) Preparation of the nomination document. This is often a fairly long and complicated process that requires a significant investment of time and money. In preparing a nomination it is crucial to bear in mind that the important elements are related to establishing the site's OUV, rather than any broader description of the site's history and/or more general attributes. Proving that a site has OUV requires detailed knowledge of the quality and scale of the particular attributes that will be used to make the case under each of the relevant World Heritage criteria, so that these can be compared directly with the same attributes at other sites. This is the essence of a rigorous global comparative analysis, which is the most important single element of any nomination. Other important elements of demonstrating that a site has OUV relate to the other two 'pillars' – showing that the site meets the conditions of integrity (in terms of wholeness and intactness), and explaining how the site's exceptional values will be sustained through appropriate protection and management arrangements. These are explained in more detail in the next section.

4.3 Key elements of a successful nomination

Carrying out a global comparative analysis. This is the most important part of the nomination, which should prove that the proposed site is exceptional at a global scale. To do this it is necessary to compare its attributes with those found elsewhere – whether or not those other places are already inscribed on the World Heritage List. Of course, all natural areas are 'unique' in having a particular combination of attributes, but this does not in itself confer 'OUV', and the term 'unique' is best avoided. To demonstrate 'OUV' the proposed site needs to be compared with other sites with similar attributes – recognizing that some of them may already have World Heritage status, while others have not yet been inscribed despite their exceptional qualities.

As an example, the nomination of Canada's Miguasha National Park is cited in the nominations manual as a 'model' science-based approach to the process of comparative analysis. In this case, having established that Miguasha's potential OUV would be based on its exceptional vertebrate fossils from the Devonian era, the nomination team carried out extensive bibliographic research and consultation with other experts to come up with a list of 61 other known Devonian vertebrate fossil sites around the world. This was reduced to a shortlist of 15 of the 'best' for comparison, before scoring each site against a series of relevant criteria, such as the fossil numbers, quality, species diversity and span of time represented at each fossil site. This proved that Miguasha was exceptional at a global scale for the representation of Devonian vertebrate fossils.

Meeting the conditions of integrity. This requirement is satisfied by ensuring that:

a) All the attributes that convey the site's OUV are contained within the proposed boundaries of the site, and can be sustained in the long term within the nominated area. For natural areas nominated under biodiversity criteria, for example, this would require the nominated area to be big enough to accommodate seasonal movements of animals between different parts of their range, and sustain viable populations of iconic species, including large predators that occur at relatively low population densities; and

b) The nominated area is in a relatively intact condition with all its naturally-occurring attributes in a largely undisturbed state. For natural areas this might mean, for example, that all the main naturally-occurring vegetation communities and habitats are present and relatively intact, and populations

Photo: Traditional granary storage buildings under the Cliffs of Bandiagara (Land of the Dogons), Mali

of all animal species are present at the levels these habitats would naturally sustain. If the area has been subject to excessive hunting in the past, some key species (e.g. rhino, elephant, cheetah) may have disappeared, or occur at greatly reduced densities, in which case the area would no longer fully satisfy the conditions of integrity.

Satisfying the requirements for protection and management. This requirement is most commonly satisfied for natural/mixed sites by submitting the protective legislation and an appropriate management plan for the protected area(s) included in the nomination, and confirming that these are being implemented effectively and with adequate funding, staff and other resources. In such cases, it may be relatively straightforward to demonstrate that the legislative and administrative arrangements to sustain the site's OUV are in place. In other cases, for example where an area is not already a protected area and/or is inhabited by indigenous people, or is privately owned, it is necessary for the nomination to provide details of the protection and management arrangements that are in place to guarantee the long-term conservation of the site's OUV. Finally, it is necessary to ensure that the nominated area does not coincide with existing concessions for competing land uses, such as oil/gas and mineral exploitation, large dams or industrial agriculture.

4.4 Special conditions affecting nominations from Africa

As noted in Chapter 2, the number of new nominations made by African States Parties over the past couple of decades has been much lower than in previous periods, and Africa is falling behind other regions in developing a representative and balanced portfolio of sites. This is not for lack of outstanding natural places that deserve World Heritage recognition, but a reflection of other factors.

One of these is the increasingly onerous process involved in preparing nominations, and the limited local capacity to develop them. Whereas most of the earlier nominations were made on the basis of a 10-12 page document, recent ones have often run to several hundred pages. For most African States Parties and heritage professionals the task of preparing a nomination can seem overwhelming and daunting. This need not be the case, as: (1) shorter nomination dossiers should be sufficient in cases where a site's OUV is easily established, such as some of the priority sites identified in this report; (2) international assistance is available for many aspects of the nomination process (see below); and (3) many national education and research institutions possess the necessary capacity to

develop good nominations. Furthermore, the World Heritage Committee has identified the Africa region as a priority for new inscriptions in its efforts to implement the 1994 Global Strategy for a Representative, Balanced and Credible World Heritage List, and may prefer nominations that are 'scaled back' to cover only the essential elements set out in the Operational Guidelines without the excessive quantity of additional information that is often provided in nomination dossiers.

Another factor limiting States Parties' enthusiasm to make new nominations is the increasing realization that World Heritage status may limit future development options. Rather than contributing to sustainable development, the rigorous requirements for protection and management of World Heritage Sites may serve to limit economic development opportunities such as oil/gas and mineral exploration and large infrastructure development. As democracy is strengthened, providing for citizens' short-term economic needs can become a stronger political imperative than seeking international kudos from World Heritage listing. The international scrutiny and political burden imposed on States Parties by the World Heritage Convention has been highlighted by well-known recent examples including oil exploration in Virunga, the Serengeti road, the uranium mine and Stiegler's Gorge dam in Selous, and dam constructions in the Lake Turkana catchments. While the outcomes of some of these controversies are rightfully seen as triumphs for global conservation, their potential economic and political costs are incurred nationally.

4.5 Assistance available for African nominations

Recognising the difficulties experienced by some countries in identifying potential priorities and preparing nominations, the World Heritage Committee initiated an 'Upstream Process' in 2010[18]. This enables the Advisory Bodies and the World Heritage Centre to support States Parties in a variety of ways during the preparatory stages of a nomination. This process was first applied successfully in the development of a number of pilot areas, including Namibia's Namib Sand Sea nomination, and is now being rolled out more widely. Financial and technical support is available through this process.

Before the introduction of the Upstream Process, the African World Heritage Fund (AWHF) was established in 2006, and recognized formally as a Category II Centre under the auspices of UNESCO in 2010. The focus of AWHF activities has been to support States Parties across the continent to identify potential sites for Tentative Lists, prepare new nominations, and establish an endowment fund that can support the further development of World Heritage in Africa. Considerable emphasis has been put into building the capacity of African heritage professionals to identify potential sites, rationalize Tentative Lists, and develop nominations. Some notable successes have been achieved but more needs to be done to increase the number of successful nominations from Africa.

The IUCN World Heritage Programme also considers Africa a priority region and provides technical assistance when this is requested. It draws on its wide network of volunteer experts, including members of the World Commission on Protected Areas (WCPA), to support the development of nominations and advise on World Heritage matters more generally.

18 The main aim of this process is to reduce significant problems encountered during the evaluation process for more challenging nominations. See: https://whc.unesco.org/en/upstreamprocess/

Photo: Buffalo herd, Garamba National Park, Democratic Republic of the Congo

4.6 Procedure for accepting nominations, evaluation and inscription

Once a nomination has been submitted to the World Heritage Centre, it is first checked by the Centre to see whether it is complete before being forwarded to IUCN for technical evaluation[19]. IUCN's year-long evaluation process then involves:

a) Review of the nomination documents by selected international experts;

b) A site visit by a small team of (typically two) experts over a period of 7-10 days (depending on the size and complexity of the site);

c) Review of the nomination documents and mission report by members of the IUCN World Heritage Panel;

d) Possible further exchange of information between IUCN and the State Party on matters that require clarification;

e) Verification of information provided by the State Party in the comparative analysis and (if necessary) further research to extend it and consider the attributes of other sites not considered by the State Party in the nomination dossier (for sites nominated under biodiversity criteria (ix) and/or (x), an independent comparative analysis is also carried out by UNEP-WCMC);

f) Preparation of a draft evaluation report and recommendations for the World Heritage Committee;

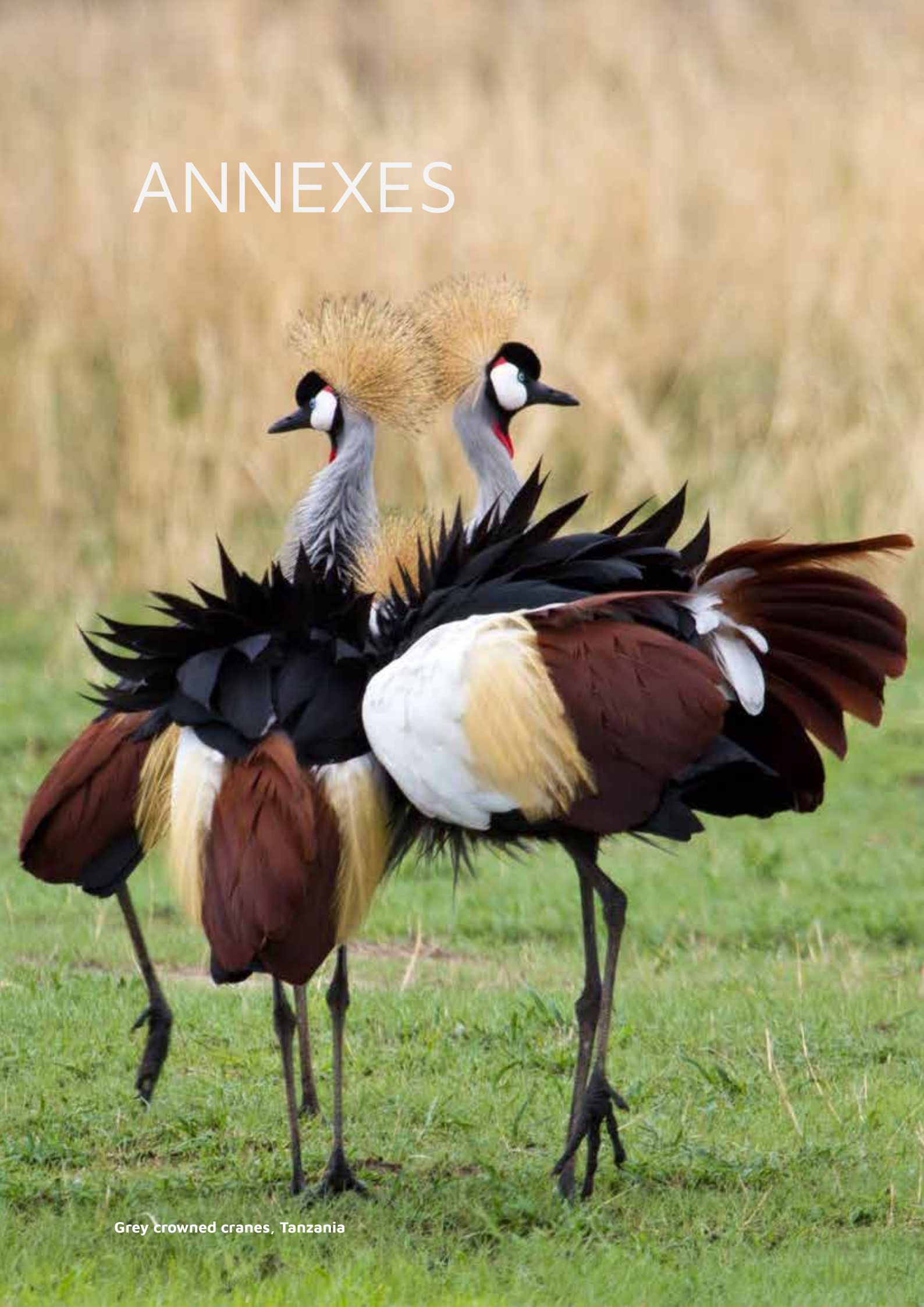
g) Final review, revision and approval by the IUCN World Heritage Panel; and

h) Submission of the final evaluation report and recommendations to the World Heritage Centre for inclusion in the documentation for the next meeting of the Committee.

The nomination and IUCN's evaluation report are considered by the Committee at its annual meeting and a decision is taken to either: (a) inscribe the nominated site; or (b) 'refer' the nomination back to the State Party with a request for more information or minor changes to be made within a maximum of three years; or (c) 'defer' a decision for inscription pending further work by the State Party to carry out more significant changes to strengthen the nomination and subject the revised nomination to a new evaluation including another site visit; or (d) not to inscribe the site.

19 This procedure is currently under review and may be subject to change in the near future. See: http://whc.unesco.org/en/decisions/7348/

ANNEXES



Grey crowned cranes, Tanzania

ANNEX 1

ABBREVIATED SITE NAMES USED IN THE REPORT

Aeolian Islands
Isole Eolie (Aeolian Islands)

Ahwar of Southern Iraq
The Ahwar of Southern Iraq: Refuge of Biodiversity and the Relict Landscape of the Mesopotamian Cities

Aïr and Ténéré
Aïr and Ténéré Natural Reserves

Atlantic Forests
Atlantic Forest South-East Reserves

Atsinanana
Rainforests of the Atsinanana

Banc d'Arguin
Banc d'Arguin National Park

Brazilian Atlantic Islands
Brazilian Atlantic Islands: Fernando de Noronha and Atol das Rocas Reserves

Bwindi
Bwindi Impenetrable National Park

Calakmul
Ancient Maya City and Protected Tropical Forests of Calakmul, Campeche

Cape Floral Region
Cape Floral Region Protected Areas

Central Amazon
Central Amazon Conservation Complex

Central Suriname
Central Suriname Nature Reserve

Cerrado
Cerrado Protected Areas: Chapada dos Veadeiros and Emas National Parks

Chaîne des Puys
Chaîne des Puys - Limagne fault tectonic arena

Cocos
Cocos Island National Park

Coiba
Coiba National Park and its Special Zone of Marine Protection

Comoé
Comoé National Park

Darien
Darien National Park

Discovery Coast
Discovery Coast Atlantic Forest Reserves

Dja
Dja Faunal Reserve

Djoudj
Djoudj National Bird Sanctuary

Doñana
Doñana National Park

Dong Phayayen
Dong Phayayen-Khao Yai Forest Complex

El Pinacate
El Pinacate and Gran Desierto de Altar Biosphere Reserve

Ennedi Massif
Ennedi Massif: Natural and Cultural Landscape

European Beech Forests
Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe

Everglades
Everglades National Park

French Austral
French Austral Lands and Seas

Galápagos
Galápagos Islands

Garamba
Garamba National Park

Gondwana Rainforests
Gondwana Rainforests of Australia

Guanacaste
Area de Conservación Guanacaste

Gulf of California
Islands and Protected Areas of the Gulf of California

Hawaii
Hawaii Volcanoes National Park

Ichkeul
Ichkeul National Park

Ischigualasto / Talampaya
Ischigualasto / Talampaya Natural Parks

iSimangaliso
iSimangaliso Wetland Park

Jeju
Jeju Volcanic Island and Lava Tubes

Kahuzi-Biega
Kahuzi-Biega National Park

Kakadu
Kakadu National Park

Kamchatka
Volcanoes of Kamchatka

Kenya Lakes
Kenya Lake System in the Great Rift Valley

Kilimanjaro
Kilimanjaro National Park

Lake Malawi
Lake Malawi National Park

Lake Turkana
Lake Turkana National Parks

Lopé-Okanda
Ecosystem and Relict Cultural Landscape of Lopé-Okanda

Maloti-Drakensberg
Maloti-Drakensberg Park

Malpelo
Malpelo Fauna and Flora Sanctuary

Mana Pools
Mana Pools National Park, Sapi and Chewore Safari Areas

Manas
Manas Wildlife Sanctuary

Manovo-Gounda St Floris
Manovo-Gounda St Floris National Park

Mount Kenya
Mount Kenya National Park/Natural Forest

Mount Nimba
Mount Nimba Strict Nature Reserve

New Caledonia
Lagoons of New Caledonia: Reef Diversity and Associated Ecosystems

Ngorongoro
Ngorongoro Conservation Area

Niokolo-Koba
Niokolo-Koba National Park

Ohrid Region
Natural and Cultural Heritage of the Ohrid Region

Okapi
Okapi Wildlife Reserve

Pantanal
Pantanal Conservation Area

Phoenix Islands
Phoenix Islands Protected Area

Rwenzori
Rwenzori Mountains National Park

Salonga
Salonga National Park

Sanganeb
Sanganeb Marine National Park and Dungonab Bay - Mukkawar Island Marine National Park

Sangay
Sangay National Park

Selous
Selous Game Reserve

Serengeti
Serengeti National Park

Shark Bay
Shark Bay, Western Australia

Simien
Simien National Park

Sinharaja
Sinharaja Forest Reserve

Srebarna
Srebarna Nature Reserve

Sumatra
Tropical Rainforest Heritage of Sumatra

Taï
Taï National Park

Talamanca Range
Talamanca Range-La Amistad Reserves / La Amistad National Park

Teide
Teide National Park

Thungyai-Huai
Thungyai-Huai Kha Khaeng Wildlife Sanctuaries

Tongariro
Tongariro National Park

Tsingy
Tsingy de Bemaraha Strict Nature Reserve

Uluru-Kata Tjuta
Uluru-Kata Tjuta National Park

Vallée de Mai
Vallée de Mai Nature Reserve

Vatnajökull
Vatnajökull National Park - Dynamic Nature of Fire and Ice

Virunga
Virunga National Park

Wadi Al-Hitan
Wadi Al-Hitan (Whale Valley)

Wadi Rum
Wadi Rum Protected Area

Yellow Sea
Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase I)

Yellowstone
Yellowstone National Park

ANNEX 2

USEFUL RESOURCES

Relevant online resources

World Heritage Centre:
http://whc.unesco.org/

World Heritage Resource Manuals:
http://whc.unesco.org/en/resourcemanuals/

World Heritage Operational Guidelines:
https://whc.unesco.org/en/guidelines/

IUCN World Heritage Resources:
https://www.iucn.org/theme/world-heritage

IUCN World Heritage Outlook Assessments:
https://www.worldheritageoutlook.iucn.org/

Enhancing our Heritage Toolkit:
https://whc.unesco.org/en/eoh/

African World Heritage Fund:
https://awhf.net/

Protected Planet Site Profiles:
https://www.protectedplanet.net/

Digital Observatory for Protected Areas (DOPA) Site Profiles: https://dopa-explorer.jrc.ec.europa.eu/dopa_explorer

UNEP-WCMC World Heritage Site Datasheets:
https://yichuans.github.io/datasheet/output/

African World Heritage Site Slideshows:
https://www.africanworldheritagesites.org/

Natural World Heritage Site Slideshows:
http://naturalworldheritagesites.org/

IUCN Red List of Threatened Species:
https://www.iucnredlist.org/

World Database of Key Biodiversity Areas (KBAs):
http://www.keybiodiversityareas.org/home

BirdLife International's Endemic Bird Area (EBA) Profiles: http://datazone.birdlife.org/eba

BirdLife International's Important Bird Area (IBA) Profiles: http://datazone.birdlife.org/site/search

Conservation International's Biodiversity Hotspots: https://www.conservation.org/priorities/biodiversity-hotspots

WWF Global 200 Priority Ecoregions:
https://www.worldwildlife.org/publications/global-200

ANNEX 2
USEFUL RESOURCES (continued)

World Heritage thematic studies and related publications (most recent first)

Casadevall, T.J., Tormey, D. and Roberts, J. (2019). *World Heritage Volcanoes: Classification, gap analysis, and recommendations for future listings.* IUCN, Gland, Switzerland. https://doi.org/10.2305/IUCN.CH.2019.07.en

Kormos, C.F., Badman, T., Jaeger, T., Bertzky, B., van Merm, R., Osipova, E., Shi, Y. and Larsen, P.B. (2017). *World Heritage, Wilderness and Large Landscapes and Seascapes.* IUCN, Gland, Switzerland. https://doi.org/10.2305/IUCN.CH.2017.06.en

Abulhawa, T., Abdulhalim, H., Osipova, E. and Cummings, T. (2014). *TABE'A II Report: Enhancing regional capacities for World Heritage.* IUCN, Amman, Jordan. https://doi.org/10.2305/IUCN.CH.2015.04.en

Abdulla, A., Obura, D., Bertzky, B. and Shi, Y. (2013). *Marine Natural Heritage and the World Heritage List: Interpretation of World Heritage criteria in marine systems, analysis of biogeographic representation of sites, and a roadmap for addressing gaps.* IUCN, Gland, Switzerland. https://portals.iucn.org/library/node/29196

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 UNEP-WCMC, Cambridge, UK. https://portals.iucn.org/library/node/10399

Obura, D.O., Church, J.E. and Gabrié, C. (2012). *Assessing Marine World Heritage from an Ecosystem Perspective: The Western Indian Ocean.* UNESCO World Heritage Centre, Paris, France.

IUCN and UNEP-WCMC (2011). *African Natural Heritage: Possible priorities for the World Heritage List.* Foldout colour brochure. IUCN, Gland, Switzerland and UNEP-WCMC, Cambridge, UK.

Goudie, A. and Seely, M. (2011). *World Heritage Desert Landscapes: Potential priorities for the recognition of desert landscapes and geomorphological sites on the World Heritage List.* IUCN, Gland, Switzerland. https://portals.iucn.org/library/node/9818

Wood, C. (2009). *World Heritage Volcanoes.* IUCN, Gland, Switzerland. https://portals.iucn.org/library/node/9486

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.

Williams, P. (2008). *World Heritage Caves and Karst.* IUCN, Gland, Switzerland. https://portals.iucn.org/library/node/9267

IUCN (2006). *The World Heritage List: Guidance and future priorities for identifying natural heritage of potential Outstanding Universal Value.* IUCN, Gland, Switzerland. https://portals.iucn.org/library/node/12671

Dingwall, P., Weighell, T. and Badman, T. (2005). *Geological World Heritage: A global framework. A Contribution to the Global Theme Study of World Heritage Natural Sites.* IUCN, Gland, Switzerland. https://portals.iucn.org/library/node/12797

Patry, M. (2005). *Forest Protected Areas Warranting Further Consideration as Potential World Heritage Forest Sites. Annex 3 in: World Heritage Forests: Leveraging conservation at the landscape level.* World Heritage Papers 21. UNESCO World Heritage Centre, Paris, France.

Thorsell, J. (2004). *The World Heritage List: Future priorities for a credible and complete list of natural and mixed sites. Strategy Paper prepared for the World Heritage Committee.* World Heritage Panel, IUCN, Gland, Switzerland. https://portals.iucn.org/library/node/12798

Thorsell, J. and Hamilton, L. (2002). *A Global Overview of Mountain Protected Areas on the World Heritage List. A Contribution to the Global Theme Study of World Heritage Natural Sites.* Working Paper 6. IUCN, Gland, Switzerland. https://portals.iucn.org/library/node/8108

CIFOR and UNESCO (1999). *World Heritage Forests: The World Heritage Convention as a mechanism for conserving tropical forest biodiversity.* CIFOR, Jakarta, Indonesia and UNESCO World Heritage Centre, Paris, France.

Thorsell, J. and Sigaty, T. (1997). *A Global Overview of Forest Protected Areas on the World Heritage List. A Contribution to the Global Theme Study of World Heritage Natural Sites.* Working Paper 3. IUCN, Gland, Switzerland. https://portals.iucn.org/library/node/7358

Thorsell, J., Levy, R.F. and Sigaty, T. (1997). *A Global Overview of Wetland and Marine Protected Areas on the World Heritage List. A Contribution to the Global Theme Study of World Heritage Natural Sites.* Working Paper 2. IUCN, Gland, Switzerland. https://portals.iucn.org/library/node/7359

Wells, R.T. (1996). *Earth's Geological History: A contextual framework for assessment of World Heritage fossil site nominations.* Working Paper 1. IUCN, Gland, Switzerland. https://portals.iucn.org/library/node/7357

ACKNOWLEDGEMENTS

This report was commissioned by IUCN's Eastern and Southern Africa Regional Office (ESARO) and West and Central Africa Regional Office (PACO) as a contribution to the Biodiversity and Protected Areas Management (BIOPAMA) Programme. It is part of BIOPAMA's broader efforts to assist African, Caribbean and Pacific (ACP) countries to address their priorities for improved management and governance of biodiversity and natural resources, including by providing and assessing supportive tools. BIOPAMA is an initiative of the ACP Group of States financed by the European Union's 11th European Development Fund (EDF), jointly implemented by IUCN and the Joint Research Centre (JRC) of the European Commission. It supports protected area actors at all levels, including through the provision of tools, services, and capacity development, as well as opportunities for funding for site-level activities. It operates across 79 countries, which host 9,000 protected areas across diverse ecological, social and cultural landscapes (adapted from the BIOPAMA website: www.biopama.org).

The report was prepared by Peter Howard, with contributions by Bastian Bertzky, who also prepared the original concept for this work. We are deeply grateful to the many people who shared their guidance, insights, and expertise, all of which were critical contributions. Sue Snyman (BIOPAMA Coordinator, IUCN ESARO), Tanya Merceron (BIOPAMA Coordinator, IUCN PACO) and Bastian Bertzky (BIOPAMA Point of Contact for Southern Africa, JRC) provided supervision, guidance and direct technical support. Leo Niskanen (IUCN ESARO) and Mizuki Murai (IUCN World Heritage Programme) provided additional guidance at the conceptual stage of this work. We are particularly grateful to all those experts who provided comments on the draft report (in alphabetical order): Haifaa Abdulhamin, Elise Belle, Youssouph Diedhiou, Guy Debonnet, Dodé Houehounha, Tilman Jaeger, Susanna Kari, Cyril Kormos, Maher Mahjoub, Mizuki Murai, Leo Niskanen, Elena Osipova, Andy Plumptre, Remco van Merm, Peter Shadie, Sue Stolton, John Waithaka and Kathy Zischka. We also thank all the photographers who contributed photos to the report, and the designers who turned all the material into this attractive publication.

All errors remain ours. The contents of this report are solely the responsibility of the authors and should not be interpreted as reflecting the views of any of the individuals or organizations that contributed to the report or any of its elements. Most importantly, the recommendations in Chapter 3 are without prejudice to the success of any nomination or extension proposal that could be put forward. The list of possible priority sites is only indicative and not exhaustive. The location of possible priority sites on the map is only indicative.

AUTHOR BIOGRAPHIES

Peter Howard is a wildlife biologist and ecological economist who gained his PhD from the University of KwaZulu Natal in the early 1980s. He has spent most of his professional career supporting government wildlife agencies across Africa, through a series of international aid projects and a period as Director of the US-based Wildlife Conservation Society's Africa Program. Peter has had a long association with World Heritage, having first visited the Galápagos Islands in 1979, a year after it was inscribed as the world's first World Heritage Site (WHS). Since then he has gained first-hand experience of well over 140 other natural/mixed WHS worldwide, including 42 of Africa's 48 natural/mixed sites. His professional activities are now focused on World Heritage, serving as an independent consultant for IUCN and UNESCO, and developing two popular websites to raise awareness of these most precious places (www.AfricanWorldHeritageSites.org and www.NaturalWorldHeritageSites.org). He lives in Nairobi, Kenya, close to some of the world's most outstanding wildlands.

Bastian Bertzky is a geographer and conservation biologist with a master's degree from the University of Cape Town. He has been working on protected areas and World Heritage Sites (WHS) for 15 years, including several years at IUCN Headquarters and at the United Nations Environment Programme's World Conservation Monitoring Centre (UNEP-WCMC). He has been deeply involved in the IUCN monitoring and evaluation processes for natural/mixed WHS, the comparative analysis of candidate sites, and a number of thematic studies and gap analyses on natural heritage. To date, he has visited over 50 natural/mixed WHS on five continents, including through IUCN field missions. He currently works at the Joint Research Centre (JRC) of the European Commission where he supports the Digital Observatory for Protected Areas (DOPA) and the Biodiversity and Protected Areas Management (BIOPAMA) Programme. He lives in northern Italy.

Both authors of this report are members of the IUCN World Commission on Protected Areas (WCPA); however, this work has been undertaken in an independent capacity, and any views expressed by the authors in this report shall not be represented as the views of IUCN or WCPA.

Photo: Terns, Banc d'Arguin National Park, Mauritania

BIOPAMA

From Knowledge to Action for a Protected Planet

Donors & Implementing Partners

This publication has been produced with support of the 11th EDF. The contents of this publication are the sole responsibility of IUCN and the European Commission's Joint Research Centre and can in no way be taken to reflect the views of the European Union nor of the ACP Group of States.

www.biopama.org