The IUCN World Heritage Outlook

Conservation Outlook Assessments -
Guidelines for their application to World Heritage Sites inscribed for their natural values

Version 4.0
2024

Acknowledgements

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We also express our gratitude to the assessors who undertook the initial pilot assessments and provided valuable feedback on the methodology, as well as to the hundreds of assessors and reviewers who undertook Conservation Outlook Assessments in 2014, 2017 and 2020 valuably informing subsequent methodological improvements for the assessments. Finally, thanks go to the former and current staff of the World Heritage Programme for their contributions, including Mariam Kenza Ali, Tim Badman, Matthew Emslie-Smith, Tilman Jaeger, Leticia Leitao, Mizuki Murai, Elena Osipova, Matea Osti, Christelle Perruchoud, Peter Shadie, Yichuan Shi, Remco van Merm, and Ulrika Åberg.

List of acronyms

AZE	Alliance for Zero Extinction
CMP	Conservation Measures Partnership
COM	World Heritage Committee Meeting
EOH	Enhancing Our Heritage
GIS	Geographical Information Systems
IBA	Important Bird Areas
ICCROM	International Centre for the Study of the Preservation and Restoration of Cultural Property
ICOMOS	International Council on Monuments and Sites
IPA	Important Plant Areas
IUCN	International Union for Conservation of Nature
NGO	Non-Governmental Organisation
OUV	Outstanding Universal Value
PA	Protected Area
SOC	State of Conservation
SOUV	Statement of Outstanding Universal Value
SP	State Party
SSC	IUCN Species Survival Commission
UNEP-WCMC	United Nations Environment Programme World Conservation Monitoring Centre
UNESCO	United Nations Educational, Scientific and Cultural Organization
WCPA	IUCN World Commission on Protected Areas
WHC	World Heritage Convention

Contents

Overview

In 2014, IUCN launched the IUCN World Heritage Outlook – a ground-breaking first global assessment of the potential of World Heritage sites inscribed for their natural values to conserve their heritage values over time. Updates in 2017 and 2020, have now enabled trends in key conservation issues across all natural and mixed World Heritage sites to be identified and tracked over time.

The IUCN World Heritage Outlook is based on individual Conservation Outlook Assessments of each natural and mixed site on the World Heritage List. These desk-based assessments, conducted by independent experts and based on referenced evidence, summarize the current state and trend of a site's values and key attributes, the threats to those attributes and the effectiveness of protection and management. The objective of the IUCN World Heritage Outlook is to identify and anticipate conservation challenges while also recognizing conservation successes. IUCN is looking to use the IUCN World Heritage Outlook as both a catalyst for developing specific actions on the ground and as a metric for assessing and communicating the progress achieved. The purpose of these Guidelines is to provide guidance on undertaking Conservation Outlook Assessments. IUCN recognises that the language and terminology may not transfer to or fully represent all contexts and circumstances at the site level, however regular feedback and review processes help to continually improve the guidance and its relevance. The primary audience for the Guidelines is Site Assessors, who are being invited by IUCN to lead the development of Conservation Outlook Assessments, as well as Reviewers who will contribute to this process. The Guidelines will also be useful for anyone involved or interested in the process. These Guidelines should be read while completing the Conservation Outlook Assessments in the online assessment module. As IUCN develops the World Heritage Outlook process, subsequent versions of the Guidelines will be produced. This version of the Guidelines (Version 4.0) is the current version as of September 2024.

BACKGROUND ON CONSERVATION OUTLOOK ASSESSMENTS

1.1 What are Conservation Outlook Assessments?

IUCN Conservation Outlook Assessments are a projection of the potential for a World Heritage site, inscribed for its natural values, to maintain its heritage values and conserve the key attributes over time. This projection is based on desk-based assessments of:

- → the state and trend of values conveyed by their key attributes;
- → the threats affecting those attributes; and
- → the effectiveness of protection and management.

Assessments also identify *benefits* of natural World Heritage sites and active conservation *projects* taking place in sites.

The Conservation Outlook Assessment framework is illustrated in Figure 1. The five Conservation Outlook categories against which each site is assessed are listed below.

CONSERVATION OUTLOOK CATEGORIES AND CRITERIA

Good: The site's values, conveyed by their key attributes, are in good condition and are likely to be maintained for the foreseeable future, provided that current conservation measures are maintained.

Good with Some Concerns: While some concerns exist, with minor additional conservation measures the site's values, conveyed by their key attributes, are likely to be essentially maintained over the long-term.

Significant Concern: The site's values, conveyed by their key attributes, are threatened and/or showing signs of deterioration. Significant additional conservation measures are needed to maintain and/or restore attributes over the medium to long-term.

Critical: The site's values, conveyed by their key attributes, are severely threatened and/or deteriorating. Immediate large-scale additional conservation measures are needed to maintain and/or restore the key attributes over the short to medium-term or the heritage values may be lost.

Data Deficient: Available evidence is insufficient to draw a conclusion

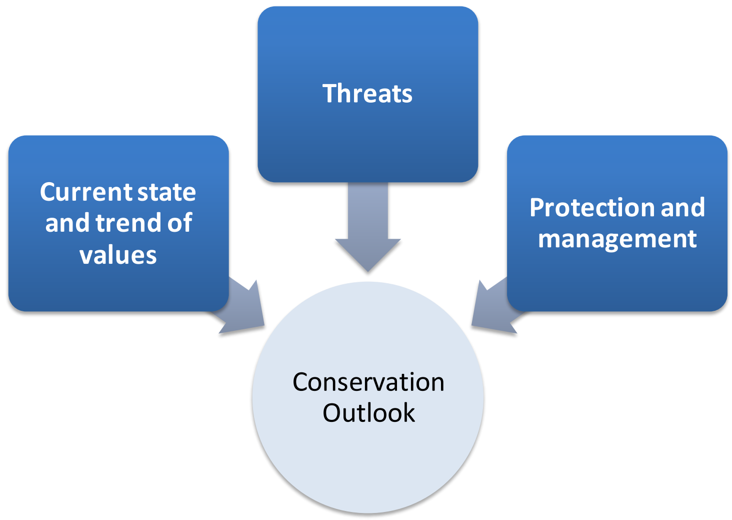

Figure 1: The Conservation Outlook Assessment framework. Conservation Outlook Assessments are a projection of the potential for a World Heritage site, inscribed for its natural values, to maintain its heritage values and conserve the key attributes over time**.**

1.2 Assessment methodology and process

IUCN has developed a standardised methodology for desk-based assessments[1] of World Heritage sites inscribed for their natural values i.e. natural and mixed World Heritage sites. This methodology was developed in collaboration with a technical Advisory Group, drawing on the IUCN World Commission on Protected Areas' (WCPA) established methodologies and framework for Management Effectiveness of Protected Areas, the results of pilot assessments undertaken in a range of selected sites, and the lessons learned from the assessment frameworks developed for the *Great Barrier Reef Outlook report*[2] (2009), the *Enhancing Our Heritage Toolkits (including EoH 2.0)*[3,4], the *Managing Natural World Heritage Manual*[5], the World Heritage *Periodic Reporting questionnaire*[6], *IUCN Green List of Protected and Conserved Areas Standard*[7], and other relevant literature.

The current Version 4.0 of the Guidelines was developed in 2024, building on the feedback received during the previous rounds of Conservation Outlook Assessments in 2014, 2017 and 2020, the results of the review by the Methodology Review Group, and the outcomes from the 2018 Methodology Review Workshop, the 2021 Outlook reflection workshops and subsequent inputs in 2024 from key knowledge holders.

Conservation Outlook Assessments are completed using an online assessment module that allows Site Assessors to easily update assessments by filling in online worksheets for each step of the Conservation Outlook Assessment, and Reviewers to provide further input and comments on the updated assessment. The Conservation Outlook Assessment is structured around eight steps, which are detailed in Sections 1 and 2.

[1] The use of the term assessment is in line with the definition in the IUCN WCPA Management Effectiveness Framework: *the judgement of performance against some predetermined criteria.*
[2] http://www.gbrmpa.gov.au/corp_site/about_us/great_barrier_reef_outlook_report
[3] https://whc.unesco.org/en/eoh20/
[4] http://whc.unesco.org/documents/publi_wh_papers_23_en.pdf
[5] http://whc.unesco.org/en/managing-natural-world-heritage/
[6].http://whc.unesco.org/en/periodicreporting
[7] https://iucn.my.salesforce.com/sfc/p/#24000000e5iR/a/1o0000005kM6/tFf7d8BgjDRxUKyujmm7DdgrfPz77RzGkQizYNb_dmA

In exceptional circumstances, a small number of assessments may need to be completed offline using the *IUCN Conservation Outlook Assessments – Worksheets v. 4.0* Word document. These Guidelines provide guidance on how to complete worksheets both in the online assessment module, as well as offline in the Word document.

1.2.1 Information sources

Conservation Outlook Assessments are based on best-available information mobilised from a wide range of sources, including consultations with key knowledge holders. All information used in the assessments is referenced for transparency and so that future assessments can review the previous information base. Aside from GIS and remote sensing work on a case-by-case basis, no new research will be undertaken for the assessments.

The types of information sources used in Conservation Outlook Assessments are listed in Annex 1. Information is sourced from IUCN's knowledge bank on World Heritage sites, publicly available World Heritage Committee reports, published management effectiveness evaluations, scientific research, and information provided by a wide range of knowledge holders, including site managers, national authorities, and IUCN's network of 11,000 experts, particularly the World Commission on Protected Areas (WCPA) and the Species Survival Commission (SSC). Each type of information source has its different strengths and limitations in terms of depth, coverage and quality. It is expected that the assessments will help identify information gaps which, if filled, will aid future assessments.

Starting from 2017, previous versions of Conservation Outlook Assessments will also serve as a source of information for current assessments and Site Assessors will be able to maintain the parts of the previous assessment which are still accurate and update the parts where changes have occurred since the last assessment (particular attention should be given to the assessment of the current state of values and attributes, threats and protection and management, as well as assessment of the overall Conservation Outlook).

Site Assessors should be assured that in updating a Conservation Outlook Assessment for a given year, information from earlier Conservation Outlook Assessments is not lost; previous assessments (e.g. for 2014, 2017 and 2020) can always be accessed by navigating to the 'Download PDF' button on the site assessment page of the relevant World Heritage site on https://www.worldheritageoutlook.iucn.org/explore-sites/.

1.2.2 Roles in the assessment process

The different roles in the assessment process are described below and illustrated in Figure 2. All assessments are carried out in close consultation and collaboration with IUCN's Centre for Conservation Action (especially the Protected and Conserved Areas Team), regional offices, as well as the WCPA and SSC.

→ **The Assessment Coordinator** based within the IUCN Secretariat provides ongoing support to Site Assessors in applying the assessment methodology. The Coordinator contacts and consults knowledge-holders prior to assessments, requesting feedback on values, attributes, threats, and protection and management. The Assessment Coordinator also reviews draft assessments to ensure that they conform to the Guidelines and provides other support as necessary.

→ **Site Assessors** are protected area specialists familiar with World Heritage. Using information from IUCN's knowledge bank on World Heritage, consultation feedback, and other information sources, Site Assessors undertake desk-based Conservation Outlook Assessments in English, French, or Spanish, in line with the Guidelines.

→ **Knowledge-holders** are individuals/organisations who have first-hand knowledge of a site, including researchers, site managers, non-governmental and governmental organisations, relevant national management authorities, community groups, WCPA and SSC members etc. Their feedback can include the provision of documents, as well as specific comments on the state of a site's values and attributes, threats, protection and management. Except for information supplied in published documents, feedback received from knowledge-holders and shared with Site Assessors is confidential and non-attributable and needs to be referenced as a 'Confidential IUCN consultation' in Conservation Outlook Assessments (information on how to cite confidential IUCN consultations and other types of references can be found in Step 8: References of this document).

→ **Expert Reviewers** are knowledge-holders with advanced protected area expertise and extensive first-hand knowledge of a site. They provide detailed reviews of draft assessments.

→ **Regional Review Groups** consist of representatives of IUCN regional offices, WCPA Regional Vice-Chairs and other key regional experts on World Heritage. They review the overall conclusions for all natural and mixed sites in a particular region and provide their comments to the World Heritage Panel.

→ **The World Heritage Panel** is IUCN's established governance body for World Heritage matters and is composed of senior IUCN and WCPA specialists. The World Heritage Panel has oversight of the approval process for Conservation Outlook Assessments.

1.2.3 Reviewing assessments

Each Conservation Outlook Assessment undergoes multiple internal (within the IUCN World Heritage Team) and external reviews before finalisation. Draft assessments are internally reviewed to verify that they meet the standards set out in the Guidelines. They are then reviewed by selected Expert Reviewers with extensive knowledge of a site. Site managers are also invited to comment on the assessments. Regional review groups in each IUCN region then review the overall conclusions for all sites in their region and provide their comments to the World Heritage Panel.

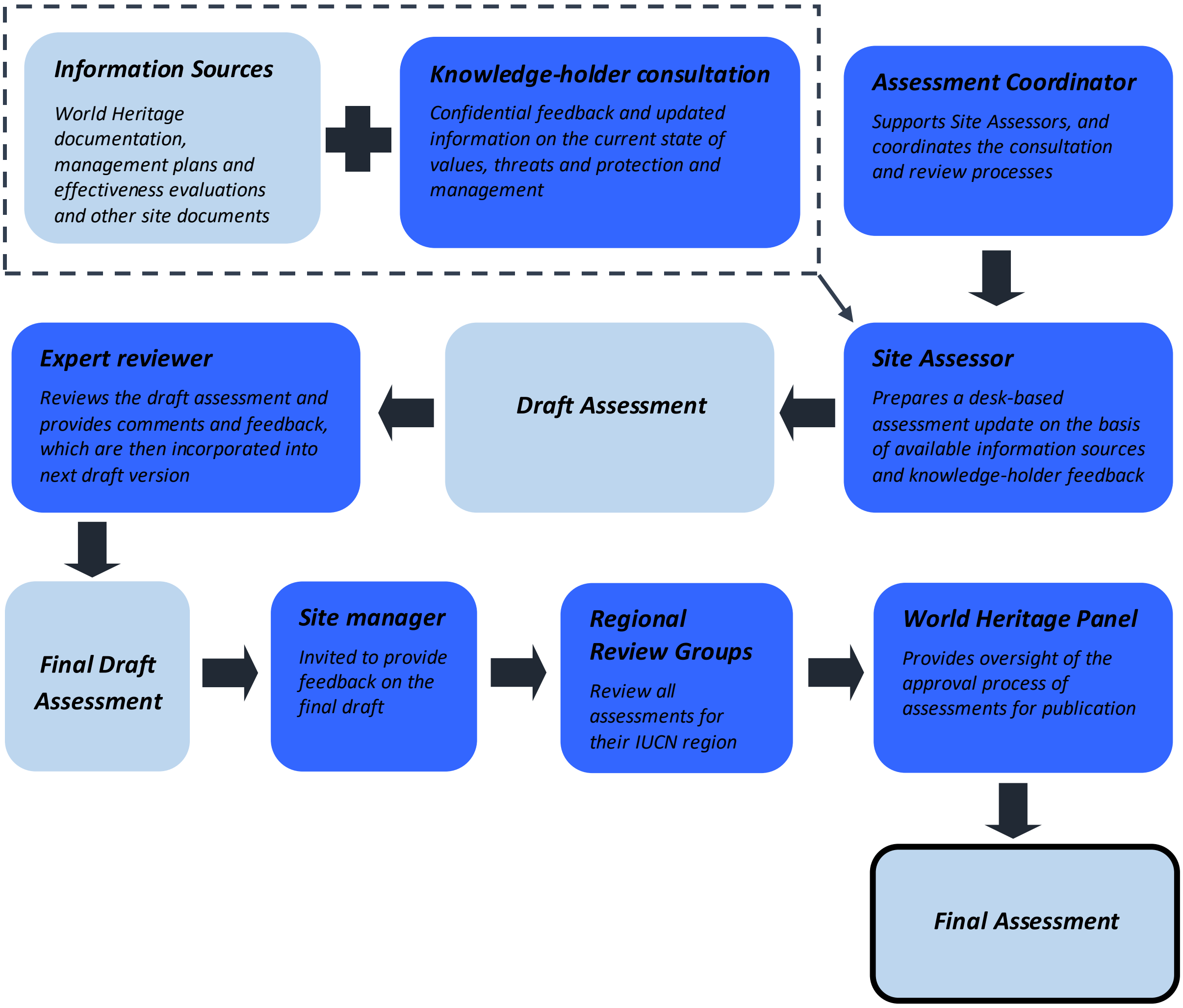

Figure 2: Roles in the Conservation Outlook Assessment process

CONSULTATION

OVERVIEW

The IUCN World Heritage Team contacts and consults knowledge-holders prior to the assessment, requesting feedback on values, the attributes that convey these values, threats, protection and management in the form of literature and updates on the site since the last Outlook assessment. The relevant national and site-level management authorities are also contacted, informed of the assessment process and invited to contribute.

The consultation process is indispensable to ensuring that Conservation Outlook Assessments are accurate and focused on the most pressing issues. Knowledge-holders include but are not limited to stakeholders and rightsholders involved in the management of sites (including IUCN member organisations, relevant government authorities, site managers, NGOs, community groups, international agencies etc.), IUCN World Commission on Protected Areas (WCPA) members, IUCN Species Survival Commission (SSC) members, other IUCN commission members, researchers and IUCN staff. Knowledge-holders are identified through the World Heritage Team's contacts database, the IUCN WCPA World Heritage Network, and IUCN's network of experts and the iterative process of consultation.

CONSULTATION GUIDELINES

a) **Transparency:** In line with an evidence-based approach, all information used in assessments needs to be referenced for transparency and so that future assessments can build on the previous information base. Information sources should be clearly referenced within the 'description' column in the case of Worksheet 1 (Identifying and describing values and attributes), and in the 'justification for assessment' columns in Worksheets 2 (Threats), 3 (Protection & Management) and 4 (Assessing the current state and trend of values), e.g. (World Heritage Committee, 2019). Further guidance on the referencing style, including examples of how to reference different types of documents, can be found in Step 8: References of this document.

b) **Confidentiality:** All comments provided by knowledge-holders through consultations are <u>strictly confidential</u> and are made available to the Site Assessor only upon agreement (via a user agreement in the online assessment module) that the Site Assessor will respect this confidentiality and not disclose the consultation feedback or any of the content it contains to third parties. Please note that feedback and comments from consultations need to be cited and referenced as an 'IUCN consultation' in Conservation Outlook Assessments, making sure that any citations or references do not name individuals or organisations (information on how to reference IUCN consultations can be found in Step 8: References of this document).

STEP-BY-STEP GUIDELINES FOR COMPLETING WORKSHEETS

Step 1: Identifying and describing values and key attributes - Worksheet 1

STEP SUMMARY

The first step in undertaking an assessment is to identify and describe a site's values, including World Heritage, other important biodiversity values and other important values (if applicable e.g. geological, cultural). In the next step, the key attributes which convey these values should be listed in the description column. The key source for this section is the statement of OUV for each site. To better incorporate lessons learned from other assessment processes (mentioned on p. 7), the differentiation between values and attributes has been made clearer in this cycle's assessment process. The table below shows the definition of values and attributes as defined in the Enhancing our Heritage Toolkit 2.0[3].

Attributes	WHAT do I need to protect and conserve to maintain the place's significance? Attributes are the elements of a heritage place which convey its heritage values and enable an understanding of those values. They can be physical structures, material fabric and other tangible features, but can also be intangible aspects such processes, social arrangements or cultural practices, as well as associations and relationships which are reflected in physical elements of the place. For cultural heritage places, they can be buildings or other built structures and their forms, materials, design, uses and functions but also urban layouts, agricultural processes, religious ceremonies, building techniques, visual relationships and spiritual connections. For natural properties, they can be specific landscape features, areas of habitat, flagship species, aspects relating to environmental quality (such as intactness, high/pristine environmental quality), scale and naturalness of habitats, and size and viability of wildlife populations. Attributes, and the interactions between them, should be the focus of protection, conservation and management measures. The term 'attributes' is particularly used for World Heritage properties and a clear understanding of the attributes that convey their Outstanding Universal Value is critical for their long-term protection. The spatial distribution of those attributes and respective protection requirements should inform the boundary of the property and other management measures.
Values (heritage)	WHY is a heritage place important? The qualities for which a heritage place is considered important to be protected for present and future generations. Values are determined by a range of social and cultural factors. What is valued by one section of society may not be valued by another, or may be valued for different reasons, or one generation may value it but it may not have been valued by the previous one. Heritage places may have a range of values: aesthetic, architectural, biological, ecological, historic, geological, social, spiritual, etc. These values are embodied in and conveyed by the attributes of the heritage place. Since values are socially determined and are essentially intangible (i.e., non-material), it is necessary to identify which attributes convey them. Attributes are the focus of management and conservation actions.

Although for those sites which were assessed in previous World Heritage Outlook cycles, the description and composition of the values has already been checked and reviewed, these require further work by the Site Assessor to list the key attributes associated with each value. If Site Assessors have any comments or further edits/suggestions on the description and composition of these values and attributes, they can provide an internal comment to IUCN in the online assessment module or by directly contacting their IUCN Assessment Coordinator.

The 2025 assessment update will be the first opportunity for assessors to identify other important values and key attributes in the 'other important values' section. This is especially relevant to capture geological and cultural values. Many, if not all, sites will invariably have a wider range of geological and cultural values, with different levels of recognition of the attributes (international, national or local) conveying these values and contributing to the overall significance of the site. Some cultural values and attributes might have a broader level of recognition (e.g. if the place is designated at the national level, or international for mixed sites), however Indigenous Peoples and local communities may also hold different values around the same heritage place, and these local values may even differ among community groups, for example through the interaction with specific attributes. Therefore, it is important to identify and recognize these important cultural values and the attributes to conserve, particularly in instances where these underpin the site's OUV and its conservation. This understanding of the full range of the values and attributes of the heritage place should also be referred to, as appropriate, in other parts of the conservation outlook assessment (i.e. in the threats and protection and management sections). See more in section (e) (below).

The assessment update will also include an Indigenous Peoples Statement, which will be tested on a sample of World Heritage sites in close collaboration with the International Indigenous Peoples Forum on World Heritage.

For World Heritage sites inscribed after 2020 and which do not already have a conservation outlook assessment, the following steps should be taken by the Site Assessor to define and describe a site's values and attributes:

World Heritage values make up the Outstanding Universal Value (OUV) that led to the inscription on the World Heritage List. They are directly related to the criteria for which a site was inscribed. The World Heritage criteria for natural sites are given below in Box 1.1. 'Other important biodiversity values' and 'Other important values' are also identified, e.g. for sites that are listed under scenic/geological/biodiversity criteria respectively but may have other important biodiversity, geological and cultural values. Wherever possible, it should also be described how these other important values are linked to the site's OUV. Other site designations (e.g. Ramsar site, Biosphere Reserve, Geoparks, Key Biodiversity Areas, Important Bird Areas, Alliance for Zero Extinction sites) should not be included here, as this information will be compiled and presented automatically for each site on the online World Heritage Outlook website. Ecosystem services and other benefits are assessed under Step 6: Understanding Benefits.

Note that each criterion encompasses several values which in turn are conveyed by key attributes. these should be broken down as relevant. For example, criteria (x) could be broken down into the values 'ecologically and globally outstanding region' and 'unique marine systems', which are conveyed in the attributes 'populations of seabirds, marine mammals, fish, corals and sharks' and 'spawning sites for commercial fish species'.

Box 1.1: World Heritage criteria for natural sites

Criterion (vii) contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance

Criterion (viii) be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features

Criterion (ix) to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals

Criterion (x) to 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

ASSESSMENT GUIDELINES

a) **Filling in Worksheet 1 (Identifying and describing values and attributes)**: The World Heritage value is defined in the 'Value' field, described in detail with reference to the attributes in the 'Description' field, and then cross-referenced to the relevant World Heritage criterion/a in the 'WH criterion' field. Note, if you are working offline and filling in the Word document, you will also need to number each value (V1, V2 etc). 'Other important biodiversity values' and 'other important values' are described separately.

b) **Identifying World Heritage values and attributes:** Statements of outstanding universal value, statements of significance, IUCN evaluation reports, nomination dossiers, and UNEP-WCMC information sheets from the time of inscription of the site on the World Heritage List are the main basis on which World Heritage values and attributes are identified:

→ *Statements of outstanding universal value* (SOUV)[8] are the official statements adopted by the World Heritage Committee at the time of inscription of a site on the World Heritage List. These statements encapsulate why the site is considered to be of OUV, how it satisfies the relevant criteria, the conditions of integrity, and how it meets the requirements for protection and management in order to sustain OUV in the long-term. SOUVs have only been introduced in 2007 and the sites inscribed on the World Heritage List prior to this date are required to prepare and present for adoption by the Committee a Retrospective Statement of Outstanding Universal Value, but some World Heritage sites still do not have such a statement. SOUVs can be found in the site page on the UNESCO World Heritage Centre website, in the 'description' tab[9].

→ Prior to 2007, *statements of significance* were produced for World Heritage sites and were generally prepared as part of the nomination dossier. These statements cover values and integrity, but do not consider protection and management. Statements of Outstanding Universal Value are now replacing Statements of Significance.

→ *IUCN evaluation reports* are the product of an 18-month evaluation process, which includes desktop reviews of the nomination file submitted by the State Party, a comparative analysis of the nominated site with existing World Heritage sites and other protected areas, and a field visit to the nominated site. These reports include a detailed description of a site's values and attributes, and often also include a description of other significant biodiversity, geological and/or aesthetic values for which the site was not nominated. When a nominated site is recommended for inscription, the IUCN Evaluation Report specifies under which World Heritage criteria it should be inscribed and gives a justification for its inscription under those criteria. IUCN evaluation reports can serve as a useful resource for identifying the values and attributes of natural and mixed World Heritage sites, particularly if there is no Statement of Outstanding Universal Value. Site Assessors can also review the original site nomination dossiers.

→ *WCMC information sheets:* These provide detailed site descriptions. The information sheets prepared at the time of inscription are available for most sites but are not official World Heritage Committee records.

Please ensure that the breakdown of World Heritage values is sufficiently detailed, is linked to specific attributes and relates to the criteria for the site. Although there are no right number of values for a site,

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[8] See the World Heritage Advisory Bodies and World Heritage Centre's guidance note on preparing ***Retrospective Statements of Outstanding Universal Value for World Heritage Properties - http://cmsdata.iucn.org/downloads/whouven.pdf***

[9] To search for your site, go to https://whc.unesco.org/en/list/

up to 5 values should be sufficient for most sites (and in all cases no more than 15 values should be listed). To help determine the appropriate number of World Heritage values for your site, consider whether you will be able to report on the state and trend of the associated attributes later in worksheet 4 (Assessing values and attributes).

For example, values and attributes breakdowns could include:

Example: Serengeti National Park	
	Values and attributes breakdown (values in bold, attributes are underlined)
Criterion (vii) The Serengeti plains harbour the largest remaining unaltered animal migration in the world where over one million wildebeest plus hundreds of thousands of other ungulates engage in a 1,000 km long annual circular trek spanning the two adjacent countries of Kenya and Tanzania. This spectacular phenomenon takes place in a unique scenic setting of 'endless plains': 25,000km^2 of treeless expanses of spectacularly flat short grasslands dotted with rocky outcrops (kopjes) interspersed with rivers and woodlands. The Park also hosts one of the largest and most diverse large predator-prey interactions worldwide, providing a particularly impressive aesthetic experience.	**V1. Greatest terrestrial mammal migration on Earth** The Serengeti supports the greatest large mammal migration on Earth, involving approximately 1.4 million wildebeest, 200,000 zebra and 300,000 Thomson's and Grant's gazelle (TAWIRI Aerial Census, 2010). The predators are dependent on the abundance of grazers, and the ecosystems harbours 7,500 hyenas, 3,000 lions and other predators. The annual migration follows a 1,000 km circuit between key dry-season water points and grazing lands along the Mara river (in Kenya's Masai Mara Reserve) and short-grass pastures and calving grounds to the south (in the Ngorongoro Conservation Area) (World Heritage Committee, 2012). **V2. Outstanding savanna scenery** Serengeti means 'endless plains' in the local Masai language, and the vast expanse of short-grass savannas provide a spectacular setting for the phenomenal congregations of wildlife. The plains are punctuated by impressive outcrops of massive weathered granite 'kopjes', seasonal wetlands, low hills and a diversity of woodland types (World Heritage Committee, 2012).
Example: Great Barrier Reef	
Statement of OUV	**Values and attributes breakdown (values in bold, attributes are underlined)**
Criterion (x) The enormous size and diversity of the GBR means it is one of the richest and most complex natural ecosystems on earth, and one of the most significant for biodiversity conservation. The amazing diversity supports tens of thousands of marine and terrestrial species, many of which are of global conservation significance. **As the world's most complex expanse of coral reefs, the reefs contain some 400 species of corals in 60 genera. There are also large ecologically important inter-reefal areas. The shallower marine areas support half the world's diversity of mangroves and many seagrass species. The waters also provide major feeding**	**V1. Outstanding diversity of plants including mangroves and seagrass** The continental islands within the property support thousands of plant species, while the coral cays have their own distinct flora including threatened species. The shallower marine areas support 37 species of mangroves (54% of the world diversity) and 15 seagrass species covering over 6,000 km^2 (23% of the world diversity). A further 40,000 km^2 of deep-water seagrasses is also estimated. There is also a high diversity of macroalgae and benthic microalgae (World Heritage Committee, 2012; State Party of Australia, 1981; 2013a; IUCN, 1981; Lucas et al., 1997; GBRMPA, 2009; Coles et al., 2009). **V2. Outstanding diversity of invertebrate species, including hard and soft corals** As the world's most complex expanse of coral reefs, there are more than 500 species of corals in 60 genera including hard corals, soft corals, sea pens and sea fans. This equates to 56% of the world's hard coral species, and one-third of the world's soft coral and sea pen species. Ecologically important inter-reefal areas include at least 330 species of ascidians,

grounds for one of the world's largest populations of the threatened dugong. At least 30 species of whales and dolphins occur here, and it is a significant area for humpback whale calving. **Six of the world's seven species of marine turtle occur in the GBR. As well as the world's largest green turtle breeding site at Raine Island, the GBR also includes many regionally important marine turtle rookeries.** **Some 242 species of birds have been recorded in the GBR. Twenty-two seabird species breed on cays and some continental islands, and some of these breeding sites are globally significant; other seabird species also utilise the area. The continental islands support thousands of plant species, while the coral cays also have their own distinct flora and fauna.**	between 300 and 500 species of bryozoans, 800 species of echinoderms, at least 4,000 species of molluscs, 1,500 species of sponges and a high diversity of flatworms, crustaceans and polychaetes (World Heritage Committee, 2012; State Party of Australia, 1981; 2013a; IUCN, 1981; Lucas et al., 1997; GBRMPA, 2009). **V3. Outstanding diversity of fish including threatened species** The property is home to over 1,600 species of fish in more than 130 families with the number of reef-associated fish alone being 1,468. Over 130 species of sharks, rays and skates, many of which are threatened, have also been recorded within the property (World Heritage Committee, 2012; State Party of Australia, 1981; 2013a; IUCN, 1981; Lucas et al., 1997; GBRMPA, 2009). **V4. Home to unique and threatened animal diversity** With six of the world's seven species of marine turtle, the property provides globally important nesting and feeding grounds for the Loggerhead (*Caretta caretta*, EN); Green (*Chelonia mydas*, EN); Hawksbill (*Eretmochelys imbricata*, CR) and Flatback (*Natator depressus*, DD) Turtles, including one of the last significant breeding populations of the Hawksbill Turtle in the world, the largest Green Turtle breeding population in the world and 70% of the South Pacific population of the Loggerhead Turtle. 14 species of sea snakes breed in the property (World Heritage Committee, 2012; State Party of Australia, 1981; 2013a; IUCN, 1981; Lucas et al., 1997; GBRMP, 2012). Some 242 species of birds have been recorded with twenty-two breeding species of seabird on cays and some continental islands; some of these breeding sites are globally significant. Species previously regarded as threatened include the Roseate Tern (*Sterna dougallii*), Little Tern (*Sterna albifrons*) and Torresian Imperial-pigeon (*Ducula spilorrhoa*), although they are now classified as Least Concern. Beach Thick-knee (*Esacus giganteus*) is considered to be Near Threatened (World Heritage Committee, 2012; State Party of Australia, 1981; 2013a; IUCN, 1981; Lucas et al., 1997; IUCN, 2013). The property is home to one of the world's largest populations of Dugong (*Dugong dugon*, VU, including 15% recorded within Australian waters). Significant refuge for cetaceans with at least 30 species of whales and dolphins, including the Australian Snubfin Dolphin (*Orcaella brevirostris*, CR) and the Australian Humpback Dolphin (*Sousa sahulensis*, VU). Regionally important habitat for the Dwarf Minke Whale (*Balaenoptera acutorostrata*, LC) and an important breeding ground for Humpback Whale (Megaptera novaeangliae, LC). Longman's Beaked Whale (*Indopacetus pacificus*, DD), possibly the rarest whale in the world, has been recorded here. Most important remaining habitat for the Endangered Proserpine Rock Wallaby (*Petrogale persephone*) (World Heritage Committee, 2012; State Party of Australia, 1981; 2013a; IUCN, 1981; Lucas et al., 1997).

c) **Naming species:** Assessments should use both the vernacular and scientific names for species (as in the table above) Scientific names should be listed in italics.

d) **Identifying other important biodiversity values:** 'Other important biodiversity values' are typically identified for sites that are listed for geological and/or scenic and/or biodiversity values, but which also have other important biodiversity values that are important for the site These values may need to be identified and assessed based on other data sources. The IUCN Assessment Coordinator can support this process.

   Please note, the designation or nomination of a site (e.g. as a Ramsar site or a KBA) is not a 'biodiversity value' in and of itself; it is the biodiversity element (species or ecosystem) that triggers the identification of the site as important for biodiversity that needs to be identified (e.g. 'site contains threatened and geographically restricted mammals') as the attribute in the description field. Please also indicate in the description field how the identified values link or relate to a site's World Heritage status or Outstanding Universal Value. General information on a site's other official designations (e.g. as a Ramsar site, KBA, IBA, Biosphere Reserve etc) will automatically appear on the site assessment page on the IUCN World Heritage Outlook website, so this does not need to be specified by the Site Assessor.

e) **Identifying other important values**: 'Other important values' refer to values that are of overall significance for the site but not captured in the sections above, for example those related to geology or culture. Cultural values include values that different cultures, religions and different groups of people place on natural features of the site that have meaning and importance for them, in particular, those that underpin the World Heritage values listed above in the worksheet. It is important to note that assessors should not identify other important values (or the attributes that underpin these values) that led to inscription under cultural criteria (criteria (i)-(vi)). The cultural values identified through this section should be those that are significant in terms of the WH site's natural values.

   Also note that the benefits of the site, including ecosystem services can be documented through the 'Benefits' section of the conservation outlook assessment (see **Step 6: Understanding benefits** – Worksheet 6 for further details). The aim of identifying other important values, especially cultural values, is to provide a better understanding of the wide range of values that the site holds to people, how those values may be interdependent, leading to an integrated management approach.

f) **Wording of the World Heritage criteria**: Please note that the numbering of the natural criteria was changed in 2005 [Criterion (vii) was previously N(iii), Criterion (viii) was previously N(i), Criterion (ix) was previously N(ii); and Criterion (x) was previously N(iv)]. For sites that were inscribed prior to 1994 the World Heritage criteria at the time of inscription were differently worded to the present day criteria. Most of these changes have been addressed by revising the assignment of criteria, so can be largely ignored for the purposes of the assessment. However, a range of sites that were inscribed under criterion N(ii) [now criterion (ix)] were inscribed in relation to "*Man's interaction with his natural environment.*" Assessment Coordinators will alert Site Assessors to these sites on a case-by-case basis.

g) **Describing values and attributes:** Values should be described to a good degree of detail with all key attributes, which convey these values, listed. Where possible, these should be as quantitative as possible (Worksheet 1, 'Description' column), and should be referenced, e.g. (World Heritage Committee, 2011). Good analysis and description of values and attributes is crucial as it drives other steps of the assessment process, such as assessment of the current state and trend of these values conveyed by key attributes, assessment of threats to these attributes, and the consequent effectiveness of site protection and management.

Step 2: Assessing threats - Worksheets 2(a) and 2(b)

STEP SUMMARY

The second step consists of identifying and assessing current and potential threats to a site. In the online assessment module, this section is presented as one worksheet; in the Word document, the step is split into two parts - Worksheets 2(a) and 2(b). The summary below provides instructions for the two-step process; in the online assessment module, the two steps are combined and can be completed in one go.

1. **Checklist of threats** (Worksheet 2(a)) – Both current and potential threats are identified using a single checklist format to help ensure that assessments are comparable across sites. This checklist is based on the IUCN-CMP threat taxonomy, including proposed updates to the taxonomy in 2024[10] (not published yet)- see table 2.1 below for a checklist of threats, including guidance on how to interpret each threat. If present, threats are described in column 3. Please note that threats should be very briefly described, e.g. 'wastewater disposal from recreational boats at and around the property' (the identified threats are then copied into column 1 of Worksheet 2(b) and described in detail). Threats are identified as being within or outside the site in columns 4 and 5. If a threat is located within a site, please indicate its extent[11] in column 5 (throughout [>50%]/widespread [15-50%]/scattered [5-15%]/localised [<5%]). The extent categories are adapted from the Rapid Assessment and Prioritization of Protected Area Management (RAPPAM) methodology. If the extent of the threat is not known, please indicate 'not known'. If not applicable, please indicate 'Not applicable'. For all the 'Biological resource use' subcategories, please indicate whether the resource use is legal or illegal (or unknown) and if known, which species are targeted.
2. **Assessing threats** (Worksheet 2(b)) – The assessment focuses on direct threats rather than underlying drivers, and threats are split by whether they are current or potential (see glossary). The threats identified in Worksheet 2(a) are listed in column 1 and are then cross-referenced to the values they (indirectly) impact in column 2 (using the references Vx1, V1, V2 etc). As threats do not directly affect the values but rather the attributes which convey these values, a more detailed reference to the key attributes affected by the threats mentioned in 2(a) is required in the justification column, presented in column 3 and referenced, e.g. a State of Conservation Report (UNESCO, 2009). The threats are then assessed against five assessment ratings - **Very Low Threat, Low Threat, High Threat, Very High Threat,** and **Data Deficient** - in columns 4-8 (these ratings are defined in Table 2.0 below).

[10] https://www.iucnredlist.org/resources/threat-classification-scheme

[11] Extent is the expanse across which the impact of the activity occurs. The extent of an activity should be assessed as a percentage of the site. 'Throughout' means that an activity occurs in 50 per cent or more of the site, 'widespread' means occurrence in between 15 and 50 per cent, 'scattered' occurs in between 5 and 15 per cent, and 'localized' in less than 5 per cent of the site. Adapted from: Ervin, J. 2003. WWF: Rapid Assessment and Prioritization of Protected Area Management (RAPPAM) Methodology WWF Gland, Switzerland.

THREAT RATINGS

Table 2.0: Threat ratings

Rating	Criteria
Very Low Threat	Few or no threats are evident and accepted predictions indicate that negative impacts on the key attributes and therefore the site's values and integrity, are likely to be minor.
Low Threat	Some minor threats are evident and there is concern that based on accepted predictions there are likely to be some localised but reversible negative impacts on the key attributes and therefore the site's values and integrity.
High Threat	There are clear threats to the site, and current and/or predicted future impacts are likely to result in significant negative effects on the key attributes, and therefore the site's values and integrity.
Very High Threat	The threats to the site are very high, and current and/or predicted future impacts are likely to result in the irreversible loss of the majority of the key attributes and therefore the site's values and its integrity.
Data Deficient	Available evidence is insufficient to draw a conclusion.

ASESSEMENT GUIDELINES

a) **Filling in Worksheet 2 (Threats):** As outlined above, the steps for this worksheet are different between the online assessment module and the Word document. In the online assessment module, threats are entered one by one by clicking the 'Add more' button in the worksheet. Current threats are identified and assessed first, followed by potential threats, and then finally the overall assessments of threats is provided in the 'Overall assessment of threats' boxes. In the Word document, threats are first identified in Worksheet 2(a), and then assessed in Worksheet 2(b), before being summarised in the last three rows of Worksheet 2(b).

b) **Information sources**: Threats are identified and assessed on the basis of IUCN/UNESCO state of conservation reports, reactive monitoring mission reports, periodic reporting questionnaires (section 2), IUCN evaluation reports, management plans, management effectiveness assessments, consultation feedback, and other data sources as appropriate (see Annex 1 for an annotated list of information sources).

c) **Writing the 'justification of assessment':** Where relevant, the 'justification of assessment' should include detailed figures on the effects of the threats on attributes, e.g. poaching data, area affected by encroachment, number of artisanal mines etc, linked to references, e.g. a State of Conservation report (UNESCO, 2011). The justification of assessment also needs to consider:

- → The **risk** posed by a threat (its likelihood x consequence on the site's attributes). **Risk** is defined as the likelihood of a threat (rare, unlikely, possible, likely or almost certain) combined with its effect (insignificant, minor, moderate, major or catastrophic) on attributes and the impact on World Heritage and/or other important biodiversity values/other important values (see the risk matrix in **Error! Reference source not found.**).
- → The **extent** of the threat inside the site, defined as the range across which the impact of the threat occurs. Threats can be localised, scattered, widespread or occur throughout a site. It should be noted, however, that even if a threat is occurring in a small area of the property and/or during a short timeframe, it should still be considered significant if it threatens the site's World Heritage and/or other important biodiversity values/other important values.
- → Any **cumulative and multiplying effects** of the threat on attributes and therefore the site's values, in addition to direct and indirect/secondary effects, should also be evaluated. Cumulative effects result from the impact of an action when added to other past, present and reasonably foreseeable future actions; and
- → the **trend** (whether the threat has been decreasing, static or increasing over the past 5 years).

d) **Current vs. potential threats –** Definition of current and potential threats is provided in the glossary. Potential threats need to be evidence-based, rather than speculative, and referenced. Some threats can be both current and potential (e.g. climate change), in these cases the threat could be added in both tables; however, their description and justification of assessment will be different.

e) **Assessing the overall state of threats:** The assessment summaries for current and potential threats, as well as for the overall state of threats, should focus on World Heritage values, associated attributes and note threats to other important biodiversity values/other important values. These summaries should include a brief description of the most significant threats, and their likely direct, secondary and cumulative impacts on the site's attributes and overall values.

Figure 3: Risk matrix

LIKELIHOOD						
Rare	Unlikely	Possible	Likely	Almost certain		
Very Low	High	VeryHigh	Very High	Very High	Catastrophic	NEGATIVE IMPACT
Very Low	High	High	VeryHigh	Very High	Major	
Very Low	Low risk	High	High	VeryHigh	Moderate	
Very Low	Low risk	Low risk	High	High	Minor	
Very Low	Very Low	Low risk	Low risk	High	Insignificant	

Table 2.1: Checklist of threats- see threat classification table below, including definitions and notes to guide application of the threat classification in conservation outlook assessments

Threat categories	Threat sub-categories	Definition (and *examples)*	Notes
1. Residential, Commercial & Recreation Areas * There is potential overlap between the threats in these sub-categories. For example, should a tourist hotel complex in a city be part of 1.1 'Residential Areas' or 1.3 'Recreation & Tourism Areas'? In general, most activities inside a defined municipal area should be in residential areas whereas Commercial & Industrial and Recreation & Tourism areas are more for stand-alone developments in otherwise natural spaces.	1.1 Residential Areas	Cities, towns, and settlements including *urban areas, suburbs, villages, rural housing, vacation homes, shopping areas, offices, schools, hospitals, houses of worship, as well as* non-housing development typically integrated with housing.	This sub-category dovetails somewhat arbitrarily with 1.2 *Commercial / Industrial Areas.* As a general rule, however, if people live in or directly around the development footprint of the area in question, it should fall into this sub-category. Tourism facilities within a municipal area should generally go here and not in 1.3 *Recreation &Tourism Areas*.
	1.2 Commercial & Industrial Areas	Factories and other commercial centres, including *stand-alone office parks, stand-alone shopping centers, manufacturing plants, military bases, coal or nuclear power plants, sewage treatment plants, landfills, train yards, ports, airports, birds colliding with buildings, land reclamation for industrial development*.	Ports and airports fall into this sub-category, whereas shipping lanes and flight paths fall under 4. *Transportation, Service & Security Corridors.* Hydropower dams are NOT included here but are in 7.2 *Dams &Water Management/Use.*
	1.3 Recreation & Tourism Areas	Tourism and recreation sites with a substantial spatial footprint that are not fully integrated into municipal areas, including *visitor facilities in parks, campgrounds, sports fields, ski areas, golf courses, beach resorts facilities, fishing piers, marinas, cultural tourist attractions, pilgrimage facilities, cemeteries*.	This sub-category focuses on the spatial footprint of recreation areas and facilities while *6.1 Recreational Activities (see further below) focuses* on the disturbance effects posed by recreational activities. There is a fine line between residential areas and tourism/resort areas; per discussion above, if the tourism area is within municipal boundaries, it probably belongs in *Residential Areas*. Trails and other linear tourism features belong in 4.1 *Roads, Trails & Railroads*.
2. Agriculture & Aquaculture * This focusses on the footprint and operations of these activities.	2.1 Annual & Perennial Non-Timber Crops	Crops planted for food, fodder, fibre, fuel, or other uses, including *farms, household swidden plots, oil palm plantations, orchards, vineyards, mixed agroforestry systems, biofuel crops, haying practices that disturb nesting birds.*	Crops grown in on-farm greenhouses belong here; those grown in urban greenhouses, vertical farm facilities, or in indoor 'factories' (e.g. marijuana) should be included in *1.2 Commercial & Industrial Areas*.

Threat categories	**Threat sub-categories**	**Definition (and *examples)***	**Notes**
Agricultural pollution threats (e.g. drift of herbicides or run-off of fertilizers) rather than the direct conversion of land to agricultural use, should be included in the appropriate sub-category under *9. Pollution*.	2.2 Wood & Pulp Plantations	Stands of trees planted for timber or fibre outside of natural forests, often with non-native species, including *teak or eucalyptus plantations, pulp or fibre plantations, firewood lots, Christmas tree farms.*	If it is one or a couple timber species that are planted on a rotation cycle, it belongs here. If it is multiple species or enrichment plantings in a quasi-natural system, it belongs in *5.3 Logging, Harvesting & Controlling Trees.*
	2.3 Terrestrial Animal Farming, Ranching & Herding	Domestic terrestrial animals raised in one location on farmed or non-local resources (farming); also domestic or semi-domesticated animals allowed to roam in semi-natural areas (ranching) or the wild and supported by natural habitats (herding), including cattle feed lots, dairy farms, cattle ranching, chicken farms, sheep, goat, camel, or yak herding, game farms, bee keeping.	In farming, animals are kept in tight captivity; in ranching they are allowed to roam in larger more natural areas, and in herding they are using wild habitats. If a few animals are mixed in a subsistence cropping system, it belongs in 2.1 *Annual & Perennial Non-Timber Crops.* Foraging of for wild resources for stall-fed animals falls under *5.2 Gathering, Collecting & Controlling Terrestrial Plants & Fungi.* Growing crops for animal consumption falls under 2.1 *Annual & Perennial Non-Timber Crops.* Producing meat from animal cells in factories belongs in 1.2 *Commercial & Industrial Areas.*
	2.4 Marine & Freshwater Aquaculture	Aquatic species raised for harvest in artificial water bodies ('farming'), enclosures in natural waters ('ranching'), or unenclosed natural waters ('herding'), including *fish ponds on farms, shrimp production in artificial ponds, salmon production in pens in natural water, hatchery salmon, seeded shellfish beds, artificial algal beds.*	It may seem strange to talk about 'farming, ranching, and herding" in an aquatic environment, but from a conservationist's point of view, the effects of each are generally analogous to their terrestrial counterparts. For convenience, we are including raising of aquatic plants, algae, and other non-animal species in this category. Note that producing aquatic organisms for commercial or recreational fishing belongs here and not in Fishing, Harvesting & Controlling Aquatic Species. Producing them for conservation or restoration purposes belongs in Biological System Management. Problems caused by escaped invasive or problematic animals, interbreeding with native species, disease transmission, and pollution from aquaculture should be coded in the appropriate categories in Additional Sources of Stress.
3. Energy Production & Mining * This order contains activities that are generally more widely dispersed than industrial sites in 1.2. While they technically 'produce' energy, power	3.1 Oil & Gas exploration/development	Exploring for and extracting petroleum and other liquid hydrocarbons, including oil wells, hydraulic fracturing, deep sea natural gas drilling.	Oil refineries, LPG gas ports, and other activities with a compact footprint belong in 1.2 Commercial & Industrial Areas. Oil and gas pipelines go into *Utility & Service Lines.* Oil spills that occur at the drill site should be placed here; those that come from oil tankers or pipelines should go in 9.1 *Water-Borne & Other Effluent Pollution.*
	3.2 Mining & Quarrying	Exploring for, developing and producing minerals and rocks, including *coal mines, alluvial gold panning, gold mines, rock*	It is a judgement call whether deforestation caused by strip mining should be in this category or in 5.3 Logging, Harvesting & Controlling Trees - it depends on whether the primary motivation for the deforestation is access to the trees or to the minerals. Sediment or toxic chemical runoff from mining should be

Threat categories	Threat sub-categories	Definition (and *examples)*	Notes
plants and oil refineries are compact industrial sites that belong in *Commercial & Industrial Areas.* Various forms of water use (for example, dams for hydro power) could conceivably be put in this order but seem more related to other threats that involve alterations to hydrologic regimes. As a result, they should go in 7.2 *Dams & Water Management / Use.*		*quarries, sand or salt mining, coral mining, deep sea nodules, guano harvesting.* *This includes both artisanal and large-scale mining operations.*	placed in 9.1 Water-Borne & Other Effluent Pollution if it is the major threat from a mining operation.
	3.3 Renewable Energy	Exploring, developing and producing renewable energy, including *geothermal power production, solar farms, wind farms (including birds or bats flying into windmills), tidal farms.*	Arguably renewable energy production with a compact footprint (e.g. solar concentrators) could be put in 1.2 Commercial & Industrial Areas but we propose they belong here to keep it with other forms of renewable energy. Hydropower should be put in 7.2 Dams & Water Management / Use. Growing biofuels should be in 2.1 Annual or Perennial Non-Timber Crops or 2.2. Wood & Pulp Plantations. Wood pellet production from natural forests should be in 5.3 Logging, Harvesting & Controlling Trees.
4. Transportation, Service & Security Corridors * This threat category generally includes transportation corridors outside of human settlements and industrial developments. These corridors create specific stresses to biodiversity including especially loss and fragmentation of habitats and direct killing of wildlife and lead to other threats including the spread of farms, invasive species, and poachers (but note that we are not saying those knock-on	4.1 Roads, Trails & Railroads	Transport on roadways and dedicated tracks, including highways, secondary roads, logging roads, hiking or biking trails, bridges & causeways, vehicle collisions with wildlife, public transport systems, railroads.	If the main threat is pollution from roads, it belongs in the appropriate sub-category in 9. *Pollution*. Off-road vehicles are treated in the appropriate sub-category in 6. *Human Intrusions & Disturbance.* If there are small roads associated with a major utility line, they belong in 4.2 *Utility & Service Lines.* Technically, a compact trail network on a site could go in 1.3 *Recreation & Tourism Areas* and hiking or biking off of a trail belongs in *6.1 Recreational Activities*. That said, the vast majority of linear trails should now go here to the extent that they are considered a threat, although the disturbance effects of trail users still goes in *6.1 Recreational Activities.*
	4.2 Utility & Service Lines	Transport of energy & resources including *electrical & phone wires, aqueducts, oil & gas pipelines, electrocution of wildlife on powerlines.*	Cell phone and other communication towers belong here. If there are small utility lines using a road right of way, they belong in *4.1 Roads, Trails & Railroads.* Oil spills from pipelines should go in 9.1 *Water-Borne & Other Effluent Pollution.* Herbicides flowing or drifting from right of way treatment belongs in the appropriate sub-category under 9. *Pollution*.
	4.3 Shipping Lanes	Transport on and in freshwater and ocean waterways, including *maintenance of shipping channels, canals, shipping lanes, ships running into whales, wakes from cargo ships.*	This sub-category includes all larger ships moving on water (i.e. both inside and outside of designated 'lanes.' This sub-category includes dredging and other activities that maintain shipping lanes. Dredging for other purposes belongs in 7.3 Earth & Sediment Management. Anchor damage from dive boats belongs in *6.1 Recreational Activities*.

Threat categories	Threat sub-categories	Definition (and *examples)*	Notes
threats should be coded here). Permeability refers to the degree to which the feature creates a barrier to movement and thus fragments the ecosystem and/or species populations of interest.	4.4 Atmospheric & Space Activities	Air and space transport and other activities, including *flight paths, jets impacting birds, commercial or military drones, tethered balloons.*	Airports fall into *1.2 Commercial & Industrial Areas.*
	4.5 Fences & Walls	Barriers to movement, including *border walls, fences around farm fields, fences along roads, protected area fencing, disease control fencing.*	Small-scale fencing can be incorporated as part of houses or other feature, but larger-scale perimeter fencing around factories or farms or linear fencing along roads now should go here because those landscape features could be managed with or without fencing. Even fencing that is designed to protect some wildlife (e.g. around a game park) may pose a threat to other species, which should be discussed in the 'Specific threat affecting site' section of the worksheet.
5. Biological Resource Use * Consumptive use means that the resource is removed from the system or destroyed; multiple people cannot use the same resource as they could under 6. *Human Intrusions & Disturbance*. Threats in this class can affect both targeted species (harvest of desired trees or fish species) as well as "collateral damage" to non-target	5.1 Hunting, Collecting & Controlling Terrestrial Animals	Hunting or trapping terrestrial wild animals for commercial, recreation, subsistence, research or cultural purposes, or killing them for persecution or control reasons; includes non-lethal harvesting of animal products and accidental mortality/bycatch, including *subsistence hunting, commercial wild meat hunting, trophy hunting, fur trapping, insect collecting, pet trade, honey or egg collection, persecution of snakes, pest control, culling of deer, killing of crop-raiding animals.*	This sub-category focuses on animals that primarily live in a terrestrial environment. There are obviously some species that live on the terrestrial/aquatic boundary. Hunting otters, beavers, amphibians, polar bears, penguins, waterfowl, and sea birds should (somewhat arbitrarily) go here. Hunting seals, whales and other marine mammals, and freshwater and marine turtles go in 5.4 *Fishing, Harvesting & Controlling Aquatic Resources.* Yes, most people "gather" honey, eggs, insects or other slow-moving targets, rather than "hunt" them. But it seems cleaner to keep all animal products as being hunted. Persecution of animals also belongs here, as does killing of animals to manage their population numbers, impacts on the ecosystem or other species, or their impacts on crops, livestock, or human populations (i.e. because of human-wildlife conflict). Assessors will have the opportunity to include *'Species targeted (if known)'* *Assessors will also have the opportunity to indicate whether the resource use is 'legal/illegal/unknown'*

Threat categories	Threat sub-categories	Definition (and *examples)*	Notes
species (trees damaged by felling or fisheries bycatch) and habitats or they can intentionally or unintentionally affect secondary 'bycatch' species (nesting birds killed by logging, turtles caught in shrimp nets) and ecosystems (coral reefs destroyed by trawling). Persecution/control	5.2 Gathering, Harvesting & Controlling Terrestrial Plants & Fungi	Harvesting plants, fungi, and other non-timber/non-animal products for commercial, recreation, subsistence, research or cultural purposes, or persecution or control reasons; includes non-lethal product harvesting and accidental mortality/bycatch, including *wild fruit, wild mushrooms, forage for stall fed animals, orchids, rattan, lichen, rubber or maple syrup tapping, control of host plants to combat timber diseases.*	This sub-category focuses on plants, fungi, and all other non-animal terrestrial species (e.g. chromists) except timber trees which are treated in *Logging / Wood Harvesting*. Includes lethal as well as non-lethal collection methods such as sap tapping. Also includes control of plant and other species to manage their impacts on the ecosystem, other species, or agricultural or forestry operations. Assessors will have the opportunity to include *'Species targeted (if known)'* *Assessors will also have the opportunity to indicate whether the resource use is 'legal/illegal/unknown'*
involves harming or killing species because they are considered undesirable. Although one could argue that they belong in *7.5 Biological System Management*, given that it is difficult to distinguish between killing elephants that are raiding crops or hunting seals for predator control purposes from	5.3 Logging, Harvesting & Controlling Trees	Harvesting trees and other woody vegetation for timber, fiber, or fuel, including site preparation and other forestry management practices; includes non-lethal coppicing and accidental mortality/bycatch, including *clear cutting of hardwoods, selective commercial logging of ironwood, pulp operations, fuel wood collection, charcoal production, coppicing, tree thinning.*	Felling trees to clear agricultural land goes in the appropriate sub-category in *2. Agriculture & Aquaculture.* If it is a few timber species that are planted on a rotation cycle, it belongs in *2.2 Wood & Pulp Plantations.* If it is multiple species or enrichment plantings in a quasi-natural system, it belongs here. Also includes logging to manage or control forests, unless it it is primarily for fire management which belongs in *7.1 Fire & Fire Management.* Assessors can include *'Species targeted (if known)'* Assessors can indicate whether the resource use *is 'legal/illegal/unknown'*
hunting of these species, we are proposing to put all killing or taking of animal species in *5.4 Fishing, Harvesting & Controlling Aquatic Species*. Likewise, thinning of trees should generally be considered as silvicultural treatments in 5.3 Logging, Harvesting & Controlling Trees.	5.4 Fishing, Harvesting & Controlling Aquatic Species	Harvesting aquatic wild animals or plants for commercial, recreation, subsistence, research or cultural purposes, or persecution or control reasons; accidental mortality/bycatch, including through *trawling, blast fishing, spear fishing, shellfish harvesting, whaling, seal hunting, turtle egg collection, live coral collection, seaweed collection, persecution of sharks, control of seals.*	This sub-category focuses on all kinds of species that are primarily found in an aquatic environment. There are obviously some species that live on the terrestrial/aquatic boundary. Hunting otters, beavers, amphibians, polar bears, penguins, waterfowl, and sea birds should (somewhat arbitrarily) go in 5.1 *Hunting & Collecting Terrestrial Animals.* Hunting seals, whales and other marine mammals, and freshwater and marine turtles go here. Assessors can include *'Species targeted (if known)'* Assessors can indicate whether the resource use is *'legal/illegal/unknown'*

Threat categories	Threat sub-categories	Definition (and *examples)*	Notes
6. Human Intrusions & Disturbance * This threat categories focusses on non-consumptive use, meaning that the resource is not removed - multiple people can use the same resource (for example, birdwatching). These threats typically do not permanently destroy habitat ecosystems except perhaps in extremely severe manifestations. Pollution from these activities would be categorised under 9. Pollution	6.1 Recreational Activities	Direct impacts of people spending time in the WH site or traveling in vehicles outside of established transport corridors, usually for recreational reasons, including *hikers, mountain bikes, horseback riding, off-road vehicles, motorboats, jet-skis, snowmobiles, ultralight planes, temporary campsites, caving, rock-climbing, dive boats, whale watching boats, birdwatchers, pets in recreational areas*.	This sub-category does not include the direct or indirect effects of consumptive use of biodiversity - for example hunting and logging or disturbance impacts from loggers or hunters would be in the appropriate sub-category in 5. *Biological Resource Use & Control.* Non recreational vehicles, boats, and other human movement in established transport corridors go in *4. Transportation, Service & Security Corridors,* except the presence of trail users both on and off trails belongs here. The development of permanent recreational or tourist facilities (such as hotels and resorts) should be included under *1.3 Tourism % Recreation Areas* rather than here.
	6.2 Conflict, Civil Unrest & Security Activities	Actions in natural areas by formal or paramilitary forces without a permanent footprint, including *armed conflict, riots, military training exercises, border patrols, peace keeping activities, guerilla camps, abandoned land mines, defoliation, munitions testing.*	This sub-category focuses on military or security activities that have a large impact on natural habitats but are not permanently restricted to a single area. Permanent military bases should go under *1.2 Commercial & Industrial Areas.* Other military activities might best be assigned to other categories. For example, hunting of specific animals by soldiers living off the land fits under *5.1 Hunting, Collecting & Controlling Terrestrial Animals*. Permanent security fences fit under *4.5 Fencing & Walls.*
	6.3 Other Human Disturbances	People spending time in or traveling in natural environments for reasons other than recreation or conflict/security activities, including *drug smuggling or human migration through natural areas, livestock rustling, household water collection, bathing in rivers, festivals, pilgrimages, species research, archaeological research, vandalism*.	This sub-category is used when human presence is the main stress of the activity. It is not used if the human presence is part of a different threat like hunting or logging.
7. Natural System Modifications * This order deals primarily with human caused changes to natural ecosystem processes such	7.1 Fire & Fire Management	Management actions that either suppress or increase fire frequency and/or intensity, including *fire suppression to protect homes, inappropriate fire management, building of fire breaks, escaped agricultural fires, arson, campfires, fires for hunting.*	This sub-category focuses on the human activities that lead to either not enough fire or too much fire in the ecosystem in question. If fire escapes from established agricultural lands, it belongs here, if fire is used to clear new agricultural lands, it belongs in the appropriate sub-category in 2. *Agriculture & Aquaculture*. It also includes damaging "natural" fires in systems that have lost their natural resilience. While suppression of traditional or cultural fire practices could be placed in 7.6 Removing/ Reducing Human Management, we suggest keeping it here to have all the fire threats in one sub-category.

Threat categories	Threat sub-categories	Definition (and *examples)*	Notes
as fire, hydrology, and sedimentation, rather than land use. Thus it does not include threats relating to infrastructure (*1. Residential & Commercial Development* and *4. Transportation & Service Corridors*) or agriculture (which should be under 2. Agriculture & Aquaculture). It also includes the removal of management actions on which ecosystems and species now depend.			Likewise, thinning or otherwise altering forests primarily for fire management reasons also belongs here.
	7.2 Dams & Water Management /Use	Management actions that modify water levels, flows, and chemistry, including *dam construction, dam operations, levees and dikes, channelization, removal of natural beaver dams, encouraging beaver dams, wetland draining for mosquito control, water catchment areas, snow fences, dew harvesting, surface water withdrawals, groundwater pumping, increased humidity from human water use, water desalination, artificial lakes, birds drowning in artificial reservoirs, water treatment plants, adding lime to acid lakes.*	This sub-category focuses on the human activities that alter or fragment aquatic habitats, alter water flows and chemistry, and/or lead to either not enough water or too much water in the ecosystem in question. Hydropower dams could have also been in 3.3 *Renewable Energy* but are placed here to keep all dams together. Dredging and channelization for shipping belongs in 4.3 *Shipping Lanes;* other dredging activities belong in *7.3 Earth & Sediment Management.*
	7.3 Earth & Sediment Management	Management actions that modify the geophysical environment and/or change sediment regimes. This includes, dune stabilisation, sediment fencing, shoreline armoring, beach groins, soil pollution remediation, mine reclamation, land reclamation, dredging (except for shipping lanes).	Excess sediment itself belongs in the appropriate category in 9. Pollution. It's a bit arbitrary whether shoreline modifications belong here or in 7.2 Dams & Water Management / Use. As a general rule, if the modifications are aimed at controlling the water, they belong in 7.2 whereas if they are controlling the sediment or land, they belong here. Although sediment is carried by both wind and water, all sediment management is put here. But excess sediment caused by any of the human activities in Categories A and B (e.g. 2. Agriculture & Aquaculture, 3.2 Mining & Quarrying, 4.1 Roads, Trails & Railroads, or 5.3 Logging, Collecting & Controlling Trees) should be attributed to those categories and reduced sediment caused by dams should be attributed to 7.2 Dams & Water Management / Use.
	7.4 Weather & Climate Management	Management actions that modify atmospheric structure and processes. This includes, cloud seeding, frost prevention, iron 'fertilization' in the ocean, releasing reflective particles in the atmosphere, Lagrange point shades, carbon capture (except for infrastructure).	This is a rapidly expanding category that will likely encompass many new actions as we seek to mitigate and adapt to climate change. Carbon capture plants with a limited footprint probably belong in 1.2 Commercial & Industrial Areas along with other factories and power plants.

Threat categories	Threat sub-categories	Definition (and *examples)*	Notes
	7.5 Biological System Management	Management actions that modify biotic systems including conservation actions that may have detrimental impacts on other non-targeted species or ecosystems. This includes, mowing grass, using cattle to mimic natural grazing process, removal of snags from streams, gating caves, artificial reef creation, assisted migration, bird feeders, electric barriers to stop invasive fish passage.	This category has potentially tricky overlaps with several other categories. Given that it is difficult to distinguish between killing elephants that are raiding crops or hunting seals for predator control purposes from hunting of these species, we are proposing to put all killing or taking of animal species in 5.1 Hunting, Collecting & Controlling Terrestrial Animals or 5.4. Fishing, Harvesting & Controlling Aquatic Species. Likewise, thinning of trees should generally be considered as silvicultural treatments in 5.3 Logging, Harvesting & Controlling Trees or in 7.1 Fire & Fire Management depending on the purpose of the action. Finally, we propose putting stocking fish & game species in either 8.1 Invasive Non-Native / Alien Species or 8.2 Problematic Native Species. Note that this can take place at different scales - for example, fixing cracks in houses could eliminate key gecko habitat.
	7.6 Removing / Reducing Human Management	Absence or reduction of current or historical management regimes important for maintaining desired key ecological attributes of ecosystems or species. Includes regimes historically maintained by protected area staff, farmers and ranchers, indigenous peoples, private landowners, or any other resource manager. This includes lack of mowing of meadows, cessation of grazing, removal of livestock and hence loss of dung, stopping predator control, reduction or loss of Indigenous management of key ecosystems, ceasing supplemental feeding of condors.	Although there is a great deal of debate about the role and appropriateness of human actions in shaping 'natural' systems, it is clear that many ecosystems and species depend on human maintenance to mimic natural conditions and maintain key attributes. This threat captures the loss of these direct maintenance regimes. Caution should be used in applying this category – it is not meant as a catch-all for a lack of conservation action at a site, but rather refers to instances where a historical management action has been reduced or eliminated due to, for example, funding, institutional constraints, or Indigenous actors being disempowered. This category does not include indirect maintenance actions, such as lack of outreach or lack of adequate policy. As noted above, suppression of traditional fire practices should be coded in 7.1 Fire & Fire Management and suppression of traditional water management practices should be coded in 7.2 Dams & Water Management / Use.
8. Invasive / Other Problematic Species, Genes & Pathogens * The use of "invasive species" refers to non-native species to keep things simple for policy makers. "Problematic	8.1 Invasive Non-Native/ Alien Species	Harmful plants, animals and other species not originally found within the ecosystem(s) in question and directly or indirectly introduced and spread into it by human activities, including, *rats on islands, feral horses, nonferal household pets, feral household pets, zebra mussels, bamboo, introduction of species for biocontrol, stocking exotic fish, ballast water discharge*.	Non-native/alien species are defined as those spread either intentionally, accidentally, or facilitated by humans. Some species may only be identifiable to a higher order taxonomic group. In light of climate change driven shifts of ecosystems and species, it may require a judgement call to determine when a species is "invading" an ecosystem versus merely "naturally migrating." Assessors can include *'Species (if known)'*

Threat categories	Threat sub-categories	Definition (and *examples)*	Notes
native species" refers to native species that have become superabundant or otherwise cause problems due to human alterations of the ecosystem. Invasive and problematic native species directly affect ecosystems whereas pathogens directly affect individual species.	8.2 Problematic Native Species	Harmful plants and animals that are originally found within the ecosystem(s) in question but have become "out-of-balance" or "released" directly or indirectly due to human activities, including *overabundant native deer, overabundant algae due to loss of native grazing fish (algal blooms), insect outbreak*.	This sub-category also excludes pathogens. It may be a judgement call as to when a species becomes "problematic" (aka outside its natural range of variation), especially in the face of climate driven shifts. In many cases, the root cause of the problematic species may be other threats (e.g. hunting that removes predators that then causes their prey species to become hyper abundant). In these cases, it is also a judgement call as to whether the threat should be the hunting or the problematic species. Assessors can include *'Species (if known)'*
	8.3 Introduced Genetic Material	Human caused introduction of natural or synthetic genes into species in natural ecosystems, including *pesticide resistant crops, hatchery salmon, domestic cats breeding with wild cats, restoration projects using non-local seed stock, genetically modified insects for biocontrol, genetically modified trees, genetically modified salmon or shellfish.*	As a general rule, introduction of entire organisms (obviously including their genetic material) belongs in *8.1 and 8,2*. However, if the primary issue is hybridization with native species (e.g. hatchery salmon), then species introduction belongs in this sub-category. This sub-category will likely dramatically expand with the advent of new genetic technology.
	8.4 Pathogens	Harmful native and non-native agents that cause disease or illness to a host species, including bacteria, viruses, prions, fungi, and other microorganisms, including *plague affecting rodents, chronic wasting disease affecting cervids, Dutch elm disease or chestnut blight, Chytrid fungus affecting amphibians, sea star wasting disease.*	Pathogens which impact individual organisms are distinguished from invasive or problematic species which impact ecosystems. Pathogens that cause disease levels that are within the "natural or acceptable range of variation" for a species population or ecosystem are not a threat. In cases in which invasive or problematic native species serve as vectors for pathogen transmission, users probably will want to focus on the organisms that can be managed as the direct threat. Assessors can include *'Diseases/pathogens (if known)'*
9. Pollution * This class order deals with exotic or excess materials introduced to the environment. There is obviously a fine distinction	9.1 Water-borne & other effluent Pollution	Water-borne sewage and other liquid pollutants stemming from various human activities; includes both the effects of these pollutants on the sites where they are generated/applied and where they end up in the environment. This includes nutrients, toxic chemicals and/or sediments including *discharge from municipal waste treatment*	This sub-category includes sewage and industrial waste as well as the application of toxic chemicals (e.g. insecticides and herbicides) in farming and forestry operations. However, if these chemicals are drifting in the air, they should be coded as part of *9.3 Air-Borne Pollutants*. Although acid rain is technically liquid borne, it should be coded as part of *9.3 Air-Borne Pollutants*.

Threat categories	**Threat sub-categories**	**Definition (and *examples)***	**Notes**
when the pollution comes from another threat - for example, should an oil spill from a pipeline be classified as 4.2 *Utility & Service Lines* or 9.1 *Water-Borne & Other Effluent Pollution*? Assessors will have to exercise some judgement as to which represents the direct threat in your situation. In some cases, the source of the pollution may be either unknown or from a historical source (e.g., heavy metals buried in sediments). In these cases, you may have to make an educated guess as to which category to assign the pollutant.		*plants, leaking septic systems, untreated sewage, outhouses, fertilizers and pesticides from lawns and golf-courses, toxic chemicals from factories, illegal dumping of chemicals, nutrient loading from fertilizer run-off, herbicide run-off, manure from feedlots, excess nutrients from aquaculture, oil spills from pipelines, leaching from mine tailings, arsenic from gold mining, leakage from fuel tanks, oil or sediment from roads, road salt, erosion from logging operations, PCBs in dredged river sediments*.	
	9.2 Garbage & Solid Waste	Rubbish and other solid materials including those that entangle wildlife or cause harm to the site's values, including *municipal waste, manure from livestock operations, mining tailings, litter from cars, flotsam & jetsam from boats, ghost fishing gear, waste that entangles wildlife, construction debris, lead from hunting.*	This sub-category generally is for solid waste outside of designated landfills - landfills themselves should go in *1.2 Commercial & Industrial Areas.* Likewise, toxins leaching from solid waste - for example, mercury leaking out of a landfill into groundwater - should go in 9.1 *Water-Borne & Other Effluent Pollution.*
	9.3 Air-Borne Pollutants	Atmospheric pollutants from point and nonpoint sources, including *acid rain from industry, wind dispersion of pollutants or particulates from farm fields, dust from roads, methane flairs, smog from vehicle emissions, smoke from forest fires, radioactive fallout.*	
	9.4 Energy Emissions	Inputs of heat, sound, light, or other wave energy that disturb wildlife species or ecosystems including *beach lights disorienting turtles, heated water from power plants, seismic oil exploration, noise from highways or airplanes, electromagnetic fields from cables, sonar from submarines that disturbs whales, recreational boating wakes.*	

Threat categories	Threat sub-categories	Definition (and *examples)*	Notes
10. Natural Disasters *Given the nature of geological events, it is likely that these threats will relate to a specific event. It is also likely that these threats will be listed as 'potential threats' (eg. If the site is located on a fault line). In many instances, in particular inscribed under criterion (viii), geological events (such as volcanic eruptions) can represent a value and a threat simultaneously, depending on the OUV of the site.	10.1 Geological Events	Specific geological events that have potentially catastrophic effects on vulnerable species, ecosystems, or values. These include volcanic eruptions, earthquakes, tsunamis, avalanches, landslides.	This sub-category encompasses all of the previous Level 10. Geological Events.
	10.2 Severe Weather Events	Specific weather events that have potentially catastrophic effects on vulnerable species, ecosystems, or values. These include rain/windstorms, hurricanes/cyclones/typhoons, hailstorms, blizzards, dust storms, floods.	There is some potential overlap between a specific storm event that would go here and changes to storm regimes which would go in 11.3 Changes in Precipitation & Hydrological Regimes. But even a 'normal' hurricane or drought can wipe out a small remnant species population. Some floods might be linked to geological events, but we propose to put all floods here.
11. Climate Change & Severe Weather *Note that the threat sub-categories have been modified substantially for climate change and severe weather. The amendments to the sub-categories focus on changes in systems underpinning natural processes including geochemical/temperature /hydrological, and therefore necessitate further discussion in the	11.1 Changes in Physical & Chemical Regimes	Broad-scale changes in abiotic conditions of ecosystems within the site, including *ocean acidification, changes in atmospheric CO2 affecting plant growth, loss of sediment, changes in ocean currents, changes in jet stream, changes in cloud cover*.	Primarily includes changes to the geophysical environment including in particular, water and air. Although sea-level rise could potentially be placed here, we have included it under 11.3 Changes in Precipitation & Hydrological Regimes.
	11.2 Changes in Temperature Regimes	Broad-scale changes in temperature mean, variability, seasonality and extremes, including changes in temperature extremes, increased average summer temperature, and decreased minimum winter/spring temperature including *heat waves, cold spells, freeze/thaw cycles, oceanic temperature changes, marine heat blobs, loss of snowpack or glaciers, melting of sea ice*.	Loss of snowpack and glaciers is often a combination of change in temperature and precipitation regimes, but is assigned here, especially when the issue is the change in temperature above freezing rather than the lack of precipitation.

Threat categories	**Threat sub-categories**	**Definition (and *examples)***	**Notes**
'Justification of assessment' field to describe and identify the specific threat to the site's values.	11.3 Changes in Precipitation & Hydrological Regime	Broad-scale changes in precipitation mean, variability, seasonality, and extremes, including decreased or increased precipitation, changes in timing of precipitation, changes in form of precipitation (e.g. snow vs rain), changes in evapotranspiration rates and hydrological cycles, and droughts and floods, including *storm patterns, droughts, timing of rains, reduced snow accumulation, loss of snowpack, increased severity of floods, sea-level rise, shrinkage or loss of lakes.*	Impacts of specific storm events belong in 10.2 Severe Weather Events
12. Social/Cultural Changes	12.1 Changes in traditional ways of life and knowledge systems that result in negative impact	Local or societal changes that precipitate impacts to the values of the site, such as the absence or reduction of current or historical maintenance regimes important for maintaining key ecological attributes of ecosystems or species. These can include regimes historically maintained by protected area staff, farmers and ranchers, indigenous peoples, private landowners, or any other resource manager. Examples of this include *lack of mowing of meadows, reduction in controlled burns, cessation of grazing, removal of livestock and hence loss of dung, stopping predator control, lack of Indigenous management of key ecosystems, ceasing supplemental feeding of condors.*	Note that this includes the removal or change of human management. Although there is a great deal of debate about the role and appropriateness of human actions in shaping 'natural' systems, it is clear that many ecosystems and species depend on human maintenance to mimic natural conditions and maintain key attributes. This threat captures the loss of these direct maintenance regimes. Caution should be used in applying this sub-category – it is not meant as a catch-all for a lack of conservation action at a site, but rather refers to instances where a historical management action has been reduced or eliminated is no longer possible due to, for example, funding, institutional constraints, or Indigenous actors being disempowered. This sub-category does not include indirect maintenance actions, such as lack of outreach or lack of adequate policy. As noted above, suppression of traditional fire practices should be coded in *Fire and Fire Management* and suppression of traditional water management practices should be coded in *Dams / Water Management & Use*. Note that this can take place at different scales - for example, fixing cracks in houses could eliminate key gecko habitat.
	12.2 Identity/ social cohesion/ changes in local population and community that result in negative impact		

Threat categories	Threat sub-categories	Definition (and *examples)*	Notes
13. Unknown Threats	For when changes can be observed in species, ecosystems, or other attributes but the driver or threat is not able to be identified.		

Overall assessment of threats - Current and potential threats, as well as the overall threats, should be summarised and assessed in the last three rows of the worksheet. In the online assessment module, this section appears in separate boxes at the bottom of the worksheet.

Step 3: Assessing protection and management – Worksheet 3

STEP SUMMARY

Protection and management is assessed against 17 standardised topics, which reflect IUCN best-practice guidance on protected area management, and are harmonised with those used in the *Managing Natural World Heritage Resource Manual* (prepared by IUCN and WCPA in 2011) and as also reflected in the third cycle of *Periodic Reporting*. Additionally, the topics have been aligned with the components, criteria and indicators from the IUCN Green List Standard of Protected and Conserved Areas (wherever possible). Standards to assist in undertaking the assessment are provided in Table 3.1. The state of each topic is assessed against five ratings: **Highly Effective, Mostly Effective, Some Concern, Serious Concern** and **Data Deficient**. These ratings are defined in Table 3.0.

PROTECTION AND MANAGEMENT RATINGS

Table 3.0: Protection and management ratings

Rating	Criteria
Highly Effective	The protection and management system under implementation is effective and able to conserve key attributes, thereby maintaining the site's values and integrity. Aspects of site management can be regarded as being good practice.
Mostly Effective	The protection and management system under implementation is adequate and is likely to essentially conserve key attributes, thereby maintaining the site's values and integrity over the medium-term. However, it may be insufficient to conserve key attributes and maintain the site's values and integrity over the long-term.
Some Concern	The protection and management system is not fully addressing the threats to the site's attributes and thereby values, resulting in a number of conservation issues. However, these issues could be reversed and effectively addressed in the short-term if management capacity and/or protection are improved.
Serious Concern	The protection and management system shows major deficiencies and is unable to conserve key attributes and maintain the site's values and integrity over the short or long-term. Major interventions are required to enhance management capacity and/or protection.
Data Deficient	Available evidence is insufficient to draw a conclusion.

ASSESSMENT GUIDELINES

a) **Filling in Worksheet 3 (Protection and Management)**: The state of protection and management is described in the 'Justification of assessment' field for each topic, and then assessed by selecting one of five ratings: Highly Effective, Mostly Effective, Some Concern, Serious Concern or Data Deficient.

b) **Information sources**: Protection and management is assessed on the basis of management plans, management effectiveness assessments, state of conservation reports, mission reports, periodic reporting questionnaires, consultation feedback, Green List assessments and other data sources as appropriate (see Annex 1 for an annotated list of information sources).

c) **Time horizons**: Long-term = more than 10 years; Medium-term = 5 to 10 years; and Short-term = 1 to 5 years.

d) **Specific protection and management contexts:**

→ **Transboundary, transnational and serial sites**: Sites that are jointly managed by two or more governments/institutions should be assessed as a single site, while noting any differences in management effectiveness between different component parts. Paragraph 114 of the Operational Guidelines notes that: *"In the case of serial properties, a management system or mechanisms for ensuring the co-ordinated management of the separate components are essential."*

For a transboundary or serial property, its overarching integrated management system should also be assessed. It needs to be indicated if a management plan and an overarching management authority for the entire transboundary/serial property exist and their effectiveness needs to be assessed.

→ **Sites affected by conflict**: Assessment of sites in areas subject to conflict or post-conflict situations, and particularly those affected by armed conflict, should take into consideration the considerable management and governance challenges faced by these sites and, where relevant, acknowledge the efforts made by management authorities as well as rangers and protected areas managers working in the field in these difficult and often dangerous situations.

e) **Assessing the effectiveness of the management system and governance (inside and outside the site):** This should be based on the ratings across the 16 topics and additionally consider whether a management effectiveness evaluation has been undertaken for the site using available management effectiveness tools/methodologies (e.g. the WWF and World Bank Management Effectiveness Tracking Tool [METT], the IUCN framework for assessing management effectiveness of protected areas). If yes, please indicate the main results/conclusions. Additionally, this section should consider whether the management system is adequate to maintain the site's values conveyed by key attributes over time.

f) **Assessing the overall state of protection and management**: This assessment summary should provide an overall picture of the site's current protection and management and should also note: i) external threats beyond the control of the management authority; ii) whether the site is transboundary/transnational, or serial, and whether it is affected by conflict and the ensuing challenges; and iii) any protection and management issues relating to other important biodiversity values, where applicable. The assessment should also note the ability of the site management to address threats originating outside the site.

g) **Good practice examples:** Finally, where relevant, good practice examples should be noted, including a short explanation of why they are good practice and key lessons learned that could be replicated in other sites. All good practice examples should be specific, focused on concrete governance and management aspects and should be referenced.

Table 3.1: Standards for protection and management topics (Source: Managing Natural World Heritage Manual; Enhancing our Heritage 2.0; IUCN Green List of Protected and Conserved Areas). Sites ranked 'Mostly Effective' or 'Highly Effective' should meet the majority of these standards.

Guiding questions - to be used in assessing the 16 Protection and Management topics

GOOD GOVERNANCE

Involvement of stakeholders and rightsholders, including indigenous peoples and local communities, in decision-making processes

- Have the key stakeholders and rightsholders been identified and consulted?
- Do governance structures and mechanisms recognise the legitimate rights of Indigenous Peoples and local communities? And are these rights being respected?
- Are traditional customs, governance arrangements/institutions and management practices of Indigenous people in natural and cultural resource management and decision-making represented and integrated appropriately into the management system?
- Do relationships with stakeholders and rightsholders in and around the site help facilitate effective conservation of the site's values?
- Are the needs of stakeholders and rightsholders addressed effectively within the management system for the site, without compromising the conservation of the site? If yes, are benefits provided by the World Heritage site shared equitably with local people? If not, what are the main conflicts with stakeholders and rights-holders that need to be addressed?
- Do the governance arrangements help advance gender equity in relation to the management of the site

Legal framework

- Is the legal framework sufficiently understood and integrated into the governance structure and management system?
- Is the legal framework for the World Heritage site sufficient and effective in maintaining its values?
- Are land tenure issues resolved so that there is no impediment to management, whilst respecting rights of Indigenous Peoples and local communities (including their rights to access resources in the site?

Governance arrangements

- Are there clearly defined, legitimate, equitable and functional governance arrangements?
- Does the planning process provide sufficient opportunity for stakeholder and rightsholders involvement?
- Are the roles and responsibilities for implementation clear?
- Is there relevant, current and accessible information about natural values, threats, protected area use and community issues available to management?
- Is governance and decision-making open to scrutiny by stakeholders and rightsholders, with information presented in a transparent and appropriate format and reasoning behind decisions evident?
- Is there a programme of outreach, communication and information exchange with all key stakeholders and rightsholders using mechanisms appropriate to these actors, including a readily accessible process to identify, hear and resolve complaints, disputes, or grievances?
- Does the system include a cycle of planning, implementation, monitoring and evaluation that produces adaptive management, including input from diverse knowledge sources?

Integration into local, regional and national planning systems

- Is the site well-integrated into the local, national and regional planning systems, including standards and procedures surrounding impact assessment for development projects which may negatively impacts the sites values?
- Is management of the site integrated with broader landscape /seascape management and sustainable development priorities, while respecting local customs and livelihoods?
- Is the social and economic context considered in the development of management goals and objectives for the site in the management plan or equivalent, including the characteristics of the region that may be affected (positively or negatively) by the site's World Heritage listing and/or current management?

SOUND DESIGN AND PLANNING

Guiding questions - to be used in assessing the 16 Protection and Management topics

Boundaries

- Are the boundaries of the site, including buffer zone, effective in relation to the management and protection of its values and the spatial distribution of the relevant attributes?
- Are the boundaries clearly marked or fenced as necessary to conserve values?
- Does the site have a buffer zone and is its use of the buffer zone of the site regulated in ways that enhance site protection?

Overlapping international designations (if applicable)

If the World Heritage property fully or partially overlaps with other UNESCO designations (Ramsar sites, Biosphere Reserves, UNESCO Global Geoparks):

- Is there a harmonised legal or administrative framework across the overlapping international designations? Is it clear which national authority and management body is responsible for which designated area?
- Is there a joint coordination mechanism at the site level for all international designations? Is there a coherent management plan that accommodates the objectives and requirements of international designations?
- Is there competition for national and international funding for site management across international designations?
- Are efforts made to align reporting and information sharing processes across the responsible management authorities?
- Has there been training for staff members in handling multiple international designations?

Implementation of World Heritage Committee decisions and recommendations, if applicable

- Has the State Party implemented the decisions and recommendations of the World Heritage Committee related to the site?
- If not, what are the key limitations to fully implementing these decisions?

Climate action

- Does the management plan for the site include specific provisions to protect the OUV from the negative impacts of climate change?
- Is there a system in place to measure and monitor the effects of climate change on the OUV of the site?
- Is the site being managed to support and maximise the global response to climate action (i.e. by enhancing mitigation, adaptation, communication and climate innovation)

EFFECTIVE MANAGEMENT

Management plan and overall management system

- Does the site have a management plan? If yes, is the management plan up to date?
- Does the management plan identify values, management objectives, desired management outcomes, and key threats?
- Is the management plan actively used to guide management?
- Are the objectives of the management plan being achieved?
- Are natural resources management activities conducted to a planned work programme, and aimed at minimising threats and protecting values, using adaptive management practices?
- Is local employment fostered and are community wellbeing programs implemented where appropriate?
- Are the impacts of site management on the community positive or at least neutral and stable or improving?

Guiding questions - to be used in assessing the 16 Protection and Management topics

Law enforcement

- Is the legal framework effectively enforced (e.g. adequate capacity to detect infringements through patrols and other enforcement activities, an effective system for the prosecution of offenders, fair permit system with compliance monitored and enforced, whilst respecting rights of indigenous peoples and local communities (including their rights to access resources in the site))?
- Does law enforcement include sufficient safeguards to ensure human rights (including land tenure rights and access to resources) are respected, including accountability mechanisms for enforcement agencies with readily accessible processes to identify, hear and resolve complaints, disputes, or grievances?

Sustainable finance

- Has the site assessed the level of financial resources required to ensure its effective management?
- Are financial resources adequate to implement the management measures required to maintain the site's values? If not, what is the funding gap?
- What are the existing sources of funding and are these sources secure and are they likely to remain so? If not, what measures are in place to obtain additional financial resources to support management?

Staff capacity, training and development

- Is staff capacity/numbers adequate to manage the site, with appropriate support staff?
- Do staff have the necessary capability and training to conduct essential management activities including community relations and biodiversity conservation?
- Are staff respected and nurtured, and staff health, safety and well-being are given a high priority by the management authority?
- Is there adequate equipment and infrastructure available and accessible to staff as appropriate to manage the site?
- Is equipment and infrastructure well maintained and regularly replaced as necessary so that the functioning and safety of management assets remains high?

Education and interpretation programmes

- Do education, interpretation and awareness programmes significantly enhance the understanding of values of the site among stakeholders?
- Is there any education or awareness programme in place on regulations about the sustainable use of the site's natural resources?

Tourism and visitation management

- Is there an understanding and promotion of the sites values in local and national tourism policies?
- Is there a tourism and/or visitation plan for the site? If yes, is it under implementation?
- Do visitor services and facilities meet standards of design, environmental sustainability and safety and are they appropriate for the character, values and use of the site?
- Is the tourism industry within the site managed to support conservation of the site's values?
- Are visitor impacts managed to minimise harm to the natural and cultural values of the protected area (for example through permits, access control, facilities, education and enforcement)?

Sustainable use

- Are there any assessments of the type and level of resources that could be used from the site without jeopardizing the site's conservation?
- Are there effective mechanisms in place to ensure resource use permitted in and around the World Heritage site is sustainable and does not impact negatively on values?
- Does any resource use at present represent a threat to the conservation of the site? If yes, how can this be addressed?
- Do rightsholders of cultural and natural resources within the site have access to these resources?

Guiding questions - to be used in assessing the 16 Protection and Management topics
Monitoring ▪ Are the values for which the site was inscribed on the List of World Heritage adequately and systematically monitored? ▪ If not, can the management agency establish cooperation programme with academic and/ or research centres to support monitoring activities? ▪ Are management plans, tools and decisions adapted and improved as a result of monitoring outcomes?
Research ▪ Is there a targeted research programme in place as part of the adaptive management system of the site? ▪ If not, can the management agency establish cooperation programmes with academic and/or research centres and/or traditional and local knowledge holders to support research? ▪ Is there adequate knowledge, based on up-to-date data and information from diverse sources, about the site to support planning, management and decision-making to ensure that values are maintained over the long-term?

Step 4: Assessing the current state and trend of values, conveyed by their key attributes - Worksheet 4

STEP SUMMARY

To assess a specific value, the state and trend of the key attributes associated with that value over the past five years (since the last assessment) should be determined and included in the justification column. This is the basis for the overall assessment of the state and trend of the relevant value. In this step, World Heritage values and attributes are assessed as outlined in steps 1. and 2. below. Note: 'Other important biodiversity values' and 'Other important values' are not assessed individually, however if they have been identified in an assessment, a summary of their state and trend is provided in the 'Assessment of the current state and trend of other important biodiversity values' and 'Assessment of the current state and trend of other important values' fields.

1. **Current state** is assessed against five ratings: **Good, Low Concern**, **High Concern**, **Critical** and **Data Deficient** (see Table 4.0). The baseline for the assessment should be the condition at the time of inscription, with reference to the best-recorded historical conservation state. Current state should be reported in the 'State' field in the online assessment module, and in columns 4-8 of Worksheet 4 in the Word document.

2. **Trend** is assessed in relation to whether the condition of a value is **Improving, Stable, Deteriorating** or **Data Deficient**, and is intended to be a snapshot of recent developments over the last five years. Trend should be reported in the 'Trend' field in the online assessment module, and in column 9 of Worksheet 4 in the Word document.

STATE AND TREND RATINGS

Table 4.0: World Heritage values ratings, as conveyed by the key attributes

Rating	Criteria
Good	All attributes necessary to maintain the site's values are essentially intact, and their overall condition is stable or improving. Available evidence indicates only minor, if any, disturbance to the values of the site.
Low Concern	Some loss or alteration of the attributes necessary to maintain the site's values has occurred, but their overall condition is stable or improving and is not causing persistent or substantial effects on the values of the site.
High Concern	Loss or alteration of many attributes necessary to maintain the site's values has occurred, which is leading to a significant reduction in the values of the site.
Critical	Loss or alteration of a majority of attributes necessary to maintain site values has occurred and has caused a major loss of the values of the site.

ASSESSMENT GUIDELINES

a) **Filling in Worksheet 4 (Assessing Values and Attributes)**: The state and trend of the key attributes associated with each value are described in the 'Justification of assessment' field for each topic. The overall state of each value (determined by the summary of status and trends of the key attributes) is assessed by selecting one of five ratings: Good, Low Concern, High Concern, Critical or Data Deficient. The trend of each value is assessed in relation to whether the majority of its attributes are Improving, Stable, Deteriorating or Data Deficient. Finally, a summary of the state and trend of World Heritage values is provided in the 'Assessment of the current state and trend of World Heritage values' box (if other important biodiversity values have been identified for the site, a summary of their current state and trend needs to be provided as well). Note, in the Word document, the World Heritage values will need to be copied from Worksheet 1 ('Values' field).

b) **Information sources**: The information used to assess the current state and trend of values should be as quantitative as possible. Information sources include state of conservation reports, periodic reports, management effectiveness assessments, management plans, nomination dossiers, the IUCN Red List of Threatened Species, scientific papers, and consultation feedback, which provides up-to-date information on the current state and trend of values (see Annex 1 for an annotated list of information sources). Tracking the state and trend of values over time will be critical to get a better understanding of the trajectory of the site's conservation outlook over time. The rating and trend of values from previous assessments should be consulted when completing this assessment step.

c) **Assessing the overall state and trend of World Heritage values, other important biodiversity values and other important values:** These assessment summaries should present how the state and trend of values has changed over the past five years (for new sites apply the time since inscription) and highlight any key declines/improvements, based on the key attributes that convey each value.

Step 5: Assessing Conservation Outlook – Worksheet 5

STEP SUMMARY

Conservation Outlook Assessments aim to not only track the current state of natural World Heritage sites'values and the associated attributes, but to also use the information collected in the assessment to project the sites' longer-term ability to conserve its values.

Definition: Conservation Outlook is a projection of the potential for a site to conserve its values over time. This projection is based on an assessment of the state and trend of values and key attributes, the threats affecting those attributes and the effectiveness of protection and management.

Conservation Outlook is assessed against five ratings: **Good, Good with some concerns, Significant Concern**, **Critical,** and **Data Deficient** (see Table 5.0). In the Word document, the 'justifications of assessment' and assessments for rows 3-5 should simply be copied from Worksheets 2-4. This process is not necessary when using the online assessment module as justifications will be automatically imported into the relevant box from the previous worksheets. Only the Conservation Outlook summary and assessment in Worksheet 5 are new.

<u>Note that Worksheet 5 will constitute the assessment summary and will be most visible on the online site assessment pages. It should therefore be as detailed and as self-explanatory as possible, so that it could be read clearly as a standalone section.</u>

CONSERVATION OUTLOOK RATINGS

Table 5.0: Conservation Outlook ratings

Rating	Criteria
Good	The site's values, conveyed by the key attributes, are in good condition and are likely to be maintained for the foreseeable future, provided that current conservation measures are maintained.
Good with some concerns	While some concerns exist, with minor additional conservation measures the site's values, conveyed by the key attributes, are likely to be essentially maintained over the long-term.
Significant Concern	The site's values, conveyed by the key attributes, are threatened and/or may be showing signs of deterioration. Significant additional conservation measures are needed to maintain and/or restore attributes and therefore the associated values over the medium to long-term.
Critical	The site's values, conveyed by the key attributes, are severely threatened and/or deteriorating. Immediate large-scale additional conservation measures are needed to maintain and/or restore the site's attributes over the short to medium-term or the associated values may be lost.
Data Deficient	Available evidence is insufficient to draw a conclusion

ASSESSMENT GUIDELINES

a) **Filling in Worksheet 5 (Conservation Outlook)**: The Conservation Outlook for the site is summarised in the 'Justification of assessment' field, and assessed by selecting one of five ratings: Good, Good with Some Concerns, Significant Concern, Critical, or Data Deficient. As noted above, in the Word document, the 'Justifications of assessment' and assessments for rows 3-5 should be copied from Worksheets 2-4. This worksheet has also been placed upfront in the Word document as it is a vital part of the assessment and will be most visible to the public.

b) **Guidelines for Conservation Outlook assessments:**

- → The previous assessment of threats, protection and management (including capacity of site management to respond to threats), and site values and attributes should all be considered when applying the ratings in Table 5.0.
- → Where there have been major data gaps in the assessments undertaken, these should be noted.
- → The assumptions upon which the Conservation Outlook is based should be clearly presented in the 'justification of assessment' column of Worksheet 5.

c) **Time horizons**: Long-term = more than 10 years; Medium-term = 5 to 10 years; and Short-term = 1 to 5 years.

d) **Critical**: This category generally includes those sites that are already inscribed on the List of World Heritage in Danger and those that are subject to severe threats that could lead to the loss of their values.

e) **Disclaimer:** Conservation Outlook Assessments project (an estimate of future possibilities based on a current trend) but do not predict (a statement that some outcome is expected).

Step 6: Understanding benefits – Worksheet 6 (optional)

STEP SUMMARY

The primary focus of the World Heritage Outlook is to track the conservation state, trend and outlook of natural and mixed World Heritage sites. Collecting additional information on the benefits and ecosystem services natural and mixed World Heritage sites provide to people, and the threats to these benefits, is useful when considering how sites can help to support healthy ecosystems which deliver benefits to people. Moreover, identification of these benefits and drivers affecting them provides insights into the overall protection and management of a site.

In the online assessment module, this section is presented as one worksheet; in the Word document, the step is split into two parts - Worksheets 6(a) and 6(b). The summary below provides instructions for the two-step process; in the online assessment module, the two steps are combined and can be completed in one go.

1. **Identify benefits using the checklist** (Worksheet 6(a) in Word document): Benefits present in the site are identified using a checklist based on the benefit categories. The list of benefit types and sub-categories has been developed based on different existing classifications, including the classification used by the Protected Areas Benefits Assessment Tool[12]. Benefits that are not selected are assumed to be absent.
2. **Describe selected benefits** (Worksheet 6(b)): The assessor describes the selected benefits in the 'Summary' column. The description should be evidence-based and referenced wherever possible.
3. **Assess factors negatively affecting provision of selected benefits:** Where information is available, the assessor should include information on factors negatively affecting the provision of selected benefits (indicating the level of impact [Very High, High, Moderate, Low] and the trend [Increasing, Continuing, Decreasing]). Where no information on such factors is available, the fields can be left blank. The list of these factors consists of five direct drivers of change: land and sea use change, pollution, overexploitation, climate change and invasive species. This classification is based on that used in the UK NEA (2011)[13]. Any comments or additional information on these factors can be added in the 'Comments on factors' column for each benefit.

In 2014 the IUCN World Heritage Programme undertook a study specifically focused on the benefits provided by natural and mixed World Heritage sites. Part of the study used the information collected through the Conservation Outlook Assessments and this also provided an opportunity to collect some additional information, including on direct drivers of change. The assessors can consult the study at https://portals.iucn.org/library/sites/library/files/documents/2014-045.pdf.

ASSESSMENT GUIDELINES

a) **Filling in Worksheet 6 (Benefits):** As outlined above, the steps for this worksheet are different between the online assessment module and the Word document. In the online assessment module, benefits are entered one by one by clicking the 'Add more' button in the worksheet. A brief summary of key benefits generated by the World Heritage site (and identified in the worksheet) is also provided in the 'Summary of benefits' field. In the Word document, benefits present are first identified in Worksheet 6(a), and then assessed in Worksheet 6(b).

[12] Ivanić, K-Z., Stolton, S., Figueroa Arango, C. and Dudley, N. (2020). Protected Areas Benefits Assessment Tool + (PA-BAT+): A tool to assess local stakeholder perceptions of the flow of benefits from protected areas. Gland, Switzerland: IUCN. xii + 84 pp.

[13] http://uknea.unep-wcmc.org/

b) **Limits of the assessment:** It is important to keep in mind that Step 6 is not meant to be a full assessment of benefits, but an identification of the types of benefits provided by a site.

c) **Benefits compatible with a site's conservation objectives**: In the case of provisioning services, assessors should only consider those activities that are compatible with a site's conservation objectives, e.g. legal collection of medicinal plants from a site for local use.

d) **Valuing benefits:** Assessors are not expected to value benefits in monetary and quantitative values. However, where such figures are easily available from existing studies these can be included with clear references and disclaimers where relevant.

Step 7: Compiling information on conservation projects in the site– Worksheet 7 (optional)

STEP SUMMARY

To date, there has been no systematic attempt to compile information on the organisations and conservation projects in natural World Heritage sites. The purpose of Worksheet 7 is to begin compiling this information. Conservation projects are identified and described, and references provided if available (e.g. web links).

ASSESSMENT GUIDELINES

a) **Filling in Worksheet 7 (Projects)**: The organisations undertaking the project should be listed in the 'Involved Organisation' field. The project activities should be described in the 'Description' field. In the 'Description' field, if known, please also state how the project is addressing threats affecting the site identified in previous worksheets. If a website exists with further information on the project, please note this in the 'Website' field.

b) **Limited or incomplete information is still useful:** If limited information is available on the organisations and conservation projects active within a site, Site Assessors are encouraged to provide whatever information is easily available, even if incomplete.

Step 8: References – Worksheet 8

STEP SUMMARY

All information used in assessments is referenced for transparency and so that future assessments can review the previous information base. Accurate and consistent referencing ensures high quality of assessments. Information sources should be clearly referenced within the 'description' column in the case of Worksheet 1 (Values and Attributes), and in the 'justification for assessment' columns in Worksheets 2 (Threats), 3 (Protection and Management) and 4 (Assessing values and Attributes). Throughout the assessment the Harvard system should be used, e.g. (Smith, 2009). References should be compiled in Worksheet 8 (References). If deleting a reference in-text, then also delete it in the reference list in Worksheet 8.

REFERENCE GUIDELINES

Filling in Worksheet 8 (References): Enter references in the 'References' field. References should follow the **Harvard system**, also known as the author–date system which is structured as follows: author(s), date, title, place of publication, publisher (this is the standard IUCN format). Where possible, URLs for documents available online should be included. In the assessment text, references should be cited using the Harvard format (Smith, 2009).

In the online assessment module, you can **bulk upload references** – to do this, click 'Add more', then paste your references in the text field, making sure that each reference is separated by a line. The online assessment module will then automatically separate the references.

There is **no need to alphabetise** references (neither in the online assessment module, nor in the Word document), as references will be automatically alphabetised online by the system.

For **online/electronic information sources**, please indicate that this is an online source (insert '[online]' after the source title), and place the document URL at the end of the citation, followed by the date the document was accessed online, for example:

IUCN (2016). Report on the Mission to Chitwan National Park, Nepal, from 14 to 21 March, 2016. [online] Gland, Switzerland: IUCN. Available at: <http://whc.unesco.org/document/147201>. [Accessed 27 October 2016].

How to reference different types of information sources:

→ **Books:**
Pomeroy, R.S., Park, J.E. and Watson, L.M. (2004). How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Areas Management Effectiveness. Gland, Switzerland and Cambridge, UK: IUCN, pp.26-30.

→ **Chapter or extract from a book:**
Margarey, M.E. (1988). Examination of the Cervical and Thoracic Spine. In: R. Grant (ed.) Physical Therapy of the Cervical and Thoracic Spine. New York: Churchill Livingstone, pp.81–109.

→ **Articles from periodicals or journals**:
Rips, L.J., Shoben, E.J. and Smith, E.E. (1973). Semantic Distance and the Verification of Semantic Relations. Journal of Verbal Learning and Verbal Behaviour, 12, pp.1–20.

→ **Unpublished or soon to be published works**:

- For books: McNeely, J. (In press). The politics of biodiversity: a reader. Gland, Switzerland: IUCN.
- For journal articles: Jones, J. (2006). Planting tree saplings in the Amazon. To be published in Journal of Amazonian Botany 5.

→ **Papers or presentations (ppt) delivered during meetings or conferences:**
Smith, D. (2002). How the Dodo Died. Paper delivered at the Annual Conference of Extinct Species, London, 29 February 2002.

→ **Publications authored by organisations:**
Where no author is given, the organisation acting as the author should be cited as such, e.g.:

IUCN (2006). Progress and Assessment Report 2006. Gland, Switzerland and Cambridge, UK: IUCN, pp.1-5.

→ **Academic theses and dissertations:**
Holford-Stevens, L.A. (1971). Select Commentary on Aulus Gellius, Book 2. PhD thesis. Oxford: Oxford University.

→ **Advisory Mission reports**:

IUCN (2018). Report on the Advisory Mission to Ha Long Bay World Heritage Site, Quang Ninh Province, Viet Nam from 16th July to 20th July 2018. [online] Gland, Switzerland: IUCN, pp.1-56. Available at: <https://whc.unesco.org/en/list/672/documents/> [Accessed 26 March 2020].

→ ***Reactive Monitoring Missions reports**:*

UNESCO and IUCN (2018). Report on the Joint World Heritage Centre – IUCN Reactive Monitoring Mission to Bialowieza Forest (Belarus and Poland), from 24 September to 2 October (2018). [online] Paris, France and Gland, Switzerland: UNESCO World Heritage Centre and IUCN, pp.1-88. Available at: <https://whc.unesco.org/document/172879> [Accessed 15 November 2019].

*(*NOTE: Advisory and reactive monitoring missions may be undertaken by IUCN individually, or joint missions between UNESCO and IUCN. ICOMOS may also take part in advisory and reactive monitoring missions for mixed World Heritage Sites. This should be indicated as appropriate.)*

→ **Nomination file from State Party**:
State Party of Argentina (2016). Nomination of Los Alerces National Park as a World Heritage Site. [online] Buenos Aires, Argentina: National Parks Administration, pp.1-182. Available at: <https://whc.unesco.org/document/155647> [Accessed 23 February 2017].

→ **IUCN evaluation reports**:
IUCN (2016). World Heritage Nomination – IUCN Technical Evaluation, Hubei Shennongjia (China). In: IUCN World Heritage Evaluations 2016, IUCN Evaluations of nominations of natural and mixed properties to the World Heritage List. WHC/16/40.COM/INF.8B2. [online] Gland, Switzerland: IUCN, pp.17-28. Available at: <http://whc.unesco.org/archive/2016/whc16-40com-inf8B2-en.pdf> [Accessed 15 January 2017].

→ **Advisory bodies' state of conservation reports**:
UNESCO (2008). Report on the State of Conservation of Banc d'Arguin National Park, Mauritania. State of Conservation Information System of the World Heritage Centre. [online] Paris, France: UNESCO World Heritage Centre, pp.2. Available at: <http://whc.unesco.org/en/soc/891> [Accessed 23 February 2017].

→ **State Party state of conservation reports**:
State Party of Australia (2014). Report of the State Party to the World Heritage Committee on the state of conservation of the Great Barrier Reef (Australia). [online] Commonwealth of Australia, pp.1-114. Available at: <http://whc.unesco.org/document/127128> [Accessed 23 February 2017].

→ **Periodic reports**:
State Party of Canada (2014). Periodic Report Second Cycle Section II: Dinosaur Provincial Park. [online] Paris, France: UNESCO World Heritage Centre, pp.1-11. Available at: <http://whc.unesco.org/archive/periodicreporting/EUR/cycle02/section2/groupa/71.pdf>. [Accessed 7 June 2015].

→ **Statements of outstanding universal value**:
World Heritage Committee (2014). Decision: 38 COM 8B.5 Okavango Delta Statement of Outstanding Universal Value (Botswana). In: Decisions Adopted by the World Heritage Committee at its 38th Session (Doha, 2014). [online] Paris, France: UNESCO World Heritage Centre, pp.156-159. Available at: <http://whc.unesco.org/en/decisions/6090> [Accessed 8 April 2015].

→ **World Heritage Committee decisions**:
World Heritage Committee (2009). Decision 33 COM 7B.24. Belovezhskaya Pushcha / Białowieża Forest (Belarus / Poland). In: Report of decisions of the 33rd session of the World Heritage Committee (Seville, 2009). [online] Paris, France: UNESCO World Heritage Centre, pp.73-74. Available at: <http://whc.unesco.org/en/decisions/1816> [Accessed 15 March 2015].

(Roman numerals for decision numbers were used up to and including 2001. For these decisions, keep the Roman numerals 20 COM VIII.A.4, rather than 20 COM 8.A.4)

→ **UNEP-WCMC information sheets**:
UNEP-WCMC (2012). Banc d'Arguin National Park, Mauritania. UNEP-WCMC World Heritage Information Sheets. [online] Cambridge, UK: UNEP-WCMC. Available at: <https://yichuans.github.io/datasheet/output/site/banc-darguin-national-park/> [Accessed 20 September 2017].

→ **Management plans:**
Range to Reef Environmental (2016). Aldabra Atoll Management Plan. [online] Victoria, Seychelles: Seychelles Islands Foundation (SIF), pp.1-90. Available at: <https://www.sif.sc/sites/default/files/downloads/Aldabra%20Atoll%20Management%20Plan.pdf> [Accessed 5 November 2018].

→ **Reports on specific projects:**
State Party of Malawi (2018). Final Report, International Assistance Request (IAR) 2895, Strengthening the

management of Lake Malawi National Park World Heritage Site. Paris, France and Lilongwe, Malawi: UNESCO and Malawi National Commission for UNESCO, pp.1-4.

→ **Speeches/statements/presentations/lectures:**

Maige, E. (2011). Statement by the former Tanzanian Minister of Tourism, Hon. Ezekiel Maige, to the UNESCO World Heritage Committee, 35th session. Paris, France.

→ **Consultations/consultation forms:**

Very important: Do not name individuals or organisations in the reference. Consultations/consultation forms are confidential.

When there is only one consultation/consultation form/respondent:

IUCN Consultation (2017). IUCN World Heritage Confidential Consultation form: Wulingyuan Scenic and Historic Interest Area, China.

When there is more than one consultation/consultation form/respondent:

IUCN Consultation (2017a). IUCN World Heritage Confidential Consultation form: Respondent 1. Wulingyuan Scenic and Historic Interest Area, China.

IUCN Consultation (2017b). IUCN World Heritage Confidential Consultation form: Respondent 2. Wulingyuan Scenic and Historic Interest Area, China.

Glossary

→ **Attributes:** the elements of a World Heritage place which convey its heritage values and enable understanding of those values. The attributes and the interactions between them should be the focus of protection, conservation and management measures.

→ **Boundary:** For natural World Heritage sites, boundaries should reflect the spatial requirements of habitats, species, processes or phenomena that provide the basis for their inscription on the World Heritage List. The boundaries should include sufficient areas immediately adjacent to the area of Outstanding Universal Value in order to protect the site's heritage values from direct effect of human encroachments and impacts of resource use outside of the nominated area.

→ **Buffer zones** are areas that are not part of the site, but surround all or part of it and provide for its protection. These areas are described in the Operational Guidelines as "*An area surrounding the World Heritage site which has complementary legal and/or customary restrictions placed on its use and development to give an added layer of protection to the World Heritage site*." (Paragraph 104).

→ **Conservation Outlook** is a projection of the potential for a natural World Heritage site to conserve its values, conveyed by the key attributes, over time. This projection is based on an assessment of the state and trend of attributes and therefore values, the threats affecting those attributes and the effectiveness of protection and management.

→ **Current vs. potential threats**: Current threats are the proximate human activities or natural processes/disasters that are causing the destruction, degradation, and/or impairment of a site's attributes and therefore values (e.g. illegal logging and extreme weather events). Current threats are ongoing, while potential threats are likely to occur in the future. Their effects can be direct, indirect or cumulative:

- **Direct effects** are caused by an action occurring at the same time and place, e.g. forest loss following logging.
- **Indirect or secondary effects** are effects that occur later in time or further removed in distance, e.g. degradation of soil and water quality as a result of erosion due to forest loss.
- **Cumulative effects** result from the impact of an action when added to other past, present and reasonably foreseeable future actions, e.g. forest fragmentation and impacts on wildlife as the result of multiple logging projects.

→ **Drivers:** Underlying direct threats are demographic and macroeconomic factors that ultimately drive the loss of biodiversity. Examples of drivers include population pressures, poverty and poor governance.

→ **Integrity** is a specific term used in the World Heritage Convention. It is described in the Operational Guidelines as "*...a measure of the wholeness and intactness of the natural and/or cultural heritage and its values. Examining the conditions of integrity, therefore requires assessing the extent to which the site: a) includes all elements necessary to express its OUV; b) is of adequate size to ensure the complete representation of the features and processes which convey the site's significance; c) suffers from adverse effects of development and/or neglect*" (Paragraph 88).

→ **Management effectiveness:** The assessment of how well the protected area is being managed - primarily the extent to which it is protecting values and achieving goals and objectives.

→ **Management plan:** An explicit set of rules governing how to apply the principles and framework of natural resource management in a given area. This plan may be adapted to various changes in the natural and social environment, or upon the basis of new information about how a system functions. (Source: Hockings et al., 2006, p.xiii)

→ **Other important biodiversity values**: Other important biodiversity values are typically identified for sites that are listed for geological and/or scenic values, but which also have important biodiversity values, including those identified under international, regional and national designations such as Ramsar, KBA, IBA, IPA, AZE, Natura 2000 etc.

→ **Outstanding Universal Value** is a specific term used in the World Heritage Convention, and is defined as *"...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. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole."* (Source, Operational Guidelines, see Figure 4)

Figure 4: The three pillars of Outstanding Universal Value are reflected in the three main Conservation Outlook Assessment topics – values, threats, and protection and management

→ **Sustainable use:** The use of resources at rates that do not exceed the capacity of ecosystems to replace these.

→ **Threats within and outside a site**: Threats within and outside a site are differentiated by their points of origin. Threats within a World Heritage site are caused by actors or events located within the site or its immediate surroundings, while threats outside a site can originate locally, regionally, nationally or globally, and are caused by actors or events outside the site.

→ **Time horizons**: Long-term = more than 10 years; Medium-term = 5 to10 years; and Short-term = 1 to 5 years.

→ **World Heritage values**: Within the World Heritage Convention, natural values refer to the four criteria listed in Box 1.1. What makes a site outstanding and universal is its 'value', which implies clearly defining the importance of a site, and rating its importance in relation to other sites around the world. In natural World

Heritage terms therefore the value of the site is what makes it one the most outstanding natural places on Earth.

Annex 1: Annotated list of information sources

Note: Most of the information sources below will be emailed to Site Assessors by the IUCN World Heritage Outlook Coordinator.

- **Designation information**: Many World Heritage sites are also designated at Ramsar sites[14] or Biosphere Reserves under UNESCO's MAB program[15]. The IUCN Assessment Coordinator can provide support on obtaining this information.
- **GIS and remote sensing imagery:** Depending on availability, remote sensing imagery can be used to assess level and rate of forest loss, encroachment, and the occurrence of mines, dams and/or roads in and around a site. GIS datasets can be used to cross reference existing ecological datasets with natural World Heritage sites. Where relevant, both GIS and remote sensing data may be used on a case by case basis at the request of the Site Assessor.
- **IUCN Green List of Protected and Conserved Areas:** If the site is also listed on the IUCN Green List[16] there is valuable information on the site page that could supplement the Outlook site assessment.
- **Grey literature:** World Heritage sites tend to be the focus of many conservation projects. Useful sources of information include Important Plant Areas database[17]; Important Bird Areas[18]; Alliance for Zero Extinction[19]; WWF's ecoregion[20] etc.
- **IUCN and IUCN/UNESCO mission reports:** Publicly available reports from IUCN missions (including advisory and joint missions) provide a detailed analysis of pressing conservation issues affecting a site, as well as recommendations to address these issues. These can be accessed on UNESCO's World Heritage Centre website http://whc.unesco.org/.
- **IUCN evaluation reports**: The evaluation report written by IUCN at the time of a site's nomination can provide a historic basis for assessing the trend in values, threats and protection and management. Evaluation reports can also be helpful in identifying the values for which a site was inscribed on the World Heritage List. Available for all sites on UNESCO's World Heritage Centre website http://whc.unesco.org/.
- **UNEP-WCMC information sheets:** The UNEP-WCMC information sheets provide a detailed site description, including information about land tenure, climate, species and habitats, management and threats[21]. The information sheets are prepared at the time of inscription and are available for most sites.
- **IUCN/UNESCO state of conservation reports:** The state of conservation reports prepared by IUCN and UNESCO for the World Heritage Committee discuss the state of a site's values, threats to those values and protection and management issues, and propose a draft decision to the World Heritage Committee. These reports are based on State Party reports, and on other available information. These reports are either requested by the World Heritage Committee or by IUCN/UNESCO because of urgent threats to a site's

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[14] http://ramsar.wetlands.org/Database/AbouttheRamsarSitesDatabase/tabid/812/language/en-US/Default.aspx
[15] http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/mab/
[16] https://iucngreenlist.org/explore/
[17] http://www.iucn.org/about/union/secretariat/offices/iucnmed/iucn_med_programme/species/key_biodiversity_areas/
[18] http://www.birdlife.org/action/science/sites/
[19] http://www.zeroextinction.org/
[20] http://www.worldwildlife.org/science/ecoregions/item1847.html
[21] The UNEP-WCMC information sheets are available at http://www.unep-wcmc.org/world-heritage-information-sheets_271.html

Outstanding Universal Value. These can be accessed on UNESCO's World Heritage Centre website http://whc.unesco.org/.

→ **Management effectiveness evaluations:** Published evaluations of the effectiveness of site management to maintain World Heritage values[22]. Not available for all sites.

→ **Management plans:** Management plans may include threat assessments, assessments of key values etc., in addition to information about a site's protection and management regimes. Not always available or up to date. Available for some sites.

→ **Maps of the World Heritage site** – Can be accessed on UNESCO's World Heritage Centre website http://whc.unesco.org/ and on Protected Planet www.protectedplanet.net. Note that the quality of maps is highly variable.

→ **Media reports:** The level of media coverage will vary considerably between sites. This source of information should be consulted with care and should preferably only be referred to when the issues they raise are confirmed by other reliable sources.

→ **Periodic reporting questionnaires:** Section 2 of the Periodic Reporting Questionnaire is a site-based questionnaire, which is intended to be completed by World Heritage managers. The questionnaire draws heavily on the IUCN WCPA management effectiveness framework and includes a detailed threat (i.e. factors affecting the site) assessment as well as assessment of the state of conservation, and the effectiveness of protection and management.

→ **Previous World Heritage Outlook conservation outlook assessments:** Previous versions of conservation outlook assessments will serve as a source of information for current assessments. Site Assessors can maintain the parts of the previous assessment which are still accurate (e.g. description of values), and update the parts where changes have occurred since the last assessment. Previous conservation outlook assessments are available from the IUCN World Heritage Outlook website: http://www.worldheritageoutlook.iucn.org/search-sites

→ **Protected Planet** (www.protectedplanet.net) - Protected Planet allows you to find information about individual protected areas.

→ **Scientific publications:** Where relevant, available recent scientific publications relating to a site or its values should be consulted.

→ **Statements of outstanding universal value** or **statements of significance:** Where available, the Statement of Outstanding Universal Value (required for all inscriptions since 2005) provides the official public statement of the values for which a site was inscribed on the World Heritage List. Older sites often lack a Statement of Outstanding Universal Value, but many have a Statement of Significance instead, which is usually less detailed. For all sites inscribed before 2005 a process to define retrospective statements of outstanding universal value is currently being undertaken. These can be accessed on UNESCO's World Heritage Centre website http://whc.unesco.org/.

→ **World Heritage Committee Decisions**: These are the official decisions taken by the World Heritage Committee, containing recommendations for conservation action. These decisions are based on the IUCN/UNESCO State of Conservation Reports and can be accessed on UNESCO's World Heritage Centre website http://whc.unesco.org/.

[22] IUCN WCPA and UNEP-WCMC have developed a searchable database of management effectiveness assessments carried out worldwide which can be accessed at: http://www.wdpa.org/ME/