



الطبيعة و التراث العالمي في الدول العربية

Tabe'a III

Nature–culture linkages, conflict, and climate change impacts on natural heritage in the Arab region

Tarek Abulhawa, Tricia Cummings and Selma Kassem



INTERNATIONAL UNION FOR CONSERVATION OF NATURE

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Preface

Tab'e'a III is the third report of its kind since 2015 and stems from the Tab'e'a Programme, a collaborative initiative between IUCN and the Arab Regional Centre for World Heritage (ARC-WH). Associated with the IUCN World Heritage Outlook, it is the only publication documenting progress, challenges and opportunities for protecting outstanding natural areas in the Arab States through the World Heritage Convention. This knowledge is key to identify conservation priorities for the region and seize the power of the Convention as a unique international conservation instrument.

The Arab region is rich in striking natural landscapes, from deserts where rare species withstand extreme conditions, to wetlands providing refuge to migratory birds and seascapes hosting an abundant diversity of marine life. Today, it boasts eight World Heritage sites inscribed for their natural values. Further areas of exceptional value could gain World Heritage status, through adequate nomination processes for which States Parties can seek IUCN's and ARC-WH's support.

Natural World Heritage sites are not only globally significant protected areas, they also provide resources that are critical to the livelihoods of local communities. In fact, the relationship between people and their natural surroundings is indivisible and many World Heritage sites demonstrate the complex interactions between nature and culture. This is nowhere more evident than in the Arab region, which boasts an unusually high percentage of mixed World Heritage sites. This report addresses the increasing recognition of these interlinkages in the conservation of heritage sites in the Arab States.

Tab'e'a III also delves into the complex socio-economic and environmental challenges brought on by conflict and instability in the region. Compared to cultural sites, a lot less is known about impacts on natural World Heritage. Yet natural areas including World Heritage sites have underpinned many peace-building priorities, showing their remarkable protective and restorative potential.

The successful conservation of World Heritage sites contributes in many ways to human well-being as well as nature, and that is a good reason to increase our investment in better protecting and managing them. Worryingly, the IUCN World Heritage Outlook 3 launched in December 2020 (after the time of writing of this report) indicates the situation is not improving and much more is needed to safeguard the planet's most iconic natural places – at the regional and global levels.

In 2017, the conservation outlook for natural World Heritage in the Arab States was positive for two-thirds of the sites. The 2020 update of this assessment is that conservation prospects are now of significant concern for half of the sites. Only one site stands out with effective protection and management: Wadi Al-Hitan (Whale Valley) in Egypt. The site's management acquired certification from the IUCN Green List of Protected and Conserved Areas in 2018, showing the remarkable commitment of site managers towards best practice. Its success shines as a beacon on what other sites can aspire to achieve.

This report also examines the key challenges that sites face due to extreme weather events in the Arab region. The *IUCN World Heritage Outlook 3* has revealed that, at the global level, climate change is now the number-one threat to natural World Heritage. Climate change was already the Arab region's most prevalent threat in 2017 and it continues to be so in 2020. As one of the planet's most water-scarce regions with flood-prone coastal areas and sensitive marine ecosystems, the Arab region is particularly vulnerable to climate change. At the same time, it is a rich well of traditional and institutional knowledge, with enormous potential to make an important contribution to global efforts.

Lastly, *Tab'e'a III* is the material demonstration of a fruitful partnership between IUCN and ARC-WH. Our respective institutions remain committed to working together at both the regional and global policy levels, combining expertise from ARC-WH as a centre focused on strategic priorities for World Heritage in the region, and from IUCN's wide network of experts mobilised through the IUCN World Heritage Programme as well as four regional offices serving the Arab States. This continued collaboration ensures durable support to regional stakeholders of the World Heritage Convention and to the conservation of outstanding natural areas in the Arab States.



Tim Badman

Director, IUCN Global World Heritage Programme



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Executive summary

This third edition of the *Tabe'a* report on natural and mixed World Heritage in the Arab States has been prepared by the *Tabe'a* Programme for Natural World Heritage which represents a cooperative programme between the International Union for Conservation of Nature (IUCN) and the Arab Regional Centre for World Heritage (ARC-WH). Addressed in the report are the status and trends in the implementation of the World Heritage Convention in the Arab region during the period from 2015 to 2019. This review was conducted in the context of emerging global trends and priorities associated with the World Heritage Convention, as well as other related global natural heritage platforms and programmes.

Tabe'a III follows the same framework as *Tabe'a I* (2012) and *Tabe'a II* (2015), documenting progress made in the conservation of natural and mixed World Heritage sites in the Arab region, as well as providing an update on the state of conservation of natural sites. Additionally, special themes address key priorities which have emerged from heritage protection, conservation challenges and opportunities arising in the region.

These three new thematic areas are: 1) addressing nature–culture linkages in World Heritage from a regional perspective, responding to a growing global interest to better integrate the two World Heritage themes, 2) analysing national and regional challenges associated with the impact of conflict on sites and countries, and 3) documenting impacts related to extreme weather conditions on natural World Heritage in the region.

Finally, there is a summary update on the Arab States' lists of possible candidate sites, known as Tentative Lists, with notes on their development since *Tabe'a II*. This summary focuses on national, sub-regional and regional initiatives addressing the harmonisation of Tentative Lists and lessons learned from these processes.

Regarding **Nature–culture linkages**, *Tabe'a III* introduces the emerging trend to more explicitly recognise the concept of nature–culture linkages and its application worldwide, presents a select number of past and current global initiatives and case studies that embrace this concept, reviews a select number of past and current initiatives and case studies that illustrate the concept in practice within the Arab region, and summarises the overall status of the concept and its application in the Arab region.

Key findings under this theme include:

- It recognises that relationships between people and the natural environment have worked to shape both our physical environment and belief systems.
- It embraces the complexity of our heritage, which includes biological resources, genes, landscapes, geological diversity, cultural places and practices, and traditional knowledge systems.
- It is based on a growing understanding that heritage sites are not made up of isolated natural or cultural attributes that are split into separate realities but rather, are intertwined and connected.

There are indeed efforts within UNESCO and other discourses and programmes to link culture and nature, largely thanks to the Millennium Development Goals Achievement Fund, but much is needed to achieve more adequate levels of integration. A global initiative which has addressed the concept during recent years is the ground-breaking 'Connecting Practice' project between IUCN and ICOMOS which aims to explore, learn and create new methods of recognition and support for the interconnected character of the natural, cultural and social values of highly significant land and seascapes and their affiliated bio-cultural practices. An example of an important tool used by the project is the Enhancing our Heritage toolkit, designed to help those responsible for World Heritage conservation piece together the elements of a comprehensive and adaptive management framework.

In the Arab region, nature–culture linkages, especially those related to traditional practices, are threatened by modern unsustainable practices, often exacerbated by the expansion of oil-based economies or increasing levels of poverty. Nevertheless, lessons learnt from past initiatives show that local populations in the Arab region can be instrumental in achieving successful heritage conservation and sustainability outcomes. Good examples include efforts to prevent the extinction of threatened mammals in the Gulf region, to foster traditional fishing practices on the western coast of north Africa, to ensure the maintenance of traditional water management systems in many parts of the Arabian Peninsula, Iraq and the Mediterranean, and to promote the revival of traditional land management practices known as *Al Hima* in the Levant and the Arabian Peninsula.

Regarding **Conflict and World Heritage**, *Tab'e'a III* introduces the development and history of the impact of conflict on natural World Heritage, presents a selection of global initiatives and case studies addressing the issue of conflict on natural World Heritage, and presents a selection of regional initiatives and case studies addressing the issue in the Arab region.

Key findings under this theme include:

- Much more is known and documented world-wide regarding the impacts of conflict on cultural heritage as compared to natural heritage.
- The main impacts of conflict on natural heritage include habitat destruction, pollution (water-air-soil), flight of refugees to natural areas, increasing risk of invasive species, the collapse of infrastructure and management capacity, increased production and utilisation of conflict related resources, uncontrolled development and increased wildlife hunting and poaching.
- Impacts of conflict on natural World Heritage are usually addressed in the wider scope of the general environment, with less focus on the natural World Heritage sites themselves.

It is understood that natural heritage and the natural environment hold tremendous protective, peace-building and restorative potential, and have underpinned many peace-building priorities. Often, in areas where strong traditional practices are upheld and local communities' ownership of resources is high, less damage is likely to incur during periods of conflict. On the other hand, the way that natural heritage is managed and governed post-conflict can either fundamentally support or undermine peace-building initiatives.

Global initiatives that have been implemented to address impacts of conflict on heritage include several policy frameworks of the World Heritage Convention, UN, and other organisations (such as IUCN and Birdlife International), and programmes for post-conflict management including scientific research, remediation initiatives, capacity building projects, and integrated development planning.

The Arab region is one of the world regions most affected by conflict, which in turn, affects World Heritage. This can be illustrated by the fact that globally, there are currently 53 sites on the List of World Heritage in Danger, but almost 40% of these (21 sites) are in Arab States. Numerous regional initiatives have been implemented to address conflict and environment, several of which were organised and facilitated by ARC-WH in cooperation with other UN and non-UN regional and national organisations. Important regional case studies that address conflict and natural heritage include initiatives addressing capacity building needs, pollution related remediation (including oil spills and depleted uranium), depletion of water resources, habitat destruction and soil erosion, waste management, unsustainable development practices in agriculture, industry and infrastructure development, destruction of protected areas and destruction of traditional agricultural practices.

Regarding **Extreme weather conditions and World Heritage**, *Tab'e'a III* discusses the effect of climate change factors on natural World Heritage, presents a selection of global initiatives and case studies addressing the issue of extreme weather on natural World Heritage, and presents a selection of regional initiatives and case studies addressing the issue in the Arab region.

The Arab region is particularly vulnerable to climate change, as it is one of the world's most water-scarce regions, with flood-prone coastal areas. However, societies in this region have been under pressure to adapt to water scarcity and heat for thousands of years and have developed various techniques to deal with these environmental constraints. As such, the Arab region is a valuable repository of traditional and institutional knowledge which, if preserved and made accessible, could prove an important contribution, globally, to efforts addressing climate change. Several regional initiatives have attempted to address the topic of extreme weather: in the Socotra Archipelago (Yemen), the impact of cyclones on terrestrial and marine ecosystems was examined, and in Banc d'Arguin National Park (Mauritania), the impact of flooding in coastal areas was studied.

Key findings under this theme include:

- Climate change globally is one of the biggest potential threats to natural World Heritage sites; the number of sites where climate change is a high or very high threat has nearly doubled in the space of a few years.
- Climate change is expected to bring about major changes in freshwater availability, the productive capacity of soils and patterns of human settlement.
- Extreme weather conditions which threaten natural heritage are hard to foresee or control, and as such, disaster risk reduction can help anticipate, cope with and respond to impacts of hazards.
- Many World Heritage sites have no established policy, plan or process for managing or reducing risks associated with disasters, and most existing national and local disaster preparedness and response mechanisms do not include heritage expertise in their operations.
- Natural World Heritage sites can be part of the pre and post solution of the impacts of extreme weather conditions; healthy ecosystems make critical contributions to climate change mitigation by being resilient to unusual natural conditions, absorbing and storing carbon as well as adaptation in terms of speed of recovery and ease of restoration.

- World Heritage sites can serve as climate change/extreme weather conditions observatories; as early warning systems and to gather and share information on monitoring, mitigation and adaptation practices.

There are many global efforts helping to address the impacts of extreme weather on natural World Heritage, including the Disaster Risk Reduction Programme of UNESCO and the WH Climate Change Policy and review process, in addition to many other policy, management and monitoring frameworks adopted by UN and non-UN organisations.

Regional update¹

This section includes regional updates on the conservation and management of World Heritage in the Arab region up to mid-2019, under three main headings: a general update on activities undertaken by ARC-WH, specific updates for each of the World Heritage sites inscribed up to 2018 – particularly focusing on sites that have been added since Tabe’a II, and an update on the Tentative Lists for individual Arab States parties.

Key findings under this theme include:

- Little progress was made on the number and representation of natural and mixed sites from the Arab region to the global list, calling for a stronger regional approach to address achieving the anticipated balance on the regional list compared to global numbers (only 8 of the 18 States Parties in the region have inscribed natural and/or mixed sites, with no sites yet inscribed from the Gulf Region for example).
- The update from the IUCN World Heritage Outlook on the State of Conservation of sites inscribed on the World Heritage List reflects a notable negative variation – generally speaking – in the status of Arab sites over time.
- The Conservation Outlook of Sanganeb Marine National Park and Dungonab Bay, Wadi Rum Protected Area, Wadi Al Hitan (Whale Valley), Tassili n’Ajjjer, and Ichkeul National Park were assessed in 2017 as 'Good with some concerns', while the Ahwar of Southern Iraq, Socotra Archipelago and Banc d’Arguin National Park were reported to be of 'Significant Concern'. See table below.
- The State of Conservation has stayed the same with no improvement or deteriorated for all sites except for the case of Ichkeul when compared with the three Tabe’a report benchmarks.
- Some development has taken place in regard to National Tentative Lists since Tabe’a II, however, it is limited to only a few States Parties thus reflecting the region’s relatively low focus and lack of a systematic approach on adopting an upstream process which would lead to enhancing the regional network of natural and mixed World Heritage sites in the mid and long terms.

Country	World Heritage site	Conservation Outlook 2014	Conservation Outlook 2017
Algeria	Tassili n’Ajjjer	Good with some concerns	Good with some concerns
Egypt	Wadi Al-Hitan	Good	Good with some concerns
Iraq	The Ahwar of Southern Iraq: refuge of biodiversity and the relict landscape of the Mesopotamian Cities	None, inscribed in 2016	Significant concern
Jordan	Wadi Rum	Good with some concerns	Good with some concerns
Mauritania	Banc d’Arguin National Park	Significant concern	Significant concern
Sudan	Sanganeb Marine National Park and Dungonab Bay – Mukkawar Island Marine National Park	None, inscribed in 2016	Good with some concerns
Tunisia	Ichkeul National Park	Significant concern	Good with some concerns
Yemen	Socotra Archipelago	Significant concern	Significant concern

¹ Important note: all updates included in this report cover the period up to mid-2019. This includes information collected through official documentation under the World Heritage Convention, such as State of Conservation reports, the World Heritage List and National Tentative Lists. It also includes information from the 2014 and 2017 IUCN World Heritage Outlook, which has since been updated in 2020.

Results of the *IUCN World Heritage Outlook 2* show that, of all natural and mixed (both natural and cultural) World Heritage sites in the Arab States, for 62% the Conservation Outlook is 'Good with some concerns' and for 38% it is of 'Significant concern', noting that this region's eight sites represent a small dataset (Osipova et al., 2017). The report identified climate change, tourism impacts and fishing as the most widespread current threats to natural sites in the Arab States region. None of the natural sites in the Arab States were assessed as having effective protection and management. For the majority of sites, protection and management were defined to be of some concern, and in one site as being of serious concern.

Based on the above, it is concluded that a collective regional approach to natural World Heritage would benefit from encouraging more regional and sub-regional cooperation on the update and harmonisation of National Tentative Lists. This could be done through promoting the preparation of region-specific thematic study which could identify priority themes and areas within the region as the basis for nominating new natural and mixed World Heritage sites which fill global gaps and priority areas using a robust process through which proper identification and configuration of priority sites can be achieved. Further, a regional effort to support States Parties individually – also in light of the results of the regional thematic review – on the revision and update of their respective Tentative Lists using a science-based approach.

As for the management effectiveness of existing natural and mixed World Heritage sites, the regional approach would attempt to encourage States Parties to 1) improve the governance systems of World Heritage sites with a focus on improved local communities' and other stakeholders' (e.g. tourism private sector) consultation and involvement in decision-making processes, traditional knowledge documentation and utilisation in management practices, 2) strengthen the capacity of site management units and teams through well designed and needs based training programmes and learning approaches, 3) improve local financing for the protection, maintenance and development of World Heritage sites through the adoption of adequate policy and legal frameworks which ensure more government spending and investment in the sites' conservation and management, while promoting other sources of income and investment through ecotourism and other sustainable resource utilisation activities (traditional grazing, artisanal fishing, subsistence farming), and 4) raise the awareness of decision makers and the general public of the importance of the sites and their national and global values in the long term.

The above strategy indicates that the region's need to enhance the management effectiveness of the existing natural and mixed World Heritage sites is as important as the need to improve its representativeness on the global list. As a result, an effective regional approach or strategy for natural World Heritage would balance the two anticipated outcomes. Whereby the successful listing of sites on the World Heritage List would only represent the start of a long-term commitment towards the conservation and sustainability of the region's Outstanding Universal Values and their associated attributes.

It is important to note that further update of the [IUCN World Heritage Outlook](#) has been issued in December 2020.

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List of acronyms

ARC-WH	Arab Regional Centre for World Heritage
CBD	Convention on Biological Diversity
CBWNCL	Capacity Building Workshops on Nature–Culture Linkages in Asia and the Pacific
CC	Climate change
CER	Cultural Emergency Response
COM	World Heritage Committee
COMPACT	Community Management of Protected Areas for Conservation
COP	Conference of Parties
CPET	Collaborative Programme Euphrates and Tigris
DMNP	Dungonab Bay – Mukkawar Island Marine National Park, Sudan
DRR	disaster risk reduction
EoH	Enhancing our Heritage
EPA	Environment Protection Authority
ESD	Education for Sustainable Development
FAO	Food and Agriculture Organization of the United Nations
FAONE	FAO Regional Office for Near East and North Africa
FoS	Friends of Soqatra
GCED	Global Citizenship Education
GDP	Gross domestic product
GEF-SGP	Global Environment Facility – Small Grant Programme
GIS	Geographic Information System
HEF	Heritage Emergency Fund
HIA/EIA	Heritage/Environmental Impact Assessment
ICCROM	International Centre for the Study of the Preservation and Restoration of Cultural Property
ICOMOS	International Council on Monuments and Sites
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPSI	International Partnership for the Satoyama Initiative
IUCN	International Union for Conservation of Nature
IUCN-Med	IUCN Centre for Mediterranean Cooperation
IUCN-ROWA	IUCN Regional Office for West Asia
LCIPP	Local Communities and Indigenous Peoples Platform
LINKS	Local and Indigenous Knowledge Systems
LMMA	Locally Managed Marine Areas
MAB	Man and Biosphere
MAVA	Fondation Pour La Nature
MDG-F	Millennium Development Goals Achievement Fund
MINUSMA	Multidimensional Integrated Stabilization Mission in Mali
MoE	Ministry of Environment
NGO	Non-governmental organisation
OCHA	Office for the Coordination of Humanitarian Affairs
OUV	Outstanding Universal Value
PA	Protected area
PCA	People-Centred Approaches
PCEAs	post-conflict environmental assessments
RAMSAR	Ramsar Convention on Wetlands of International Importance
RBAs	Rights-Based Approaches
RRF	Rapid Response Facility
RSIS	Ramsar Sites Information Service
SDGs	Sustainable Development Goals
SMNP	Sanganeb Marine National Park
SOC	state of conservation
SOIMA	Sound and Image Collections Conservation
SP	State Party
UAE	United Arab Emirates
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNEP-WCMC	UNEP World Conservation Monitoring Centre
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNF	United Nations Foundation
UNFCCC	United Nations Framework Convention on Climate Change
WH	World Heritage



1. Introduction

Tabe'a III is the third report of the *Tabe'a* report sequence, prepared by the Arab Regional Centre for World Heritage (ARC-WH) in cooperation with the IUCN World Heritage Programme. The report addresses the status and trends in the implementation of the World Heritage Convention in the Arab region in the period from 2015 to 2019.

Tabe'a III follows the main framework adopted in *Tabe'a I* (2012) and *Tabe'a II* (2015) in regard to documenting progress made in the conservation of natural and mixed World Heritage sites in the Arab region. It also adds – as done in *Tabe'a II* – a set of new special themes reflecting the key regional priorities emerging from the main challenges facing heritage protection and conservation, and in light of emerging global trends and priorities associated with the World Heritage Convention, as well as other related global natural heritage platforms and programmes.

In 2012, *Tabe'a I* focused on establishing the baselines of natural World Heritage in the Arab region in terms of priorities for potential new listings and State of Conservation of existing sites.

In 2015, *Tabe'a II* provided an update on *Tabe'a I* and addressed the theme of regional capacity building. It focused on establishing a credible and representative network of natural World Heritage sites in the Arab region for effective conservation and management.

Tabe'a III adopts three new thematic areas emerging in the region and their associated challenges and opportunities at the site, national and regional levels. These are: 1) addressing nature–culture linkages in World Heritage from a regional perspective, responding to a growing interest globally to better integrate the two themes into the implementation of the World Heritage Convention, 2) analysing national and regional challenges associated with impacts of conflict on sites and countries and 3) documenting impacts related to extreme weather conditions on natural World Heritage in the region.

Nature–culture linkages in World Heritage in the Arab region

Tab'e'a III focuses on linkages between natural and cultural heritage. The rationale for examining this theme is that, in many cases, both these components of heritage are organically interconnected. This is particularly the case in the Arab region, one of the world's oldest centres of human civilisation, where very strong interactions between people and their surrounding environment have been taking place over millennia.

The nature–culture theme is also relevant because of the growing need for improved collaboration and coordination between organisations involved in heritage conservation – both natural and cultural (Garstecki et al., 2011). The Tab'e'a Programme, representing a technical cooperation between ARC-WH and IUCN, is an excellent example of institutional partnership. As advisory bodies to the World Heritage Convention on nature and culture respectively, IUCN and ICOMOS are also demonstrating greater coordinated efforts in monitoring and evaluating mixed World Heritage sites and cultural landscapes, and in addressing cross-linkages in managing cultural and natural values and attributes in all heritage sites.

The nature–culture linkages are also relevant to the global trend associated with the implementation of the Sustainable Development Goals (SDGs) which, while focusing on human and natural global priorities, emphasise the vitality of integrated approaches to heritage planning and management.

Based on the above, Tab'e'a III includes a main section on the nature–culture linkages at the Arab regional level and, in doing so, adopts a three-dimensional approach in addressing these linkages, as follows:

Firstly, the report examines the benefits foreseen from fostering linkages between natural and cultural heritage programmes and sites. It identifies barriers and constraints to establishing linkages, then analyses implications – both positive and negative. Finally, it devises a set of responses to address the enhancement of the linkages with adequate platforms, mechanisms and tools.

Secondly, the report addresses these different elements at the site level, the national level and at a regional level, with respective recommendations and proposed actions tailored to each level.

Thirdly, nature–culture linkages are considered according to different categories of World Heritage sites, be they natural, cultural or mixed or cultural landscape. The specific mechanisms, tools and recommendations reflect each type of site and its specificities.

Impacts of conflict on natural World Heritage

The second important theme covered in Tab'e'a III is the impacts on natural World Heritage of conflict resulting from the rapid socio-political transformations taking place in the Arab region.

Armed conflict causes direct damage to natural World Heritage, as well as many direct and indirect impacts including the weakened governance systems of natural resources that ensues.

Impacts of extreme weather conditions on natural World Heritage

The third important theme covered in Tab'e'a III addresses the impacts of extreme weather conditions mainly caused by the increasing impacts of climate change and coinciding anthropogenic factors.

Climate change-induced extreme weather conditions are an additional threat to sites, as are the deteriorating human and financial resources allocated and available for heritage protection and conservation.

For both emerging challenges above (armed conflict and extreme weather conditions), Tab'e'a III attempts to identify the constraints, challenges and possible opportunities arising from the socio-economic, political and environmental changes taking place in the Arab region.

The aim is to document the current and potential impacts of such changes on the status and future prospects of natural World Heritage sites, and share lessons learned on how such impacts have been addressed at the site and national levels.

The report also aims to provide clear recommendations to World Heritage stakeholders on priorities and required action at the site, national, sub-regional and regional levels, thus promoting institutional collaboration, including technical support and funding opportunities.

Regional update

In addition to the three themes introduced above, *Tabe'a III* provides an elaborated update on the state of conservation of natural World Heritage sites in the Arab region. To do so, it draws information from a range of sources, including: the [IUCN World Heritage Outlook](#), which assesses and tracks the conservation prospects of all natural World Heritage sites; the State of Conservation reporting, the World Heritage Convention's reactive monitoring system for sites facing threats; and periodic reporting, carried out every six years as a self-assessment by States Parties. Any other site-specific, national or regional reporting processes and initiatives have also been used.

Further, the report includes a summary update on the Arab States' lists of possible candidate sites, known as Tentative Lists, and on their developments since *Tabe'a II*. This summary focuses on national, sub-regional and regional initiatives addressing the harmonisation of Tentative Lists and lessons learned from their processes.

Report preparation process

Tabe'a III has been developed following three consecutive stages:

1. **Desk-based review:** including all available information and updates related to the various sections of the report, with a focus on nature–culture linkages and the impact of conflict and extreme weather conditions on natural World Heritage in the Arab region.
2. **Case studies:** including the identification and documentation of case studies and lessons learned addressing the various elements of the report themes, with particular focus on the three main themes addressed in the report, namely, the nature–culture linkages, conflict, and extreme weather conditions.
3. **Report drafting and partners' consultation:** the report structure and drafts were shared with key partners and interest groups associated with the ARC-WH under the Nature Programme for further contributions, fact checking and recommendations. This included a peer review process in accordance with the IUCN policy on publication development.



Traditional fish drying by local Imraguen community in Banc d'Arguin, Mauritania © Editions Gelbart

2. Nature–culture linkages

Report approach

This section of the *Tabé'a III* report addresses nature–culture linkages and their association with World Heritage in the Arab States through the following rationale:

- Introducing the history of the **concept** of nature–culture linkages and its application worldwide, starting with the general concept then focusing on its World Heritage context.
- Presenting a select number of past and current **global** initiatives and case studies addressing the concept.
- Reviewing a select number of past and current initiatives and case studies addressing the concept in the **Arab region**.
- Summarising the overall **status** of the concept and its **application** in the Arab region.

2.1 General context

Culture–nature, or nature–culture, is an approach to heritage that has emerged based on the understanding that relationships between people and the natural environment have worked to shape both our physical environment and belief systems.

For millennia, people have interacted with their natural surroundings, as participants in the functioning of ecosystems, or protectors of sacred natural sites, or shaping landscapes. Traditions and belief systems of indigenous cultures often mean that they regard nature with deep respect and have a strong sense of place and belonging. This fosters knowledge and ways of life that match well with modern notions of heritage conservation and the sustainable use of natural resources (UNEP, 2017). As such, spiritual values, cultural conservation practices, traditional ecological management knowledge, and stewardship practices are just some examples of nature–culture inter-linkages, not only valuable in themselves, but equally critical to ensure the wholeness and integrity of a site.

Therefore, the nature–culture approach embraces the complexity of our heritage, which includes biological resources, genes, landscapes, geological diversity, cultural places and practices, and traditional knowledge systems.

Until recently, nature and culture were generally dealt with separately. For instance, in the past, during the period of European exploration and colonisation, Europeans saw only ‘wilderness’, ‘primitive places’, and the world ‘in a state of nature’. Few Europeans recognised the hand of humankind in the ‘landscapes’ which they colonised. Such notions came to influence the conceptual basis for ‘protected areas’ which aimed to ‘protect’ nature from human influence (Cave & Negussie, 2017). Unsurprisingly, indigenous peoples have generally been stout opponents of such developments imposed from beyond their communities. They defend their lands against illegal encroachments and destructive exploitation, from dams across their rivers to logging and mining in their forests, and even from ‘protected areas’ and ‘nature reserves’ if they feel that these are infringing on their rights to their land.

A specific example can be seen in the 1971 Ramsar Convention on Wetlands of International Importance, which took a strict approach to preventing change to the ecological character of wetlands, but was later understood to have failed to take account of the importance of traditional human activities (such as subsistence fishing or reed cutting) in the development and continued health of wetlands. As a consequence, this preservationist approach was replaced in 1990 by the ‘wise use’ approach that is closer to sustainable conservation (Blake, 2015). This is a perfect example to illustrate how conservation success requires an integrated nature/culture approach that addresses the wide range of social, economic and cultural issues affecting how people interact with the environment.

Another example is the World Heritage Convention, which originally was hailed for linking the conservation of nature and culture in a single instrument but has since been increasingly under attack for sustaining the divide (Cave & Negussie, 2017). The nature–culture dichotomy evolved into separate heritage fields and domains of expertise, but there is a growing understanding that heritage sites are not made up of isolated natural or cultural attributes split into separate realities but are intertwined and connected. Heritage thinking has thus matured in its appreciation of the complex interconnections between values both cultural and natural, regardless of whether they manifest Outstanding Universal Value (OUV) only (Larsen & Wijesuriya, 2017).

Yet another example is that of UNESCO, where, although work on culture and sustainable development is, by definition, inter-sectoral, the reality is that cooperation between culture and other sectors is rare, both in policy and implementation. Working in an inter-sectoral manner with UNESCO has always been a challenge due to budgeting and the hierarchical structure of different sectors, and while several attempts have been made in the past to find solutions to this problem, examples of successful sustained inter-sectoral work that go beyond cooperation in the context of an event or publication are still rare. This lack of integration between culture and sustainable development considerably weakens UNESCO’s advocacy efforts. However, culture and sustainable development linkages do exist – in work undertaken by sectors, at headquarters, and in the field. In fact, UNESCO and its partners, largely thanks to the Millennium Development Goals Achievement Fund (MDG-F) and its ‘culture and sustainable development window’ (UNESCO, 2015a), are succeeding in raising people’s awareness about the fact that development, if not sustainable, can negatively affect culture.

UN Sustainable Development Goals (SDGs), the urgent sustainability objectives to guide humanity’s path, recognise that integrated nature–culture approaches can advance the SDGs by improving conservation outcomes, fostering biological and cultural diversity, and supporting the well-being of contemporary societies in both urban and rural areas (Potts, 2017).

Nature–culture linkages are part of the very fabric and continuation of living heritage across the majority of World Heritage sites. As such, the effective and lasting conservation of places certainly will depend on ‘bridging the divide’ that is often observed between nature and culture; indeed, they have traditionally been seen as interconnected. Just as the conservation of natural heritage depends on indigenous knowledge, inputs and cooperation, so too indigenous cultures depend on natural heritage.

2.2 A global perspective

The World Heritage system has become challenged by a deepening gap between nature and culture. The defining articles of the World Heritage Convention keep natural and cultural heritage as separate domains by situating humanity, history and construction in the cultural field, and contrasting these with natural features. However, the idea of nature–culture linkages is increasingly deliberated. At the conceptual level, there is a growing need to rethink natural and cultural heritage as an interrelated and interdependent concept, rather than as separate domains. At the management level, there is a need to rethink current approaches, where nature and culture management remain separate.

It is becoming obvious that questions of inter-linkages are critical to the integrity, authenticity and management of *both* natural and cultural sites.

Spiritual values, cultural conservation practices, traditional ecological management knowledge and stewardship practices are just some examples of nature–culture inter-linkages not only valuable in themselves, but equally critical to ensure the wholeness and

integrity of the site as such. They may not meet any World Heritage criterion but nonetheless form inseparable entities for management (Larsen & Wijesuriya, 2017).

A breakthrough in nature–culture linkages came in 1992 with the introduction of the concept of cultural landscapes to the World Heritage Convention, where human interaction with the natural system has formed the landscape. There are three categories recognised in the Convention: created landscapes, organically evolved landscapes, and associative cultural landscapes. However, the categories of cultural landscape actually led to further separation: whereas the introduction of cultural landscapes focused explicit attention to nature–culture linkages, other changes made in the wording of the World Heritage criteria during the same year removed phrases on the integration from the natural criteria. Recognition of what had been worded as “Man’s interaction with his natural environment” was removed from former natural criterion (ii) (currently criterion viii) leaving “ecological and biological processes” as defining elements. In similar terms, exceptional combinations of natural and cultural elements disappeared from former natural criterion (iii) (current criterion ix). Furthermore, cultural landscapes as a category of heritage are recognised only under cultural criteria (i–vi) of the Operational Guidelines, and these criteria are evaluated only by ICOMOS, whereas natural criteria (vii–x) are evaluated only by IUCN.

In many cases, this dichotomy has caused reflection on inter-linkages to disappear from nomination files in attempts to fit local realities within global categories. As one site manager explained, “We initially presented both natural and cultural values, but experts advised us to rework our dossier and only concentrate on natural values” (Larsen & Wijesuriya, 2017).

The World Heritage community has long been aware of this trend; however, the fact remains that many nomination processes are urged to downplay inter-linkages in order to portray global significance except where inter-linkages are seen as ‘added value’.

Sites have the option to seek inscription as ‘mixed sites’, but this is a difficult task. Nominations are required to demonstrate the OUV for both natural and cultural values, thus limiting the potential application. Further, mixed sites do not necessarily address inter-linkages, but merely the presence of both criteria in one site.

Ultimately, there are limited incentives to nominate mixed sites because they are considered too complex – cultural and natural values within one site often have separate management plans, management of the values may be undertaken separately, and the values are assessed by separate teams.

The fact is that only a minority of sites are listed as mixed sites or cultural landscapes, and in practice, inter-linkages are repeatedly under-represented compared with their actual significance.

World Heritage practitioners are attempting to address the nature–culture divide. This may involve new categories and language, questioning the way in which approaches to natural and cultural heritage are being implemented independently of one another, and recognising the variety of inter-linkages found in all World Heritage sites. Efforts have ranged from capacity building to integrative research and practice.

Regarding the World Heritage Convention, a major drive is underway to rethink the boundaries between nature and culture as: embedded and connected rather than isolated qualities, constituted relationally rather than unique and distinct properties, a dynamic web of processes rather than fixed elements, and a field for experience sharing and mutual-learning.

In the end, it is about bringing World Heritage out of a Eurocentric legacy and reconciling OUV with local values and connections. This means encouraging and accommodating perspectives on heritage and its management which treat nature and culture holistically as indivisibly inter-related aspects of the world in which people live.

Global initiatives

The following are summaries of a number of important past and ongoing global initiatives on nature–culture linkages with priority given to those associated with World Heritage.

The ‘Connecting Practice’ Project is a joint effort of IUCN and ICOMOS working with a range of partners which aims to explore, learn and create new methods of recognition and support for the interconnected character of the natural, cultural and social value of highly significant land and seascapes and their affiliated bio-cultural practices. Objectives of the project include adapting management effectiveness methodologies that apply to both cultural and natural sites, and strengthening policy and management frameworks to protect areas while integrating natural and cultural heritage.

Lessons learned from the Second Phase of Connecting Practice (Leitão et al., 2017) include: governance as a concept is continually evolving and should be incorporated into World Heritage initiatives in a timely manner, it is crucial to address institutional barriers to

deliver integrated approaches of natural and cultural heritage under the World Heritage Convention, and professional and institutional capacity is required to achieve a holistic consideration of the natural and cultural heritage of a site.

The Enhancing our Heritage (EoH) Toolkit is a natural heritage management effectiveness methodology which was developed with a focus on natural properties but was adapted to various uses at cultural heritage sites during the Connecting Practice project (IUCN, 2015b). The EoH Toolkit contains twelve practical tools designed to help those responsible for World Heritage site conservation piece together the elements of a comprehensive management framework.

The toolkit takes into consideration that “in viewing cultural and natural heritage as interrelated, it can be a significant task to break down disciplinary divisions. A possible first step would be to use the available ‘toolboxes’ of other disciplines to learn from other fields and methodologies in order to move closer to a synthesis of different approaches” (Cave & Negussie, 2017).

The Nature–Culture Journey, a subtheme co-sponsored by IUCN and ICOMOS at the IUCN World Conservation Congress Hawai‘i, United States in 2016, featured over forty sessions focused on sharing experiences from all over the world on how professionals and organisations are working towards defining new methods for a connected approach between natural and cultural heritage. A statement issued from the Journey pledges to recognise that cultural and natural diversity and heritage are seriously threatened around the world by challenges including climate change and that integrated nature–culture approaches improve conservation outcomes, foster cultural diversity and support human well-being. It was discussed that the integration of nature and culture in conservation approaches has hopeful potential outcomes (Potts, 2017), such as ending hunger, mitigating and adapting to the effects of climate change, and creating sustainable urban environments.

Culture–Nature Items: the 20th Session of the World Heritage General Assembly (2015)

In the Policy Document on World Heritage and Sustainable Development (UNESCO, 2015b):

- Item 15 “Protecting biological and cultural diversity and ecosystem services and *benefits*” states that biological and cultural diversity, as well as ecosystem services and benefits for people that contribute to environmental sustainability, should be protected and enhanced within World Heritage properties.
- Item 21 “*Respecting, consulting and involving indigenous peoples and local communities*” states that the World Heritage Convention includes, as one of its strategic objectives (the fifth ‘C’) “to enhance the role of communities in (its) implementation” (Decision 31 COM 13B). The World Heritage Committee specifically encourages the effective and equitable involvement and participation of indigenous peoples and local communities in decision-making, monitoring and evaluation of World Heritage properties and the respect of indigenous peoples’ rights in nominating, managing and reporting on World Heritage properties in their own territories (Decision 35 COM 12E). Recognising rights and fully involving indigenous peoples and local communities, in line with international standards is at the heart of sustainable development.
- Item 22, also under “*Respecting, consulting and involving indigenous peoples and local communities*” states that to fulfil this strategic objective of the Convention and ensure policy coherence for sustainable development, States Parties should develop mechanisms for indigenous peoples’ involvement in World Heritage processes, ensure consent and participation of indigenous peoples where World Heritage processes would affect their lives, actively promote indigenous and local initiatives, and support activities which contribute to a sense of shared responsibility for heritage among indigenous people and local communities.
- Item 27 “*Strengthening capacity-building, innovation and local entrepreneurship*” states that States Parties should recognise that inclusive economic development is a long-term commitment based on a holistic approach to World Heritage properties and their associated cultural and creative industries and intangible heritage.

The Scientific Symposium that took place during the 19th ICOMOS General Assembly, in Delhi, India, in December 2017, also included a Culture–Nature Journey as one of its subthemes. Some highlights were the proposal of a new resource manual to join the existing ICCROM Managing Cultural World Heritage manual and the IUCN Managing Natural World Heritage manual, a workshop on how Rights-Based Approaches can use a nature–culture approach to improve management in partnership with indigenous communities, and workshops examining the challenging issue of agriculture and forming alliances among traditional stewards of these landscapes and conservation organisations.

People-Centred Approaches (PCA) to the conservation of nature and culture link the cultural heritage sector to the natural heritage sector. These nature–culture linkages are recognised by ICCROM, IUCN and others; and ICCROM’s People and Heritage Programme focuses on building capacities in both the natural and cultural sectors. The programme focuses on respect for diversity and the inclusion of people’s voices in the conservation and management of heritage, and the recognition of the influence of heritage on people’s lives and the custodianship of people and their traditional knowledge systems in the long-term care of heritage (ICCROM, 2018).

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services recognises that indigenous peoples and local communities possess detailed knowledge on biodiversity and ecosystem trends. This knowledge is formed through their direct dependence on their local ecosystems, and observations and interpretations of change generated and passed down over many generations, and yet adapted and enriched over time. Indigenous peoples are often better placed than scientists to provide detailed information on local biodiversity and environmental change and are important contributors to the governance of biodiversity from local to global levels. IPBES established an Indigenous and Local Knowledge Task Force to guide activities related to conservation and sustainable use of ecosystems.

The International Partnership for the Satoyama Initiative (IPSI) is dedicated to working together to realise societies in harmony with nature. Based on knowledge and practices locally accumulated in human–nature interactions over a long time, production activities, and their management mechanisms, people have created elaborate systems that have continued to support local communities by providing foods, fuels and other materials, nurturing traditions and culture, and maintaining ecosystems and biodiversity. However, they have been increasingly threatened by rapid socio-economic changes in recent years. Therefore, it is important to explore ways and means for using and managing natural resources sustainably that benefit current and future generations.

Resolutions of ICOMOS General Assemblies related to nature–culture linkages

19th General Assembly (India 2017)

- 19GA 2017/16 “Principles concerning Rural landscapes as Heritage” adopts the ICOMOS-IFLA “Principles concerning Rural Landscapes as Heritage” as an ICOMOS doctrinal text.
- 19GA 2017/25 “Incorporating the interconnectedness of Nature and Culture into Heritage Conservation” recognises that in heritage conservation contexts, nature and culture are not separate domains, and that adverse outcomes can occur when heritage processes do not adequately reflect the interrelated character of nature and culture; and highlights the importance of enhanced recognition of the interconnectedness of nature and culture for the successful localisation of the SDGs.

18th General Assembly (Italy 2014)

- 18GA 2014/37 Ensuring that culture and cultural heritage are acknowledged in the proposed Goals and Targets on Sustainable Development for the Post-2015 United Nations Development Agenda recalls that culture and cultural heritage, its conservation, and enrichment should be declared a major vehicle (the fourth pillar) for sustainable development.

RAMSAR: The Ramsar Sites Information Service (RSIS) provides data that shows that nearly all Ramsar sites provide cultural ecosystems services, and over half have spiritual and inspirational values. Therefore, integrating nature and culture in the management of wetlands can play a powerful role in their conservation and wise use.

The MAVA project, ‘Conservation of the natural and cultural heritage in wetlands’ (Ramsar Convention, 2017), has resulted in ‘Rapid Cultural Inventories for Wetlands’ underway in several regions of the world, including a collaborative project with the Arab Regional Centre for World Heritage; a project documenting lessons learned from ‘success stories’ in situations where wetland areas are designated under both the Ramsar Convention and the World Heritage Convention; a new Ramsar Handbook on culture and wetlands; and an analysis of culture-related information in Ramsar’s national and site-level information and reporting systems.

World Heritage Leadership Programme is a new capacity building programme of ICCROM and IUCN (2016), which aims to improve the conservation and management practices for culture and nature through the work of the World Heritage Convention, as an integral component of the contribution of World Heritage sites to sustainable development. The programme takes a new and transformative approach, in that it will not focus exclusively on work within the World Heritage Convention, but take a wider view of the totality of conservation practice, and how working through World Heritage sites and the communities and specialists that support them, World Heritage can provide new and better leadership to achieve innovation, performance and excellence that will inspire wider practice. It will take a fully integrated approach to nature and culture from the outset, and will focus on the most pressing challenges where working through World Heritage has the most compelling possibility to make a difference.

Local Communities and Indigenous Peoples Platform (LCIPP), established to strengthen the knowledge, technologies, practices and efforts of local communities and indigenous peoples related to addressing and responding to climate change (see more on this below under ‘Extreme weather conditions and natural World Heritage’: ‘Global initiatives’ in section 4.2).

UNESCO programmes that link culture and sustainable development include the *Man and the Biosphere (MAB) Programme* which aims to establish a scientific basis for the improvement of relationships between people and their environments; the *Local and Indigenous Knowledge Systems (LINKS)* which aims to secure an active and equitable role for local communities in resource management in addition to strengthening knowledge transmission across and within generations; *Global Citizenship Education (GCED)*

which aims to foster values, knowledge and skills that promote respect for human rights, social justice, diversity, gender equality and intercultural understanding ultimately empowering learners to be responsible global citizens; and *Education for Sustainable Development (ESD)* which aims to empower learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society.

Of the above UNESCO programmes, special focus is given here to the *UNESCO Man and Biosphere Programme*, as it is actively applied in the Arab region.

The MAB Programme is a UNESCO intergovernmental scientific programme that combines the natural and social sciences with a view to improving human livelihoods and safeguarding natural and managed ecosystems, thus promoting innovative approaches to economic development that are socially and culturally appropriate and environmentally sustainable.

Biosphere Reserves represent the prime flagship product of the UNESCO MAB Programme. They are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity. They are places that provide local solutions to global challenges, and each site promotes solutions reconciling the conservation of biodiversity with its sustainable use. Biosphere Reserves involve local communities and all interested stakeholders in planning and management.

As an international designation instrument, the Man and the Biosphere Programme could be utilised as a preparatory phase paving the way for a successful World Heritage Nomination. It could also serve as a tool to better integrate the sites' natural values and attributes to their associated cultural significance.

This is evident in the case of Socotra Archipelago where the MAB process was instrumental in the successful inclusion of the site on the World Heritage List. This was achieved by adopting the Biosphere Reserves zoning approach to delineate the boundaries between the core area, purely designated for biodiversity protection (including the Outstanding Universal Value), and areas designated for sustainable and intensive resource use. Being listed only as a natural property, the biosphere designation helped integrate the cultural aspects of the site into the nomination dossier. This was done as part of the extensive assessments and inventories prepared on cultural attributes – both tangible and intangible – in the biosphere designation process. As a result, a stronger cultural component was included in the World Heritage nomination file.

Global case studies²

Presented below, are a selected number of global case studies addressing nature–culture linkages.

Case studies were selected based on their relevance to the nature–culture linkage themes as well as the relevance to issues and priorities identified for the Arab States region such as good governance, integrated management, local communities' involvement and traditional knowledge.

Each of the case studies listed below includes a brief description of its selection rationale, geographic locality, thematic scope, objectives, main findings and conclusions derived by the report author.

It is important to note that content detail under each case study was limited by the information available from the source.

The Budj Bim Cultural Landscape in Australia

The Budj Bim Cultural Landscape in Australia case study was selected to demonstrate the importance of adopting a landscape-based approach to heritage management, including both natural and cultural aspects which are derived from indigenous and traditional knowledge, with particular focus on sustainable traditional resource utilisation and management systems and practices.

The case study includes evidence of one of the world's oldest known aquaculture systems. Gunditjmara Aboriginal people constructed an extensive and technologically sophisticated aquaculture system on the Budj Bim lava flow. Gunditjmara people were able to harvest and farm large quantities of the migrating Short-finned eel (*Anguilla australis*) while maintaining a sustainable eel population by manipulating seasonal flooding through the creation of stone channels. Archaeological excavations at the Budj Bim Cultural Landscape found evidence of channel construction at least 6,600 years ago, and two recent phases of channel construction within the past 600–800 years. The age of the aquaculture system, its degree of preservation and completeness, and the continuity of Gunditjmara traditional practices make the Budj Bim Cultural Landscape an exceptional, organically evolving heritage site and continuing cultural landscape. It shows that cultural and environmental systems are entangled, as expressed in the idea of 'Country'. *Country* is an Aboriginal-English word that refers to a knowledge system that encompasses the whole landscape. For example, 'caring for Country' is an aboriginal concept that includes

² Case studies included here are not limited to World Heritage sites.

Gunditjmara law, knowledge, social practices, the aquaculture system, the volcanic and hydrological systems, and the ecological and biological systems, particularly relating to eels. It perfectly illustrates the inseparability of nature and culture (Brown, 2017).

Looking at the case study, key findings demonstrate how resource planning and management was undertaken through a landscape approach for millennia. Traditional systems such as that of the Gunditjmara people represent an ongoing practice which is based on the principle of avoiding the over-exploitation of resources that is key for long-term sustainability. In a regional context, such a case study could be beneficial for priority landscapes within the region including marine basins (e.g. Red Sea, Arabian Gulf, Deserts and Wetlands).

Locally Managed Marine Areas in the South Pacific

The South Pacific case study was selected to highlight the high level effectiveness of community based approaches to protected areas management, and Locally Managed Marine Areas as a living example.

The South Pacific is characterised by a diverse marine ecosystem and is also home to a vast diversity of local peoples, many of whom have a long history of using traditional management systems like seasonal bans and temporary no-take areas. In order to combat a host of threats such as destructive fishing, sea level rise, growing populations, coastal development, and general loss of cultural and traditional connections to the sea, marine conservation organisations in the region developed a community based approach known as Locally Managed Marine Areas (LMMA). The approach strives to implement effective and innovative forms of sustainable management by reviving traditional methods and combining them with modern techniques. The LMMA Network received the prestigious Distinguished Service Award for Conservation Achievement in 2016 for "extraordinary achievements in advancing and scaling up the practice of community-based marine resource management and conservation in Oceania".

The case study demonstrates how local communities, when taking a leading role on the identification, establishment and management of protected areas, can be accountable for the effective management of protected areas through adopting local governance systems and processes which ensure the achievement of the biodiversity conservation objectives while addressing the needs of local communities through sustainable resource utilisation.

Kikuyu Escarpment Forest, Kenya

Kikuyu Escarpment Forest case study demonstrates how internationally recognised biodiversity important areas (in this case Important Bird Areas) can act as a platform for integrating natural and cultural heritage components at the large scale in terms of area size and number of people involved and targeted.

The Kikuyu Escarpment Forest IBA provides water, fuelwood, herbal medicine and building materials for more than 200,000 local people. It also provides the catchment for the drinking water supply for parts of Nairobi. Recent extended dry periods are being linked to climate change, and climate change predictions suggest this may worsen. This has resulted in reduced crop yields, which in turn have driven some local people to undertake largely unsustainable activities such as illegal timber harvesting, overgrazing and charcoal burning, with negative impacts on the forests and the water catchment. This has serious consequences, including resource conflicts between communities linked to reduced water levels. To help address this, conservation groups have developed community awareness of more diverse strategies for coping with periods of drought. Through site-based community workshops, regular bird and forest walks, and local community partnerships, residents have embraced sustainable activities (such as agroforestry, crop diversification, eco-agricultural practices, grazing management) that conserve and create diverse ecosystems, and, in turn, improve water conservation and filtration (Heath et al., n.d.).

The case study is quite relevant to the Arab region's context in terms of water scarcity, resource use activities, and conflicts over resource utilisation for multiple purposes. The case demonstrates how integrated planning and management approaches need to be supported by alternative resource utilisation practices which are well known to local users and strongly embedded into their traditional knowledge systems.

2.3 Nature–culture linkages in the Arab States

Nature–culture linkages related to traditional practices and knowledge systems are threatened in the Arab States region by easily imported, deceptively attractive modern practices – predominantly in the fields of agriculture, livestock rearing and market strategies. Further, poverty can often push marginalised communities to engage in unsustainable practices which disregard generations-worth of knowledge and are detrimental to sustainable development.

Lessons learnt from past initiatives show that local populations in the Arab States region can be instrumental to conservation. For instance, in the campaign to prevent extinction of the Arabian leopard in Oman, intensive publicity of the conservation effort increased the awareness of the local population, resulting in their proud participation in the project (Victor, 2012). Or, encouraging the local Imraguen population of Mauritania to abandon unsustainable fishing practices and return to traditional fishing activities generated positive conservation outcomes and environmental benefits that are recognised by the community (McInnes et al., 2017). In Oasis de Tamantit et Sid Ahmed

Timmi, Algeria, there is no rain, but the local population still maintains an ancient hydraulic system which captures underground water, transforming the arid landscape into an oasis, perfectly illustrating sustainable natural resource management (Abulhawa & Cummings, 2017). And in Yemen, local people had turned to growing the more profitable narcotic qat on terraces which for 300–400 years had been traditionally used to grow Arabica coffee which requires less water. Subsequently, in 2006, due to agricultural, technical and financial support offered to growers, villagers began turning back to coffee, showing that incentives (as opposed to strong-arm tactics) can be important tools to persuade local populations to return to more sustainable practices (Victor, 2012).

Regional initiatives

The Arab Regional Centre for World Heritage revised its strategy in 2017 towards further integrating both natural and cultural heritage into its yearly activities in order to enhance the implementation of the World Heritage Convention and its aspirations in the Arab region. In recent years, the majority of its regional activities have been designed in an interdisciplinary manner in order to bring together experts, State Party representatives and site managers from both fields, to not only learn from each other's experiences, but also to foster a more multi-sectoral approach towards the protection of the Outstanding Universal Value of sites for current and future generations. Evaluations of such interdisciplinary training events have proven that such an approach is much welcomed and beneficial for the attendees, targeting a real need in the region and leading to a much-enhanced cooperation between heritage professionals.

The following includes summaries of a number of important past and ongoing regional and national initiatives addressing the nature–culture linkages directly and indirectly:

Enhancing our Heritage toolkit – EoH Training Programme

ARC-WH has launched a pioneering training programme in 2018 with the technical support of IUCN and the World Heritage Leadership Programme for site managers from all inscribed natural and mixed sites in the region, as well as a number of cultural landscapes, to be trained on management effectiveness skills for World Heritage sites and the application of the Enhancing our Heritage (EoH) toolkit. This training programme represents a pilot programme using the Arab region as a case study, contributing to the revision of the EoH toolkit which was initially designed to support the management and assessment of natural sites only. However, it was recognised that this toolkit has the potential to be beneficial in a more interdisciplinary manner – for sites with both (or either) natural and cultural values. Therefore, this training programme – consisting of, thus far, three regional workshops and intermediate work – created a platform to bring site managers from the natural and cultural heritage fields together in order to implement a much more holistic approach, improve the effectiveness of their site management and to feed the outcomes of their fruitful discussions into the global revision of the toolkit.

Heritage-Environmental Impact Assessment – HIA-EIA Training Programme

Recognising the need for more controlled and informed decision making when it comes to development projects within (or in proximity of) World Heritage sites in the Arab region, ARC-WH has launched an interdisciplinary training programme on both Heritage Impact Assessments (HIA) and Environmental Impact Assessments (EIA), bringing together attendees from 11 Arab States from natural, mixed and cultural World Heritage sites in order to increase their understanding of concepts and mechanisms of the World Heritage Convention, including conservation, management and protection. The interdisciplinary atmosphere was highly beneficial towards fruitful discussions on impacts and threats that World Heritage sites are facing and led to a much wider and informed vision of the attendees towards protecting their World Heritage sites for current and future generations.

UNESCO Man and Biosphere Reserve Programme (MAB)

Several countries from the region are using the biosphere concept as the first steps towards the international recognition of key national sites important for natural and mixed heritage. This is the case for the Hawar Islands site in Bahrain, and the Farasan Islands Protected Area in Saudi Arabia. Both countries are utilising the learning process associated with the MAB programme to build national capacities and explore the potentials of sites to serve as MIDAs (Multi-International Designated Areas).

In the Arab States region, there are 33 MAB Biosphere Reserves in 12 countries, and of the eight Arab region natural or mixed World Heritage sites, three are MAB Biosphere Reserves, as shown in the table below:

World Heritage site name	Type	Date of WH designation	Biosphere status	Date of MAB designation
Socotra Archipelago, Yemen	Natural	2008	Designated	2003
Tassili n'ajjer, Algeria	Mixed	1982	Designated	1986
Ichkeul National Park, Tunisia	Natural	1980	Designated	1977

Additionally, five of the 33 Biosphere Reserves are on national World Heritage Tentative Lists, as shown in the table below.

Country	Biosphere Reserve	WH Tentative List status	Tentative List inclusion date
Jordan	Dana (1998)	Yes	2007
	Mujib (2011)	Yes	2007
Sudan	Dender (1979)	Yes	2004
Tunisia	Jebel Bohedma (1977)	Yes	2008
Yemen	Jabal Bura (2002)	Yes	2011

Rapid Cultural Inventories of Wetlands in Arab States

This 2017 publication produced by the Tab'e'a Programme documents 18 sites in six countries. It calls for joint efforts to preserve cultural heritage in the Arab region's wetlands, recalling that past and present civilisations have centred around areas providing water resources.

'Heritage of Water' Thematic Programme

Water has been the most vital resource for many local communities in arid and semi-arid environments in the Arab region. Not only is water a crucial component to the survival of humanity, but it also plays a significant role in the formation of cultural traditions, customs and practices.

This thematic programme chosen by ARC-WH for 2018 sought to raise awareness of how humans live in harmony with their harsh environments and how the sustainable use of water has carved and transformed the cultural landscape of the Arab region. Several activities were run under this umbrella topic, such as the inauguration of an exhibition titled 'Traditional Water Systems in the Arab World – Oases Landscape' which was launched during the 42nd World Heritage Committee Meeting held in Manama, Bahrain, and which



Ahwar Marshlands, Iraq © Mudhafar Salim

portrayed various types of oases that exist in the region, including traditional systems made by local people that sustainably utilise water in sites often located in arid environments (ARC-WH, 2018; IUCN, 2018a).

During the same meeting, two topically related panel discussions were held. The first one accompanied the exhibition and focused expert discussions on life-sustaining ecosystems of oases and ancient irrigation systems in globally recognised cultural heritage sites. The second panel discussion shed light on the importance of ‘Heritage of Water: Cultural Practices in Wetlands and World Heritage Sites’ and highlighted the role of cultural heritage in water-dependent areas, explaining how customs, traditions and people’s livelihoods in those geographic areas are intrinsically linked with their local environments and the traditional use of water resources. Along with this expert discussion, a new publication was launched addressing ‘Rapid Cultural Inventories of Wetlands in Arab States – building greater understanding of cultural values and practices as a contribution to conservation success’. This 2017 publication produced by the Tab’e’a Programme in cooperation with the RAMSAR Secretariat and the MAVA Foundation for Nature documents 18 sites in six Arab States Parties. It calls for joint efforts to preserve cultural heritage in the Arab region’s wetlands, recalling that past and present civilisations have evolved and thrived around natural areas providing vital water resources and how traditional cultural practices play a crucial role in the conservation of wetlands.

Furthermore, ARC-WH took the initiative in close collaboration with ICOMOS to translate the ICOMOS Thematic Study entitled ‘The Cultural Heritage of Water in the Middle-East and the Maghreb’ into Arabic, in order to further disseminate the study outcomes among the Arab speaking community. This publication was launched in 2019 during the 43rd World Heritage Committee meeting in Baku, Azerbaijan.

In light of ARC-WH’s commitment towards raising awareness of the importance of the Heritage of Water, the Director also contributed with a special focus on the Arab perspective during a panel discussion in collaboration with ICOMOS on the topic of ‘Water and Heritage, Traditional Knowledge for the Future’ during the World Water Week 2019 organised in Stockholm, Sweden.

Dialogue between Iraq and Iran on cooperation and saving the Ahwar

In light of the decline of the marshes, which are shared between Iraq and Iran (although the World Heritage site is only located in Iraq), the two countries requested that UNEP facilitate dialogue between them, which was carried out in 2004. Best practices in transboundary water management were studied, along with the case of the Marshlands, and dialogue was encouraged between the two parties. Each side then voiced their concerns, with Iraq emphasising restoration and the need for a regional approach including their plans to build a dam and dike across the transboundary marsh (Jensen & Lonergan, 2012). Dialogue was eventually placed on hold following the deterioration of the security situation in Iraq and diplomatic challenges following the Iranian presidential elections in 2005, illustrating that even though talks over shared natural heritage can initiate cooperation, environmental sustainability can be a major challenge when larger political or security issues are at play. Subsequently, as stated in WH decision 42COM 7B.66 (2018), efforts towards the establishment of long-term water sharing agreements between Iraq and Iran (and Turkey) have begun again, although Iran was excluded from 2014–2018 CPET (Collaborative Programme Euphrates and Tigris) discussions on the issue (State Party of Iraq, 2019).

Integrated ecological and place-based landscape approach to zoning mountain towns, Lebanon

Unrestrained growth of settlements in the Lebanese mountains is fragmenting and undermining the spatial relationship between built and natural environments, leading to the loss of cultural and ecological landscapes. This initiative mapped culturally meaningful and ecologically sensitive areas by combining ecological design principles, landscape character assessment, and place-based tools in a GIS environment (Neaimeh & Abunnasr, 2017). Additionally, local residents were interviewed to assess landscape elements that were important to cultural heritage. Results provided a new approach to zoning specific for mountain towns that guides development and protects culturally and ecologically sensitive resources.

Regional case studies

Presented below, are a selected number of global case studies addressing nature–culture linkages. Each case study includes a brief rationale for its selection, a general description of the geographic, biophysical and socio-economic contexts, key aspects of the issues addressed, main solutions or interventions applied, key results and findings, and relevance to the regional thematic context pertaining to nature–culture linkages.

Natural and cultural heritage intertwined: Socotra Archipelago, Yemen

The case study was selected to exemplify that the long established and very strong connection and interdependence between people, their culture and the ecosystems in which they reside are still present and functional in several areas of the Arab States region, Socotra being a living example.

The Socotra Archipelago is a natural World Heritage property in which the people still live off the sea through coastal and deep-water fishing, in addition to livestock and cattle herding, the cultivation of palm trees, and the export of honey, medicinal plants and other products of nature gathered by traditional methods. Natural and cultural heritage here are so closely intertwined that they developed almost identically and are still developing and responding in very similar ways to change induced by natural and human causes. It seems that the people of Socotra have long adapted themselves to being a dynamically functioning component of the ecosystem and rejected mechanical and industrial transformations of their world.

However, safeguarding the natural and cultural values of Socotra depends upon the commitments of all stakeholders to the empowerment of its people as the rightful owners of their natural and cultural values (Abulhawa, 2015). Indeed, globalisation is impacting the archipelago, exemplified by increased trade activities via sea and air, modern road networks, population expansion, changes in traditional land management, and the rapid uncontrolled development of the urban areas and tourism industry (Victor, 2012).

One initiative addressing the above issues is the Socotra Heritage Project which represents a fruitful partnership programme between the Royal Botanic Garden Edinburgh and its Centre for Middle Eastern Plants, the Freie Universität Berlin, the General Organization for Antiquities and Museums and the Environmental Protection Authority in Yemen as well as ARC-WH. It was funded by the British Council and launched in 2018. The overall aim of the project was to enhance the recognition, protection and conservation of the cultural heritage of the Socotra Archipelago, Republic of Yemen through formally documenting and conserving the cultural heritage of the Archipelago by creating a database that will be integrated within biodiversity conservation and development planning. The project sought to enhance local knowledge by organising practical and conceptual training events for a team of eight Socotris, enabling them to conduct informed technical field work, such as the documentation of intangible and tangible local cultural heritage. For instance, the trained team has documented thus far over 400 archaeological sites and has established together with the Governorate the first ever Cultural Protected Area in Socotra.

The Socotra case study advises that more efforts need to be put in place to better understand the connection between people and their surrounding environment as the basis for long-term management of key heritage sites. This can be achieved through empowering



Socotra Heritage Project team documenting the aloe harvest techniques in Socotra, Yemen © SHP

local communities and supporting them in maintaining and reviving their traditional knowledge, then utilising them for the management of their natural heritage. It also calls for integrating traditional knowledge and resource use practices into contemporary knowledge management tools and platforms.

Grazing and the 'Hima' system, Saudi Arabia

The Hima case study was selected to reflect trends in traditional resource governance systems that are still functioning in several areas of the region. It presents *hima* as one of the long-established livestock grazing management practices that can be studied and utilised for finding solutions for modern day realities in areas where post-oil era transformations prevail.

Saudi Arabia has a warm desert climate, and in areas with scarce plant resources, nomadic pastoralism has been practised by Arab nomads who raise sheep, goats and camels. Nomadic pastoralism in the harsh climate of the sandy, rocky deserts has been made possible by the generational succession of a chain of '*hima*', where scarce plant resources have been used sustainably instead of being overexploited.

Hima means 'protected or forbidden place' and is a reserved pasture, where trees and grazing lands are protected from indiscriminate harvest on a temporary or permanent basis. *Hima* originated from lands that were treated as a private reserve for clan heads and *sharifs*, but with the emergence of Islam, the function changed, becoming property dedicated to the well-being of the whole surrounding community.

The Prophet Mohammad (*upon him be peace*) established the *hima* of al-Naqi near Medina, and forbade hunting within a 4-mile radius or destruction of trees or plants within a 12-mile radius of the city. Then, under the second caliph of Islam, Umar ibn al-Khattab, *hima* was utilised for the protection of the poor.

Thus, the *hima* system constituted a form of resource management for the benefit of the community, based on Islamic laws and the customs of tribes. The reason *hima* has been respected is that both nomads and sedentary farmers have shared a common recognition of the harsh natural environment, and the need to share access and scarce resources is understood (JWRC, UNU-IAS, 2012a).

The *hima* system is now unfortunately in decline. The number of *hima*, which was around 3,000 sites in 1965, has decreased significantly. Nomads have overwhelmingly become sedentary and many have left animal husbandry to work in more lucrative positions. Full-time nomadic pastoralism is no longer practised, with local grazing now dominant. Further, there is more dependence on foreign workers, who do not understand the value of *hima*. Currently, the Saudi government recognises *hima* as a form of nature reserve applying Islamic traditions and as an example of conserved rangelands and forests that have been sustainably managed and work well.

The case study clearly shows the importance of traditional land management systems for the protection of local resources and sustaining them for future use while reducing the possibility of conflict over their use. Traditional management systems are still able to serve the objective of heritage conservation and management, however, they require proper documentation, collaborative efforts for their revival, and their integration into contemporary legal frameworks and heritage management approaches.

Sustainable fishing: Banc d'Arguin National Park, Mauritania

This case study was selected to give a real life example of how nature–culture linkages are put under increasing pressure and their resilience compromised as a result of technological and socio-economic transformations, especially in poor communities where traditional practices related to heritage sustainability are abandoned in return for short-term economic benefits.

The local Imraguen people in this World Heritage site have employed traditional fishing practices for centuries, however, these sustainable, non-polluting methods are threatened by pressure from illegal industrial fishing boats and the use of gill nets to catch sharks and rays for the lucrative Far East market. Competition and high prices available for shark and ray fins attracted some Imraguen to abandon their traditional practices, however, under pressure from the government and NGOs in the early 2000s, they agreed to hand over their nets in return for cash: equivalent of one euro per metre of net was returned. Whilst the return to traditional fishing activities has generated positive conservation outcomes and environmental benefits that are recognised by the Imraguen, the local community still faces concerns. As can be summed up by fisherman Soueïlim Ould Bilal, "In just one day, I used to capture 400 rays with my nets which are going to be banned from now on. What I will receive (as compensation) I will get only once. I used to get money every day from this fishing" (McInnes et al., 2017).

The Imraguen case study reveals that traditional resource use practices will not be sustained by the linkage between nature and culture unless adapted and developed to respond to the increasing demands on local resources, and at the same time supported by a set of effective alternatives to compensate the direct losses incurred by communities in return for their maintenance of traditional resource use methods.

Local community roles in governance: Djoudj/Diawling Transboundary Biosphere Reserve / Parc National du Diawling / Djoudj National Park, Mauritania and Senegal

This case study was selected to present an unusual case of transboundary cooperation to sustain and promote nature–culture linkages across political delineations with the aim to address common challenges caused by development, in this case large-scale agricultural production projects.

Several thousand people once found a livelihood in this area, which had been host to extraordinary ecological richness, but after the 1960s, environmental values deteriorated, mainly as a result of projects that were meant to enhance agricultural production. When Djoudj National Park was established in 1971, it came with the forced removal of villages and repressive measures against grazing and fishing. Subsequently in the 1980s, when there was talk of creating Diawling National Park on the other bank of the Senegal River, there was considerable opposition voiced by the local people, who knew of the hardships of their peers from Djoudj National Park. Careful consideration was therefore made to include the local people in the development of Diawling from the outset (Abulhawa & Cummings, 2017).

Today, local communities play important roles in the governance and joint decision-making regarding the area. There are numerous community-based efforts to reduce pressure on natural resources within the ecosystem, including management of invasive species, training of eco-guards from local communities, restoration of habitats and natural water regimes, conservation of biodiversity, and sustainable livelihood projects based on the provision of energy services, community-based ecotourism, handicrafts and other local products. Communities have also seized key opportunities to initiate cross-border cooperation activities, giving rise to ‘twinning’ arrangements between the two parks (Mbaye & Sow, 2013).

The case study demonstrates that heritage values cannot be delineated by political lines. Local communities along with their traditional resource management practices evolved long before the concept of the state was established, and when given the opportunity, they will find ways to collaborate on the conservation and development of shared resources and their associated natural and cultural values and attributes.

Use and management of frankincense trees: Dhofar Region, Oman

This case study (JWRC, UNU-IAS, 2012b) was selected to show how socio-economic transformations can negatively influence nature–culture linkages regardless of the value of the product traditionally utilised. Frankincense is still considered a high value commodity, however, it was abandoned by local users and utilised by temporary commercial users who lack the tacit knowledge and commitment to maintaining traditional practices.

The local population relies mainly on grazing and livestock husbandry for their livelihoods, but obtaining resin from frankincense trees for cash income or a trade resource is a traditional practice and is representative of the Omani culture. Frankincense has been used since at least 2000 BCE as a perfume, disinfectant, insect deterrent and medicine. The trees in this region have been maintained by manual planting, in addition to direct seeding by camels, and they grow wild in areas where there is groundwater. They have been traditionally owned and managed, and subsequently inherited by local kinship groups of herders, and utilisation of the trees has historically been sustainable due to their minimal amount of harvest. Since the late 1990s, however, herders have migrated to urban areas in search of higher incomes. Frankincense is now tapped mainly by migrant workers from Somalia who have rented rights to the trees. Trees are more frequently tapped than is healthy for them in order to increase yield. Further, the nomadic practice of moving camels through the mountains where the trees are located, and tapping for resin along the way, has given way to using donkeys that are not adapted to the poor forage available in the mountains, leading to the over-use of pastures at the foot of the mountain range and the degradation of the grassland ecosystem. The current usage pattern is leading towards a decline in seed production, degradation of trees and decreased soil fertility.

A key finding of the case study highlights the increasing threats facing traditional knowledge and practices in the region as a result of the post-oil era. Natural and cultural values and practices of global importance could continue to disappear and deteriorate if no action is taken to revive awareness of their significance and irreplaceability.

Traditional agriculture of the Marsh Arabs: The Ahwar of Southern Iraq

The case of the Marsh Arabs was selected as it demonstrates the importance of intangible heritage, whereby cultural practices in maintaining natural heritage provide critical livelihoods for local communities (JWRC, UNU-IAS, 2012c).

The Marsh Arabs are a core component of the Ahwar of Southern Iraq: Refuge of Biodiversity and the Relict Landscape of the Mesopotamian Cities, a mixed World Heritage site located at the confluence of the Tigris and Euphrates rivers. The area boasts extremely high biodiversity, is a spawning ground for fish and shrimp, provides permanent habitats for millions of birds, and acts as a filter for waste and pollutants, helping to protect the water quality of the Arabian Gulf. The local tribes, called Ma'dan, have engaged in traditional agriculture and fisheries in the marshes for 5,000 years, and some practices still evident in the Ahwar today

have their roots in the Sumerian civilisation, dating from the 3rd and 2nd century BCE. The Ma'dan earn a living by cultivating rice, wheat and other grains, in addition to date palms and other fruit, raising cattle and buffalo, and catching fish and shellfish. They have traditionally built their houses, simple furniture and canoes using *gasab*, which is a reed that grows on the shores of the marshes. The communities provided an excellent example of the wise use of wetlands and of the application of traditional knowledge practices, in that their day-to-day activities tending to the marshes and reed-beds maintained the ecological character of the wetland. In the past, the communities would catch only the amount of fish needed for self-sufficiency, and the *fallah* (or farmers) would only cultivate crops during the period when the water retreated. However, in recent years, larger numbers of fish are being caught to sell to other tribes, and the marshes are permanently drained to cultivate the land.

Beginning in the 1970s, dams and other structures reduced the water flow, and by 2001 other interventions had led to the loss of about 90% of the marshes. In the years following, the marshes were purposely drained during the Gulf War with the intention to destroy them. Subsequently, most of the Ma'dan fled, as their traditional lifestyle which depended on the marshes was substantially ruined. After the regime change in 2003, local people gradually returned. They destroyed the structures built to drain the marshes and re-opened inflows. With the added help of UNEP and other international organisations, 50% of the marshes were restored by 2006. Despite the efforts of local communities and international organisations to rehabilitate the area, pollutants and salt concentrations prevent the ecosystem from recovering. Also, many fisheries extensively use poison, enabling them to catch a large amount of fish at low cost. These problems, in addition to increased human demand for water, conflicts over water resources upstream of the marshes, maintenance of public order in Iraq, and desertification, leave the future of the marshes unclear. Further, the Iraqi government has yet to adopt a clear strategy for the Ahwar local populations, who largely expect their lives to return to the way they were prior to the Gulf War (Jensen & Loneragan, 2012). This dynamic could inhibit cooperation and peace building.

The case study shows the need for mechanisms to coordinate and encourage collaboration between the large number of stakeholders for the management of the different components of mixed heritage sites. Special attention is needed for capacity building, interpretation, presentation and visitor management, and for including the local communities and traditional knowledge in the integrated conservation of the cultural and natural components of the property.



Traditional farmers in the Ahwar Marshlands, Iraq © Mudhafar Salim



Millions of land-mines and UXOs in the Ahwar, Iraq © Mudhafar Salim

3. Conflict and World Heritage

Report approach

This section of *Tab'e'a III* addresses the impacts of conflict on natural World Heritage in the Arab States through the following rationale:

- Short introduction of the concepts and development history of the impacts of conflict on natural World Heritage.
- Synthesis of a selection of global initiatives and case studies addressing the issue of conflict on natural World Heritage.
- Synthesis of a selection of regional initiatives and case studies addressing the issue in the Arab region.

3.1 General context

In light of increasing disturbances globally, both human and natural, the need to understand degradation and appropriate responses is more important than ever. Climate change, resource extraction, war, strife and migration all leave significant scars both on people and on their landscapes. As a result, restoring (or supporting changes in) natural and cultural ecologies will need to be a priority in the coming years.

Information searches for the impact of armed conflict on *cultural* heritage return a plethora of results. Destruction of cultural heritage is widely publicised, reaching news cycles around the world. Looting of the Baghdad Museum during the Iraq War in 2003, massive and deliberate destruction of cultural heritage sites in Syria in the years after 2011, the devastation of the old city of Nablus in Palestine in 2002 — all widely exposed and condemned.

UNESCO has developed a comprehensive set of international instruments, the International Court of Justice (The Hague, the Netherlands) has put in place protocols and statutes, and the UN has specific resolutions – all to protect cultural heritage. However, finding data regarding the impact of armed conflict on *natural* heritage is a much more daunting task.

The report team found that it is evidently more difficult to find information on the effect of armed conflict on natural heritage. From a regional perspective, perhaps this is because many of the World Heritage properties are cultural and thus are more affected by conflict. Perhaps because natural heritage is just more remote from and more resilient to damage, unlike cultural heritage, which is generally within and close to human settlements, and as such, quickly and adversely affected. More often, conflicts occur as localised civil wars, which are generally beyond the reach of international treaties regarding the preservation of the environment, or otherwise. As a result, environmental damage goes unchecked and unrecorded.

3.2 A global perspective

During conflicts, preserving natural heritage is understandably not a high priority. However, war can leave behind toxic footprints that can seriously affect the environment, and subsequently the health and well-being of civilians and their communities. The effects of war on the natural environment usually fall into the following broad categories (Ali, 2013; Lallanilla, 2017):

- *Habitat destruction*: The most famous example of this type of destruction occurred during the Vietnam War when herbicides like Agent Orange were spread on the forests and mangrove swamps. It also includes destruction of forests and intentional felling of trees for various reasons.
- *Pollution*: Solid household waste accumulates and is often burned indiscriminately.
- *Refugees*: When warfare causes mass movements of people, resulting impacts on the environment can be catastrophic. Widespread deforestation, unchecked hunting, soil erosion, and contamination of land and water by human waste occur when people are forced to settle quickly in a new area.
- *Invasive species*: Military ships, cargo airplanes and trucks often carry non-native plants and animals, invading new areas and wiping out native species in the process.
- *Infrastructure collapse*: Among the first and most vulnerable targets of attack in a military campaign are the enemy's roads, bridges, utilities and other infrastructure. While these do not form part of the natural environment, the destruction of wastewater treatment plants, for example, severely degrades regional water quality.
- *Increased production*: Even in regions not directly affected by warfare, increased production (usually less regulated in warfare times) in manufacturing, agriculture and other industries that support a war effort can wreak havoc on the natural environment.
- *Unchecked development*: Projects can grow without any regard to environmental impacts, with squatters depleting natural resources and adding to pollution, and corrupt authorities failing to intervene.
- *Scorched earth practices*: The destruction of one's own homeland is a time-honoured, albeit tragic, wartime custom. The term 'scorched earth' originally applied to burning crops and buildings that might feed and shelter the enemy, but it is now applied to any environmentally destructive strategy.
- *Hunting and poaching*: Feeding an army often requires hunting local animals, especially larger mammals that often have slower rates of reproduction.
- *Biological, chemical and nuclear pollution*: The production, testing, transport and use of these advanced weapons are perhaps the single most destructive effects of war on the environment. Also, industrial plants and installations are often burned and vandalised, leading to fuel and chemical leaks, and massive emissions of toxic gases.

Alternatively, some argue that conflicts actually can *preserve* nature. For instance, demilitarised zones are often the most preserved areas because they are devoid of human activity. For example, the area bordering Jordan with Palestine in the south-western Jordan Valley Area has developed as one of the most pristine natural areas during the last five decades.

In another contrasting view, the coal-black skies caused by the Kuwait oil fires in 1991 provided dramatic visual evidence of war-related environmental damage, but these oil fires burned in one month roughly the amount of oil burned by industries in the United States in a single day (Lallanilla, 2017).

It appears impossible in practice to protect heritage in warzones from destruction, leaving reconstruction and rehabilitation until after cessation of hostilities. As mentioned above, natural heritage and the natural environment hold tremendous peace-building potential and underpin many peace-building priorities, and the way that natural heritage is managed and governed post-conflict can either fundamentally support or undermine peace-building initiatives.

Unlocking the potential of natural heritage to contribute to peace-building starts by assessing: 1) how it contributed to conflict; 2) how it was directly and indirectly impacted by conflict; 3) how risks can be mitigated; and 4) how effective laws and institutions for resource governance can be built to support sustainable use. Assessment must be followed by remediating environmental danger zones that threaten human health, managing and restoring natural resources that support livelihoods, and conducting reconstruction in ways that do not create additional environmental damage or unsustainable resource use (Jensen & Lonerger, 2012).

There are six key lessons that we can learn from successful natural heritage restoration programmes in post-conflict countries (Jensen & Lonerger, 2012):

- *Successful restoration programmes typically require five to ten years of sustained external support.* International aid should be provided in a way that builds local capacity, provides incentives for local ownership, demonstrates improved livelihoods, and facilitates eventual independence and sustainability.
- *Restoration programmes in post-conflict countries must address a range of technical, institutional and political challenges and trade-offs.* In addition to meeting formidable technical challenges, restoration efforts face problems of poor security, political change, corruption, lack of institutional capacity, competing forms of land use, transboundary management issues, and the need to ensure community ownership of the project. As a result, post-conflict resource restoration is gradually evolving from a technical and isolated endeavour to a more integrated and comprehensive approach that empowers local communities, builds institutional capacity for long-term management, and links restoration to income generation and sustainable livelihoods.
- *Land tenure insecurity is often a critical barrier to restoration and sustainable resource management.* Land tenure disputes are among the most common problems facing restoration projects, and tenure insecurity prevents long-term investment in restoration and sustainable resource management. In many countries, uncertainty in tenure results in unsustainable and often destructive short-term land use practices, which must be addressed during the restoration design process.
- *Determine the degree of restoration to be achieved from the outset.* Although restoring an ecosystem or natural resource to its pre-conflict condition may be technically possible, numerous political, social and economic barriers often constrain the options – lack of institutional capacity, time, resources or political will; established land use patterns and practices; and the absence of viable livelihood alternatives. In some cases, the cost of restoration may be too high, and limited funds could be better spent on more immediate needs. In such cases, stakeholders must then decide what level of restoration is possible. Throughout the design of restoration programmes, careful consideration should be given to potential threats from climate change.
- *Community ownership of restoration programmes must be built from the outset.* The restoration of degraded natural resources can be critical to revitalising livelihoods. Restoration efforts have been successful when programmes were led and owned by the affected communities with the support of local authorities. Communities must help identify the challenges they face, find solutions, choose methodologies and organise project activities. Affected communities must be involved at every stage of the project, from needs assessment to project design, implementation, monitoring and evaluation. Generally, strengthening existing local structures – instead of creating new, ad hoc structures – results in greater community acceptance and sustainability.
- *Linking bottom-up with top-down approaches is essential for coordinated restoration.* In most post-conflict countries, there are thousands of rural development projects that contain elements of environmental restoration, but there is little coordination among them or between local actors and the national government. If such projects are linked to an overarching national programme, restoration is more likely to be coherent and successful.

The transformation of a conflict-affected country into a peaceful, stable and more prosperous one is a complex task, often susceptible to contradictory pressures and the ever-present risk of relapsing into violence. Aside from the obvious destruction, direct and indirect impacts of armed conflicts on natural heritage can manifest as a result of post-conflict political instability and weak governance. Post-conflict governments generally have limited capacity to implement broad change, particularly when it requires collaboration. Specifically, implementation of environmental legislation (including multilateral environmental agreements) and other environmental measures is often weak following conflict. Further, post-conflict governments may be unwilling to implement environmental commitments made by predecessors, and even if there is willingness to implement commitments and policies, there are often reduced financial resources and capacities to do so.

The following should be considered to strengthen governance systems and improve environmental outcomes after conflict (adapted from Wingqvist et al., 2012):

- *Governance aspects need to be considered when aiming at improving implementation of environmental legislation and other natural heritage measures.* Measures that strengthen human rights – such as rule of law, transparency and public participation – may be equally or more important than specific environmental policies or projects to improve environmental outcomes, particularly post-conflict. Improving outcomes is thus not only dependent on legal frameworks and the capacities of the sector ministries and authorities dealing with natural heritage, but also largely on external factors that provide the 'enabling environment'.
- *Good governance is needed to manage large flows of environmental or heritage finance.* The urgency of addressing natural challenges, and any associated large flows of aid envisaged as a response to these challenges, requires good governance. Large

flows of financial resources can create conditions prone to corruption. Good governance is acknowledged as an important factor to prevent social ills such as corruption, social exclusion and lack of trust in authorities.

- *Fragmented international governance frameworks are inadequately suited for addressing the implementation deficit.* International agreements deal with specific environmental and heritage issues. National action plans developed in line with different international agreements are often poorly implemented, project oriented, and not well integrated in national or sectoral planning and decision-making processes. Ownership can be strengthened by linking natural outcomes to post-conflict countries' priorities, such as economic development, poverty reduction or job creation. Further, the need for a bottom-up approach is necessary, as governments are accountable to the citizens.
- *Factors related to corruption, impartiality and government effectiveness influence the achievement of positive heritage outcomes.* Poor communities, who often bear the heaviest costs of environmental and heritage degradation, tend to be dispersed and weakly organised in comparison to interest groups benefitting from often unsustainable post-conflict rebuilding. Where, for instance, vested interests work against checks and controls for managing industrial pollution or deforestation, there are often also weaker constituencies, such as affected communities, unions and nature organisations, pushing for the implementation of checks and controls. Accountability mechanisms, such as ensuring the rights to access information, public participation and access to an impartial justice system, are essential for enabling these constituencies to demand improvements. Efforts to uphold heritage policies must go hand in hand with efforts to reduce corruption if they are to have the intended effects.
- *Governance of natural heritage is cross-cutting, relates to international, national and sub-national levels, and involves many actors.* Global governance mechanisms are needed to address global challenges. However, implementation at national and sub-national levels must be led by the countries themselves. While the public sector has a key role in the formulation and implementation of governance mechanisms, such as policies and regulations, the active participation of many other actors, free flow of information, accountability and integrity are crucial aspects for improved heritage outcomes.
- *Context-specific analysis is needed to identify key governance bottlenecks and priority interventions for heritage management.* There are a wide range of potential heritage governance mechanisms, and the specific circumstances in any post-conflict country will determine what needs to be strengthened and in what order. Examples of context-specific conditions that vary greatly are financial resources, monitoring capacity, government effectiveness, integrity of the judicial system, voice and accountability, as well as public awareness on natural heritage and development risks and opportunities.

Global initiatives

This section summarises global initiatives addressing the impacts of armed conflict on World Heritage. A focus is given to initiatives that are most relevant to natural World Heritage, however a synthesis of initiatives specific to cultural heritage is provided when perceived as useful for efforts targeting natural World Heritage in the Arab States.

Initiatives addressing impacts on World Heritage in general

The first policy document on World Heritage and Sustainable Development was adopted at the 20th Session of the World Heritage General Assembly in November 2015 (UNESCO, 2015b). It contains several items related to the impacts of conflict on World Heritage.

- Item 28 “Fostering Peace and Security” states that sustainable development and the conservation of the world’s cultural and natural heritage are undermined by war, civil conflict and all forms of violence. The World Heritage Convention is an integral part of UNESCO’s established mandate to build bridges towards peace and security. It is therefore incumbent upon States Parties to ensure that the implementation of the World Heritage Convention is used to promote the achievement and maintenance of peace and security between and within States Parties. This is in conformity with provisions of the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict (The 1954 Hague Convention) and its two Protocols (1954 and 1999), for the States that have ratified them. It is also in accordance with the UNESCO Declaration concerning the Intentional Destruction of Cultural Heritage (2003) and international customary law protecting cultural property in the event of armed conflict.
- Item 29, also under “Fostering Peace and Security” states that, recalling the UNESCO Universal Declaration on Cultural Diversity (2001), States Parties should acknowledge the reality of cultural diversity within and around many World Heritage properties, and promote a culturally pluralistic approach in strategies for their conservation and management. States Parties should also recognise that peace and security, including freedom from conflict, discrimination and all forms of violence, require respect for human rights, effective systems of justice, inclusive political processes and appropriate systems of conflict prevention, resolution and post-conflict recovery.
- Item 30 “Ensuring Conflict Prevention” states that States Parties have a critically important role to play in ensuring that the World Heritage Convention is used to prevent conflicts between and within States Parties and to promote respect for cultural diversity within and around World Heritage properties. This applies to the Convention’s implementation, including the establishment of the World Heritage List and management of inscribed properties. To this end, States Parties should:

- ◆ Support scientific studies and research methodologies, including those conducted by local communities, aimed at demonstrating the contribution that the conservation and management of World Heritage properties and their wider setting make to conflict prevention and resolution, including, where relevant, by drawing on traditional ways of solving disputes that may exist within communities;
 - ◆ Develop an inclusive approach to identifying, conserving and managing their own World Heritage properties that promote consensus and celebrate cultural diversity, as well as understanding of and respect for heritage belonging to others, particularly neighbouring States Parties;
 - ◆ Consider Tentative List additions and nominations for possible listing of new World Heritage sites that have the potential to generate fruitful dialogue between States Parties and different cultural communities, for example through sites that “exhibit an important interchange of human values...” (criterion ii);
 - ◆ Adopt cross-culturally sensitive approaches to the interpretation of World Heritage properties that are of significance to various local communities and other stakeholders, particularly when nominating or managing heritage places associated with conflicts;
 - ◆ Consider, where appropriate, identifying, nominating and managing transboundary/transnational heritage properties and supporting mentoring arrangements in order to foster dialogue between neighbouring States Parties or non-contiguous States Parties sharing a common heritage.
- Item 31 “Protecting Heritage during Conflict” states that during armed conflict, States Parties must refrain from any use of World Heritage properties and their immediate surroundings for purposes that are likely to expose them to destruction or damage. They must also refrain from any act of hostility directed against such properties. To this end, States Parties should:
- ◆ Ensure, as appropriate, the compliance of their armed forces with provisions of the 1954 Hague Convention and its two Protocols (1954 and 1999), or principles of international customary law protecting cultural property when a State Party is engaged in armed conflict;
 - ◆ Ensure that the management and conservation of World Heritage properties receive due consideration in military planning and training programmes.
- Item 32 “Promoting Conflict Resolution” states that the inherent potential of World Heritage properties, and of their conservation, to contribute favourably to conflict resolution and the re-establishment of peace and security should be acknowledged and harnessed. To this end, States Parties should ensure, where appropriate, that consideration for heritage protection is included in conflict management and negotiations aimed at ending conflicts and civil unrest.
- Item 33 “Contributing to Post-Conflict Recovery” states that during a conflict and in the post-conflict transition phase, World Heritage properties and their wider settings can make a significant contribution to recovery and socio-economic reconstruction. To this end, States Parties should, where appropriate:
- ◆ Help to ensure that the protection of World Heritage properties and their wider settings, and of cultural and natural heritage in general, is a priority in UN and other regional peace-keeping and post-conflict initiatives and interventions;
 - ◆ Adopt appropriate legal, technical, administrative and financial measures to support the recovery of World Heritage properties and their integration into public programmes and policies, also through inclusive approaches that promote engagement of multiple stakeholders;
 - ◆ Ensure the full participation of the local communities concerned when it has been determined that the reconstruction of physical attributes of the property is justified under Paragraph 86 of the Operational Guidelines. This should, where relevant, draw on traditional knowledge;
 - ◆ Promote, when relevant, the reinstatement of oral traditions and expressions, performing arts, social practices, rituals and festive events, knowledge and practices concerning nature and the universe, and traditional craftsmanship associated with World Heritage properties, which may have been disrupted by the conflict;
 - ◆ Ensure that relevant documentation is created before emergency situations arise, and that it is archived in safe storage locations.

In the same year that this policy was adopted, UNESCO launched the Unite4Heritage campaign to promote the protection of cultural heritage and prevent illegal trafficking of cultural artefacts, following attacks on cultural heritage in Iraq, Syria and other countries. The United Nations’ MINUSMA, launched in 2013, also focused on the need to protect cultural heritage in armed conflicts and to rehabilitate damaged World Heritage properties in post-conflict contexts.

Initiatives addressing impacts on nature

At the international level, the main response to the environmental consequences of conflict has come from UNEP (Tolba & Saab, 2008). The Gulf War of 1991 was the first time that UNEP examined the environmental risks of a conflict, producing a series of desk studies, although limited by a lack of empirical fieldwork. Following its successful scientific assessments of the Kosovo conflict, UNEP institutionalised its work in this field by establishing a dedicated Post-Conflict and Disaster Management Branch in 2001 with a global mandate to address the environmental impacts of war. UNEP has carried out post-crisis or rapid environmental assessments in 29 countries since 2010.

UNEP's scope of work on environment and conflict is centred on supporting post-conflict countries in four main areas: (i) scientific assessment of environmental impacts; (ii) remediation of contaminated 'hot spots'; (iii) building and strengthening environmental governance capacity; and (iv) integrating environmental considerations in post-conflict reconstruction and development.

Drawing on the findings of its assessments, UNEP has designed and delivered environmental clean-up and mitigation measures to reduce direct risks from conflict, such as in Iraq where it collected and secured highly hazardous materials. The focus on strengthening environmental governance has involved capacity building programmes covering a wide spectrum of topics ranging from law and policy development to laboratory training such as in Iraq and Sudan, as well as targeted technical support on specific issues (e.g. hazardous waste) for Palestinians.

In 2008, UNEP launched a programme on the role of the environment in peace building, which aims to address the environmental causes of conflict. It also entails an 'environmental diplomacy' component that actively seeks to promote internal reconciliation within conflict affected countries, as well as catalysing re-engagement with neighbours through dialogue and cooperation on shared ecosystems and resources.

Other international organisations have supported the environmental aspect of post-conflict countries, particularly the United Nations Development Programme (UNDP) and the World Bank. On the whole, however, these interventions have largely been on a case-by-case basis and are typically designed with a specific thematic focus (e.g. solid waste or forestry), where the environment in its wider sense is not the driving concern.

NGOs that respond to environmental needs in post-conflict countries include Green Cross International, Greenpeace, International Union for Conservation of Nature (IUCN) and the World Wide Fund for Nature (WWF). For instance, Green Cross conducted scientific environmental analysis of the Gulf Wars, and Greenpeace was very quick to deploy assessment teams to Lebanon and Iraq immediately post-conflict.

Conservation organisations such as IUCN and Birdlife International have supported biodiversity conservation work in Kuwait following the 1991 war and more recently in Iraq, while the Wildlife Conservation Society has undertaken some pioneering wildlife surveys in southern Sudan.

The UN legal analysis by the International Law Commission on the protection of the environment in relation to armed conflicts focuses on identifying rules applicable in post-conflict situations. It also addresses some preventative issues to be undertaken in the pre-conflict stage. This includes the rights of indigenous peoples.

The UN Environment Assembly Resolution 2016 (co-sponsored by Jordan, the Democratic Republic of the Congo, Iraq, South Sudan, Norway and Lebanon) tackles the weak state of legal protection for the environment and inadequate systems of environmental response and recovery. The resolution stresses the need to protect the environment in conflict and for its restoration following conflicts. It also emphasises the need to raise awareness of wartime environmental damage.

The Moving Energy Initiative (MEI) aims to change the way that energy is delivered to displaced people, improving health, environmental and development outcomes. The MEI addresses the specific conditions that refugees and displaced people face in terms of their energy needs for heating/cooling, cooking, lighting, electrification and access to clean water. It has focused on countries involved in the Syrian crisis, including the implementation of pilot projects in Jordan, as well as in Kenya and Burkina Faso.

3.3 Conflict and natural World Heritage in the Arab States

On the UNESCO World Heritage List, there are currently 53 sites on the List of World Heritage in Danger, 21 of which are in the Arab States of Egypt, Iraq, Libya, Palestine, Syria and Yemen (all of these are cultural sites, but cultural sites account for 92% of World Heritage sites in the region). Of the many reasons for a site to be put onto the List of World Heritage in Danger, one of the biggest threats is destruction and neglect as a result of warfare and armed conflict.

The World Heritage Committee addressed armed conflict in the region during its 39th Session in 2015, in a decision which deplored the conflict situations prevailing in Syria, Iraq, Libya and Yemen, and the loss of human life as well as the degradation of humanitarian conditions. It expressed the utmost concern at the damage sustained and threats facing World Heritage sites and cultural heritage in general in these countries. It further urged States Parties to adopt measures for the evacuation of World Heritage properties being used for military purposes and recommended that the World Heritage Centre and Advisory Bodies develop a post-conflict strategy.

UNEP is the main organisation in charge of examining the environmental risks of conflict. Many of UNEP's post-conflict environmental assessments (PCEAs) have been in the region including Iraq, Lebanon, Palestine and Sudan. These assessments have been wholly or

partly translated into Arabic and published within a relatively rapid timeframe in both hardcopy and electronic formats, ensuring wide dissemination. By and large, these reports have succeeded in raising the profile for the environment within high-level political agendas, both nationally and internationally. UNEP has also focused on strengthening governance and capacity building, and has brokered technical cooperation between Iran and Iraq, Iraq and the Regional Organisation for the Protection of the Marine Environment (Kuwait Action Plan), Palestinian and Israeli Authorities, and between North and South Sudan.

National NGOs have been actively engaged post-conflict, for instance by playing a lead role in the clean-up of the oil spill in Lebanon and in articulating the linkages between conflict and environment in Sudan. In Iraq, civil society has generally been struggling but a few environmental NGOs have emerged after 2003.

Regional initiatives

Most initiatives and efforts addressing conflict in the region do not directly or specifically target natural World Heritage. However, they remain most relevant to the current and future thinking related to the assessment, response and future planning in regard to conflict and its impacts in natural World Heritage in the region. The following includes a selection of regional initiatives addressing environment in the context of conflict.

World Heritage in Danger and disaster risk management in the Arab region

Having currently 21 sites in the Arab region inscribed on the World Heritage List in Danger, ARC-WH is committed to assisting States Parties and site managers in alleviating the pressures on the sites' management resulting from all sorts of dangers, especially primary and secondary effects of armed conflict in the region. For instance, in 2018 a workshop was organised for site managers from the States Parties of Palestine and Libya in order to address their needs in regards to capacity building and management effectiveness to cope with the current threats and negative impacts they are facing, resulting from armed conflict and related neglect.

Workshop on environmental consequences of the Syria Crisis (2016)

This workshop was organised by several branches of the United Nations, including UNEP, the Office for the Coordination of Humanitarian Affairs (OCHA) and the High Commissioner for Refugees (UNHCR)'s Environment Unit. It took stock of the ongoing efforts by partners to identify, assess and, where possible, mitigate environmental consequences of the ongoing crisis in Syria and its neighbouring countries (UNEP, 2016). Outcomes included:

- An agreement to strengthen coordination and collaboration on environmental matters in humanitarian action, focusing on Syria as a priority crisis;
- An improvement of the common understanding of environment–crisis linkages through a desk review, key stakeholder interviews and a summary report;
- Actions to raise the profile of environmental issues in the Syria crisis;
- An improvement of information sharing between UN organisations, humanitarian actors, civil society and experts through existing platforms and forums.

Lebanon environmental assessment of the Syrian Conflict and priority interventions

Due to the dramatic consequences of a massive influx of Syrian refugees, this assessment in September 2014 aimed to highlight the extent of damage and degradation that has occurred across environmental sectors. It is an urgent call to action to safeguard Lebanon's fragile natural resources and ecosystems. The Lebanese Ministry of Environment, with the help of the European Union and the UN Development Programme (UNDP), called on concerned stakeholders to remedy the environmental situation and to ensure that intervention strategies and actions for the humanitarian response to the Syrian conflict have fully integrated environmental considerations. A similar initiative and approach would be suitable for other countries in the region, such as Jordan.

Amid the debris – A desktop study on the environmental and public health impact of the Syrian conflict

This study aimed to link civilian exposure scenarios to known cases of possible or probable environmental pollution from the war in Syria. In doing so, it considered pollution incidents in other conflicts and examples of peacetime military pollution. It also explored an experimental approach to assessing the toxic footprint of the constituents of conventional munitions.

Post-conflict environmental management – A paper on planning considerations for the aftermath of the Syrian conflict

Activities at the centre of successful post-conflict recovery need to be based on environmentally sound planning and implementation if recovery is to avoid additional environmental damage and hardship for survivors. The paper identifies environment-related issues, challenges and opportunities once the conflict in Syria has moved to a recovery phase. The paper gives attention to planning considerations and actions to be taken before the actual recovery begins to ensure that environmental challenges do not hinder the recovery process.

Regional case studies

Presented below, are a selected number of regional case studies addressing the effects of conflict on natural heritage, and any efforts undertaken to mitigate those effects, if applicable.

Mitigation of weakened capacity following the Second Invasion of Iraq (2003)

In 2003, as coalition forces planned the Second Invasion, UNEP published the 'Desk Study on the Environment in Iraq'. In addition to a need for an environmental assessment of selected contaminated sites, the study noted a need to strengthen the environmental governance capacity of the Iraqi administration, and subsequently helped develop a project titled 'Strengthening Environmental Governance in Iraq through Environmental Assessment and Capacity Building' in 2005. The programme included a comprehensive package of activities for building the Ministry of Environment's capacity to conduct assessments of contaminated sites, develop sound environmental policies, and monitor environmental quality. It was divided into five components: assessment of contaminated sites; capacity building in technical and policy areas; institutional capacity assessment; improvement of infrastructure and equipment; and monitoring of the Ahwar Marshes.

Consequences of the Iran-Iraq War (1980–1988)

The heaviest fighting of this war took place in the Shatt al-Arab estuary and the Ahwar Mesopotamian Marshes, in fact, the physical disturbance of the landscape, including that of the Marshes, was so severe that old topographic maps are no longer valid. The construction of military works in the Ahwar Marshes contributed to their desiccation, which would only be exacerbated a few years later during the Gulf War. The marine environment of the Arabian Gulf also suffered considerably from millions of barrels of oil spilled into the sea, and the last stages of the war saw a scorched earth approach implemented (Tolba & Saab, 2008).

Draining of the Mesopotamian Marshes of the Ahwar

The World Heritage-listed Ahwar of Southern Iraq, which consists of the Central Marshes, Hammar Marshes and Hawizeh Marshes, was once among the largest wetlands in the world. During the 1980s, much of the armed conflict occurred in the Ahwar, and



War remains in the Ahwar World Heritage property – heritage of an old conflict © Mudhafar Salim

subsequent war events which took place between 1991 and 2003 occupied the Marshes (Jensen & Lonergan, 2012). Following the 1990–1991 Gulf War, the Ahwar was subject to a great deal of destruction, initially through air strikes and later on due to the process of draining the Marshes, which also led to the displacement of the local populations and the reduction of the Ahwar to less than 10% of their pre-1990 size. The draining of the Ahwar was catastrophic to the Marshes' ecology, hydrology and people. In fact, it represented the single largest ecosystem loss in the Arab region in recent times.

After the end of the war in 2003, it became possible to undertake restoration efforts, with the focus being to build sustainable peace through rehabilitation of the Ahwar. Efforts included facilitating multi-stakeholder processes, engaging the international community through environmental agreements, and inviting other riparian states, particularly Turkey and Iran, to discussions.

Although assessments showed that full restoration would be difficult, *ad hoc* efforts by local residents, who removed some of the earthen dams, in addition to ample rain and snowfall upstream markedly improved the extent of the Marshes and water volume by 2006. Many migratory birds returned, and there was some cause for optimism that ecological restoration would be successful.

However, the Ahwar of Southern Iraq still faces threats, due mostly to upstream infrastructure projects and increased demand for water.

Gulf War oil spill, Arabian Gulf

The Gulf War oil spill in 1991 was one of the largest oil spills in history, when crude oil was dumped into the Arabian Gulf in an apparent attempt to foil landing by foreign planes. 12 years after the spill, a million cubic metres of oil sediment still remained (Michel, 2010), and the salt marshes which were most heavily affected will probably need centuries to recover (Barth, 2001).

Conflicts with ISIL (Da'esh) (2014–2017)

As the Iraqi army confronted ISIL, otherwise known as Da'esh, possible long-term toxic pollution was caused by oil spills and chemical weapons (Fanack.com, 2017). Subsequently, at the third United Nations Environment Assembly in December 2017, a resolution presented by the Iraqi government was passed, which proposed how UNEP could help address the harm from the toxic remnants of war. This resolution could potentially send a positive signal to other post-conflict countries that will need help in the future.

Conflict in Syria³

The state of the environment in Syria before the war started in 2011 was already deplorable due to mismanagement of natural resources, non-existent environmental standards and drought. The civil war has added further negative effects, such as: ISIL (Da'esh) oil production has directly affected soils, water sources and wildlife; internal displacement of people has resulted in immense pressure on natural resources, especially in biodiverse coastal areas that were subject to large numbers of refugees; and shut-down of waste management services resulted in air pollution and contamination of soil and ground water.

Cooperation between private and public sectors will be crucial in efforts to promote environmentally sustainable solutions, especially in regard to renewable energy in order to thwart pollution caused by makeshift oil production facilities. A rethinking of water and land management is also needed to rebuild a greener Syria.

Conflict in Lebanon

The 2006 Lebanon War between Israel and Hezbollah lasted just over a month but caused great damage. International organisations surveyed environmental impacts related to the war in southern Lebanon. UNEP and UNDP performed environmental assessments (which also provided green recovery proposals). The Food and Agriculture Organization of the UN (FAO) assessed recovery needs for agriculture, fisheries and forestry sectors. The World Bank reported on the costs of environmental damage. Further, a local NGO examined forests and olive groves in the South, and a special study focused on the oil spill. All assessments suffered from a lack of reliable baseline data from before the conflict.

A rehabilitation project commenced after the conflict involving Lebanese agencies, ministries and municipalities, and UNDP. Recovery priorities included the removal of demolition waste, clearance of cluster bomb residues and unexploded ordnance, and livelihood projects in the agricultural sector (Jensen & Lonergan, 2012).

Public apathy regarding protection of natural heritage

The Jiyeh Oil Spill occurred following the bombing of oil storage tanks by the Israeli Army, and resulted in significant impacts to the marine habitat of the eastern Mediterranean Sea. Although most Lebanese were shocked by the oil spill, they remain generally unaware of the importance of protecting natural heritage. As with most post-conflict societies, security is a priority whereas conservation of natural spaces is perceived as a luxury (Jensen & Lonergan, 2012). Further, civil society organisations tend to focus on the needs of different categories of people (such as the poor, women and orphans, disabled people) as opposed to the environment.

³ Note: There are several Decisions regarding destruction of World Heritage properties in Syria, but these are mostly cultural sites, and as such, are not mentioned here to avoid additional length.

In 2002, a GEF-UNDP project promoted national reconciliation by strengthening the capacity of governmental agencies and NGOs to conserve endemic and endangered wildlife and their habitats, and to incorporate wildlife conservation as an integral part of Lebanon's sustainable development planning. In collaboration with local communities, the project established new protected areas and helped draft a new framework of law for protected areas, including Al Shouf Cedar Nature Reserve, which had been significantly affected by unsustainable practices during 16 years of war (Victor, 2012).

Conflict in Palestine

Water conflict in Palestine

It is often said that in the Arab region, inter-country conflicts in the future will centre on water.

After the 1967 War, Israel gained exclusive control of the waters of the West Bank and the Sea of Galilee. Heated arguments continue to rage about rights to a mountain aquifer, of which about 80% of the flow is used by Israeli settlements, leaving only 20% for the Palestinians, despite the fact that the aquifer is recharged by rain which falls on Palestine (Asser, 2010).

Any attempt at conservation, management and resource sharing is only possible if there is political willingness among the neighbouring countries to compromise and cooperate for the common good of humanity.

Palestine: Land of olives and vines – Cultural landscape of Southern Jerusalem, Battir

In 2014, this site was inscribed on the World Heritage List in Danger on an emergency basis. The cultural landscape is well protected by Palestinian laws, and there is a high level of authenticity which would be destroyed severely by the construction of the separation barrier.

Deterioration of infrastructure – Gaza

Although Gaza cannot be considered other than urban, the fact that it continues to suffer from imprisonment has led to degradation of remaining natural features, including Wadi Gaza Coastal Wetlands (Yaghi, 2019) (on the Tentative List of potential World Heritage sites). With no perennial streams and low rainfall, the Gaza population relies almost completely on a coastal aquifer. However, current abstraction rates are well beyond replenishment levels.



Vast areas were taken from the Marshes of Southern Iraq to establish new oil fields before inscribing the Ahwar as a World Heritage property in 2014 © Mudhafar Salim

Conflict in Yemen

Changing agricultural practices in response to instability: Traditionally, the best coffee of Yemen has been sustainably grown on rain-fed terraces, protected from too much sun by the surrounding mountains. The methods for cultivating these terraces have remained the same for the past 300–400 years.

However, due to instability, coffee farming has diminished in the Haraz mountains, being replaced by the narcotic crop qat. Ecologically, qat causes destruction of the soil, robbing it of nutrients, and requires more water to grow than coffee. One day's supply of qat for a single user requires an estimated 500 litres of water to produce, and growing it consumes more than 40% of Yemen's severely dwindling water supply (Mohamed et al., 2017). To irrigate this thirsty crop, farmers are drilling so many unlicensed boreholes, that the water table is falling at an unsustainable rate; as much as six metres per year (Mounassar, 2014).

In the past, efforts were made by the Ministry of Agriculture and Irrigation to reduce qat cultivation, but in light of the ongoing war, implementing any such programmes is very difficult (Aldaghabashy, 2017). Further, measures to reduce qat consumption would likely meet sharp resistance from the Yemeni people, and a clear communication campaign would be required.



4. Extreme weather conditions and natural World Heritage

Report approach

This section of *Tab'e'a III* addresses the impacts of extreme weather conditions on natural World Heritage in the Arab States through the following rationale:

- A short introduction on climate change and natural World Heritage.
- Synthesis of a selection of global initiatives and case studies addressing the issue of extreme weather on natural World Heritage.
- Synthesis of a selection of regional initiatives and case studies addressing the issue in the Arab region.

4.1 General context

World Heritage properties are already being affected by the impacts of climate change. In fact, climate change is the biggest potential threat to natural World Heritage sites, according to the IUCN World Heritage Outlook which reveals that the number of sites where climate change is a high or very high threat has nearly doubled in just three years. However, natural World Heritage sites can be part of the solution.

Healthy ecosystems such as forests, oceans and wetlands make a critical contribution to climate change mitigation by absorbing and storing carbon. They also help vulnerable communities, especially those who depend on natural resources, to better adapt and become more resilient to the adverse effects of climate change. At the same time, they provide a number of other valuable economic, social and environmental benefits. Additionally, cultural heritage and mixed sites can convey traditional knowledge that builds resilience for change to come (Larsen & Wijesuriya, 2017; Potts, 2017). World Heritage properties can also serve as climate change observatories to gather and share information on monitoring, mitigation and adaptation practices.

The issue of climate change on World Heritage was brought to the attention of the Committee in 2005, and resulted in decisions such as [29 COM 7B.a](#) which requested that a broad working group of experts convene to review the nature and scale of risks arising from climate change and prepare a strategy. Outcomes included the report *Predicting and Managing Effects of Climate Change on World Heritage* as well as the Strategy to Assist States Parties to the Convention to Implement Appropriate Management Responses. Subsequently in 2007, a 'Policy Document on the Impacts of Climate Change on World Heritage Properties' was prepared and is currently being updated. Climate change has since been a recurring conservation issue affecting World Heritage properties around the world.

4.2 A global perspective

It is difficult to predict the acute effects of climate change. However, as stated in SDG13, climate change is causing global disruptions in the form of changing weather patterns, rising sea levels and more extreme weather events. Such extreme weather events have been shown to be increasing in frequency, intensity and severity, and sea level rise can increase the impacts of coastal storms (WMO, 2020). In this section, extreme weather events will be the main focus, as they have been shown to be a possible manifestation of the effects of climate change.

Since changing weather conditions and extreme weather events that threaten natural heritage are hard to foresee or control, disaster risk reduction can help anticipate, cope with, and respond to impacts of hazards.

Many World Heritage properties have no established policy, plan or process for managing or reducing risks associated with weather disasters. Further, most existing national and local disaster preparedness and response mechanisms usually do not include heritage expertise in their operations.

Global initiatives

The following are a select number of global initiatives addressing the relationship between disasters (which would include extreme weather conditions) and natural World Heritage using a selection of different institutional, thematic and geographic contexts and aspects.

Disaster Risk Reduction (DRR): The UNESCO World Heritage Centre has begun working together with States Parties, Advisory Bodies and other partners to integrate a consideration for heritage in DRR policies (which are often related to forecasting, preparedness and responding to extreme weather events), and to strengthen preparedness for disaster risks at World Heritage sites. A 'Strategy for Reducing Risks from Disasters at World Heritage Properties' ([31 COM 7.2](#)) has been developed, in addition to technical workshops, publication of resource materials and the provision of International Assistance mechanisms.

Two conferences on DRR took place: one in 2005 in Kobe, Japan, where the Hyogo Framework for Action 2005–2015 was adopted; and one in 2015 in Sendai, Japan, where the Sendai Framework for Action 2015–2030 was adopted.

Sendai Framework for Action 2015–2030: A DRR strategy that revolves around the following key pillars:

1. Understanding disaster risk;
2. Strengthening disaster risk governance and management;
3. Investing in disaster risk reduction for resilience;
4. Enhancing disaster preparedness for effective response and to 'Build Back Better' in recovery, rehabilitation and reconstruction.

World Heritage Committee Decisions

[38 COM 7](#) State of Conservation of World Heritage Properties (2014): notes the continuing threat posed to World Heritage properties by disasters and conflicts, of the widespread lack of adequate preparedness, and of the need to integrate a concern for heritage within international policies and programmes for disaster risk reduction.

[36 COM 7C](#) Reflection on the Trends of the State of Conservation (2012): requests States Parties to make every endeavour to take into consideration disaster risks, including from human-induced hazards, in the management plans and systems for the World Heritage properties located in their territories.

[34 COM 7C](#) Reflection on the Trends of the State of Conservation (2010): notes progress made in the implementation of the Strategy for Disaster Risk Reduction at World Heritage properties.

[34 COM 7.3](#) Progress Report on the Implementation of the Strategy for Disaster Risk Reduction at World Heritage Properties (2010): welcomes the Resource Manual on 'Managing Disaster Risks for World Heritage' and 'The Olympia Protocol for International

Cooperation: Strengthening Disaster Risk Reduction at World Heritage Properties' as appropriate methodological tools for the implementation of the above-mentioned strategy, and welcomes proposed twinning arrangements among World Heritage properties to promote cooperation on Disaster Risk Reduction and develop pilot projects that could serve as best practices.

[33 COM 7C](#) General Decision on the State of Conservation of World Heritage Properties (2009): notes the increasing number of natural disasters affecting World Heritage properties, requests the World Heritage Centre and the Advisory Bodies to prepare a report on the progress made in the implementation of the Strategy for Disaster Risk Reduction at World Heritage properties and submit it for examination by the Committee at its 34th Session, and requests the World Heritage Centre and Advisory Bodies to adopt a consistent approach to reporting on the impact of climate change on World Heritage properties.

[30 COM 7.2](#) Strategy for Risk Reduction at World Heritage Properties (2006). See above under Global initiatives.

As presented under the conflict section, the following are a number of insightful resources of approaches and initiatives which are deemed relevant and useful for Natural Heritage Conservation and Management.

Resource Manual on 'Managing Disaster Risks for World Heritage' (2010)

Presents specific techniques for addressing various types of hazards. The Manual integrates some innovative approaches, such as the consideration of the positive contribution that heritage can make to reducing disaster risks in general, and the potential of using traditional knowledge in DRR strategies (UNESCO, 2010).

World Heritage Review no. 74 (Jan 2015) on 'Fostering Resilience'

Focuses on the risks that threaten World Heritage sites as well as on the different elements that good risk management must include: traditional protection systems, resource management, strategies based on traditional knowledge and communal management. It examines as well the diverse ways in which the protection of cultural and natural heritage can play a positive role in fostering the resilience of local communities.

Local Communities and Indigenous Peoples Platform (LCIPP)

Established to strengthen the knowledge, technologies, practices and efforts of local communities and indigenous peoples related to addressing and responding to changes in weather conditions, to facilitate the exchange of experience and the sharing of best practices and lessons learned on mitigation and adaptation in a holistic and integrated manner and to enhance the engagement of local communities and indigenous peoples.

International assistance available for disaster response and protection of World Heritage

The World Heritage Convention provides assistance to States Parties for the protection of the world cultural and natural heritage located on their territories and inscribed, or potentially suitable for inscription, on the World Heritage List under the World Heritage Fund. Assistance is provided in two forms:

- Emergency Assistance (guidance found in Annex 9 of Operational Guidelines) for properties which have suffered severe damage or are in imminent danger of severe damage due to sudden, unexpected phenomena.
- Conservation and Management Assistance (principles found in paragraph 241 of Operational Guidelines) allows for capacity-building and training in the context of preparedness for properties that have not been affected by disaster nor are under imminent threat.

Other types of assistance:

- Rapid Response Facility (RRF): rapidly provides grants (up to USD 30,000) and responds to threats to biodiversity at natural World Heritage sites.
- Heritage Emergency Fund (HEF): assists Member States in protecting natural and cultural heritage from disasters and conflicts by more effectively preparing for and responding to emergencies.
- Cultural Emergency Response (CER): provides grants to conduct reparation work and prevent further damage to cultural heritage.

20th Session of the World Heritage General Assembly (2015)

In the Policy Document on World Heritage and Sustainable Development (UNESCO, 2015b), item 16 "Strengthening resilience to natural hazards and climate change" states that in the face of increasing disaster risks and the impact of climate change, States Parties should recognise that World Heritage represents both an asset to be protected and a resource to strengthen the ability of communities and their properties to resist, absorb and recover from the effects of a hazard. In line with disaster risks and climate change multilateral agreements, States Parties should:

- Recognise and promote – within conservation and management strategies – the inherent potential of World Heritage properties for reducing disaster risks and adapting to climate change, through associated ecosystem services, traditional knowledge and practices and strengthened social cohesion;

- Reduce the vulnerability of World Heritage properties and their settings as well as promote the social and economic resilience of local and associated communities to disaster and climate change through structural and non-structural measures, including public awareness-raising, training and education. Structural measures, in particular, should not adversely affect the OUV of World Heritage properties;
- Enhance preparedness for effective response and 'building back better' in post-disaster recovery strategies within management systems and conservation practice for World Heritage properties.

The IUCN World Conservation Congress

The Congress adopted Commitments titled 'Navigating Island Earth'. Regarding changes in weather, the Commitments highlight nature-based solutions, such as the restoration of forests and peat-lands as critical for mitigation and adaptation efforts, as well as for disaster risk reduction (DRR) and sustainable livelihoods. The document underscores the role of indigenous peoples and women from local communities in implementing the efforts.

4.3 Extreme weather conditions in the Arab States⁴

Because societies in the Arab region have been under pressure to adapt to water scarcity and extreme heat for thousands of years, and have developed various techniques to deal with these weather constraints, the societies who live here are a valuable repository of traditional and institutional knowledge. If preserved and made accessible, this knowledge could prove an important contribution, globally, to efforts that address the changing weather conditions affecting the world at large.

That being said, the Arab region is particularly vulnerable to extreme weather events due to the fact that it is one of the world's most water-scarce and dry regions, with flood-prone coastal areas. Although the long-term effects of extreme weather in the Arab States are not well documented, it can be noted that generally, increasing temperatures are implicated in the hastening of desertification, and there has been an increase in the frequency of phenomena like cyclones, which were once rare in the region. Over the last two decades, the intensity of storms across the Arabian Sea has increased notably as the already very warm waters of the area are warmed further (they were 2°C above normal in 2018; Jamail, 2018), providing more energy for storms.

Gonu was a tropical cyclone that affected Oman, UAE and Iran in 2007. It was the most powerful storm to ever strike the Arabian Peninsula, and the worst natural disaster on record for Oman. Cyclone Phet in 2010 also hit Oman, taking one of the longest and rarest tracks known for a storm in the region. Historically, the Gulf of Aden has been minimally affected by tropical storms. However, in 2008, Yemen was affected by a tropical cyclone which caused US\$1.64 billion of damage, roughly 6% of the country's GDP. In 2015, Cyclone Chapala peaked as the second-strongest storm on record in the Arabian Sea, making landfall in Yemen in the midst of a civil war. Chapala registered as the first instance of a hurricane landfall in Yemen, and dropped 10 years' worth of rainfall on the Socotra Archipelago. Following immediately, Cyclone Megh brought additional rainfall to Socotra. Then in 2018, Mekunu hit as, yet again, one of the biggest storms in recent memory.

Disaster risk reduction (DRR) strategies are greatly needed in the Arab States. The effects of armed conflict, climate change and extreme weather conditions can lead to stalled sustainable development initiatives, loss of ecosystem services, and destruction of natural and cultural heritage.

Regional initiative

Regional knowledge sharing hub

In 2015, IUCN ROWA documented and shared lessons learned from experiences of how local communities have adapted to climate change and extreme weather events. Through participatory natural resource mapping, the assessment harnessed indigenous knowledge, complementing the use of technology. The methodology also identified how local pastoral communities in the Arab States region determine what areas are suitable for grazing by understanding which areas have high or low grazing potential in addition to the locations of key seasonal resource patches. Using the knowledge obtained, IUCN ROWA and FAONE developed carbon intensity indicators for forest and rangeland management for the Arab States region.

Regional case studies

Impacts of extreme weather in Yemen

Already damaged by the war, parts of Yemen stand on the brink of famine. Health, water and sanitation systems have been compromised to the point of collapse. An outbreak of cholera has affected nearly a million people. The effects of extreme weather would further

⁴ Note: no regional initiatives were found under this study addressing the extreme weather issue

exacerbate the devastation that has already occurred. It is estimated that since the 1960s, temperatures in Yemen have increased 0.39°C per decade, more rapidly than the global average, and rainfall has decreased by 9% per decade (Mohamed et al., 2017).

As mentioned previously, the water table in the mainland is declining by approximately 6–7 metres annually due to groundwater abstraction. In the 1990s and early 2000s, attempts at water management failed, as the government lacked effective tools to implement or enforce necessary measures.

In 2015, the Socotra Archipelago was ravaged by two cyclones, Chapala and Megh causing severe flooding and loss of life. Infrastructure, livestock and fisheries were damaged, local residents were displaced, and landslides caused the destruction of homes, crops and vital infrastructure.

Regrettably, the Archipelago was again hit by Cyclone Mekunu – one of the biggest storms in recent memory – at the end of May 2018, causing torrential flash flooding and casualties, destroying roads and buildings, and damaging precious land and marine ecosystems as well as endangered and endemic plant species. Fishing boats and nets were lost, farmland was swept away, water networks collapsed, and 1,000 households were significantly impacted, displacing their families.

Decision 42 COM 7B.100 called on all UNESCO Member States to support emergency safeguarding measures at the property, including through the UNESCO World Heritage Emergency Fund.

Mitigation of the hurricane impact on endemic and threatened plants of the Socotra Archipelago – Emergency assistance funded by the UNESCO World Heritage Fund

As a result, in 2018 ARC-WH further strengthened its technical support to the Environment Protection Authority (EPA) of the Socotra Archipelago, Republic of Yemen, in order to implement the International Emergency Assistance financed by the UNESCO World Heritage Fund with the objective of establishing two plant nurseries to support the regeneration of the iconic endemic flora of the globally renowned natural World Heritage site of the Socotra Archipelago. These endemic plants suffered severely from the negative effects of the destructive impacts of the cyclones Chapala (2015), Megh (2015) and Mekunu (2018). The endemic fauna had unfortunately already been negatively affected *in-situ* by continuous goat overgrazing as well as uncontrolled development activities.



Local community preparing the ground for the creation of fenced endemic plant species nurseries in Socotra, Yemen © ARC-WH

Further, an International Emergency Assistance Project has been implemented in two geographic areas, the mountainous Protected Areas of Homhil and of Fermhin, which were both critically damaged by the natural disasters. The project aims at creating two fenced plant nurseries specifically targeting the regeneration of *Boswellia elongata* – commonly known as the Socotran Frankincense tree – as well as the emblematic Dragon Blood trees – *Dracaena cinnabari*.

The work has been implemented with active awareness raising and the early involvement of local community members through all project steps. Additionally, with a long-term vision of achieving the sustainable regeneration of endemic and threatened plant species of the Socotra Archipelago after the finalisation of the nurseries, a team of four members hired from each local village are being trained by ARC-WH's Focal Point for Socotra in the documentation, monitoring and long-term maintenance of the nurseries, contributing to the active protection of the Outstanding Universal Value of the World Heritage site for current and future generations.

Socotra mangrove restoration project

In response to coastal erosion and the drastic decline of mangroves resulting from extreme weather and the three cyclones, ARC-WH entered into a fruitful partnership with Friends of Socotra (FoS) to support the local NGO Al Tamek Association for Protecting the Mangrove Tree in replanting mangrove trees along the north coast of the main island to restore this crucial ecosystem.

Impacts of extreme weather in Banc d'Arguin National Park, Mauritania

Inscribed as a natural World Heritage site in 1989, the Banc d'Arguin National Park is threatened by sea level rise. The property is so low-lying that the tide is steadily encroaching, and there are already visible impacts of flooding in some coastal parts of the site. According to the World Heritage Committee's decision 42 COM 7B.98 (World Heritage Committee, 2018a), affected villages were to be relocated in 2018, but detailed information has yet to be provided by the State Party of Mauritania.



World Heritage Management training in Sudan, 2017 © Tarek Abulhawa

5. Regional update

Report approach

This chapter of the report comprises the regional updates on the conservation and management of World Heritage in the Arab region. It includes three main headings: 1) a general update on the main activities undertaken by ARC-WH during the reporting period; 2) specific updates on the individual World Heritage sites inscribed up to 2018, with particular focus on the natural and mixed sites added to the World Heritage List since *Tabe'a II*; and 3) an update on the Tentative Lists for individual Arab States Parties to the World Heritage Convention.

5.1 General activity by ARC-WH: Tabe'a Programme since *Tabe'a II*

The following section summarises key activities that took place since the preparation of *Tabe'a II*, covering the period from 2015–2019. It includes key relevant efforts and events undertaken by the Arab Regional Centre for World Heritage (ARC-WH) with the contribution of the Tabe'a Programme, which focuses on natural World Heritage in the Arab States. The activities and events included in this sub-section are categorised into five groups, giving some examples of such initiatives:

1. Knowledge products development

Rapid Cultural Inventories of Wetlands in Arab States

In 2017, the Tabe'a Programme, in cooperation with the Ramsar Secretariat, prepared the Rapid Cultural Inventories of Wetlands in Arab States including Ramsar sites and World Heritage properties. The publication aimed to contribute to building greater understanding of cultural values and practices as a contribution to conservation success and calls for joint efforts to preserve cultural heritage in the Arab region's wetlands. The publication was launched in 2018 during the 42nd World Heritage Committee Meeting held in Manama, Bahrain.

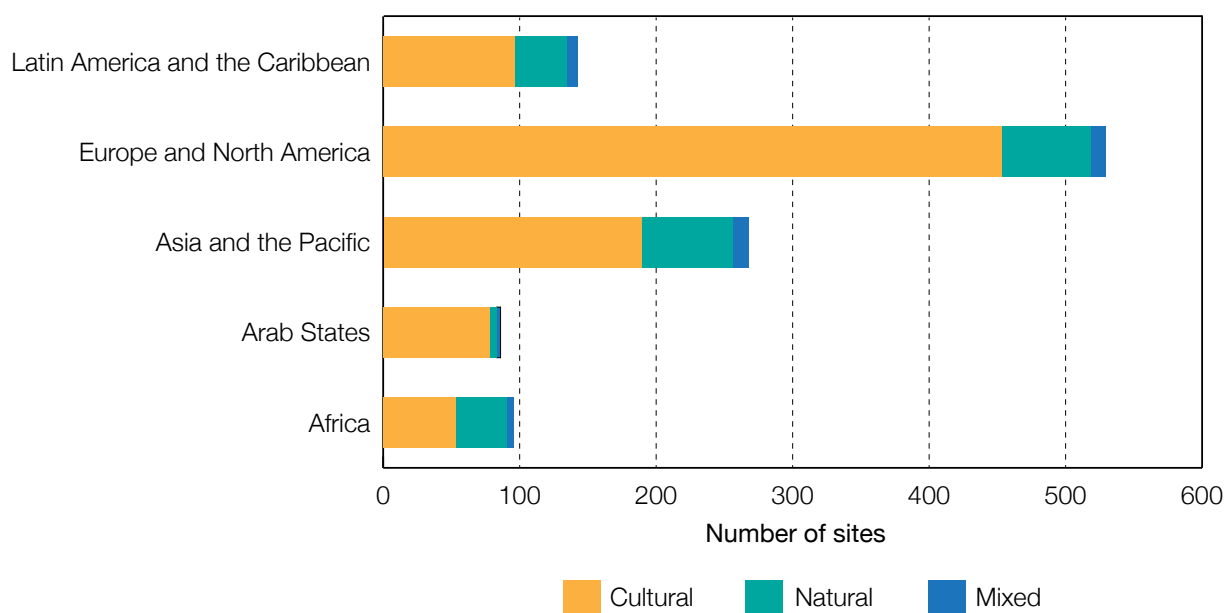


Figure 1: Distribution of cultural, natural and mixed World Heritage sites in each region

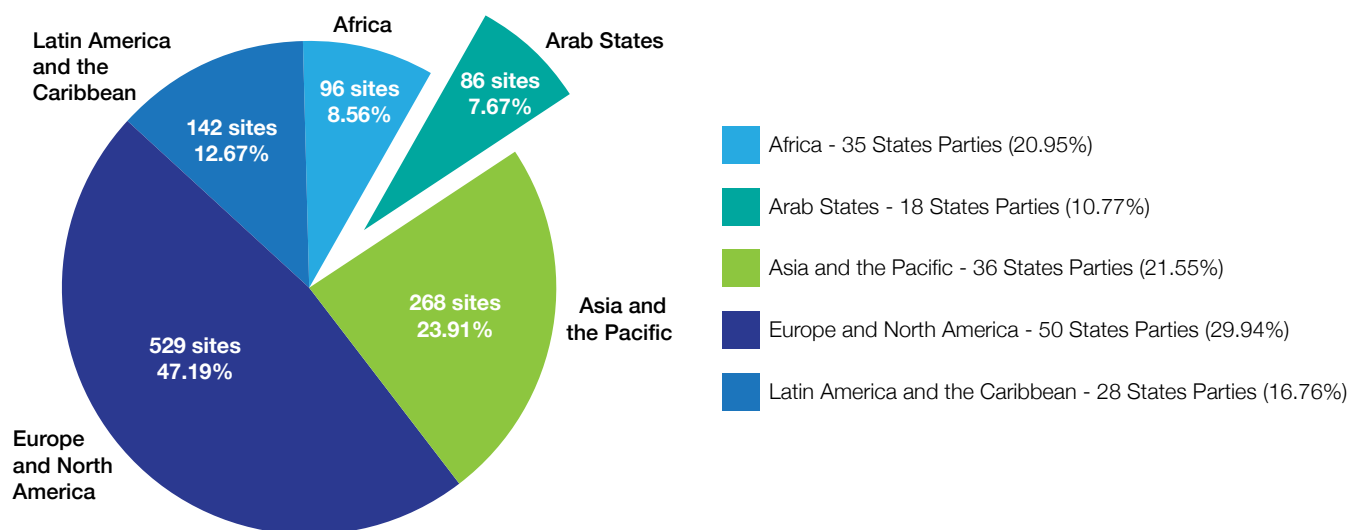


Figure 2: Distribution of all World Heritage sites and States Parties in each region

Factsheets on natural World Heritage in the Arab region

Since 2015, the Tab'e'a Programme developed a [series of factsheets](#) on relevant topics such as 'Marine World Heritage in the Arab States', 'Desert World Heritage in the Arab States' and 'Six Natural Wonders of Arabia'.

2. Regional capacity building initiatives

Regional training programme for nature and culture professionals

ARC-WH, in collaboration with ICOMOS, have launched a regional training programme aiming to enhance the capabilities of Arab heritage professionals in regards to World Heritage concepts and their implementation in the Arab region. The goals of this activity – which, to date, have included two regional workshops and follow-up work – are to expand the pool of experts for Advisory Bodies by giving them the necessary skills to evaluate the State of Conservation of World Heritage sites as well as the nomination procedure of relevant sites in the Arab region. The training invites both cultural and natural heritage experts and builds an interdisciplinary platform

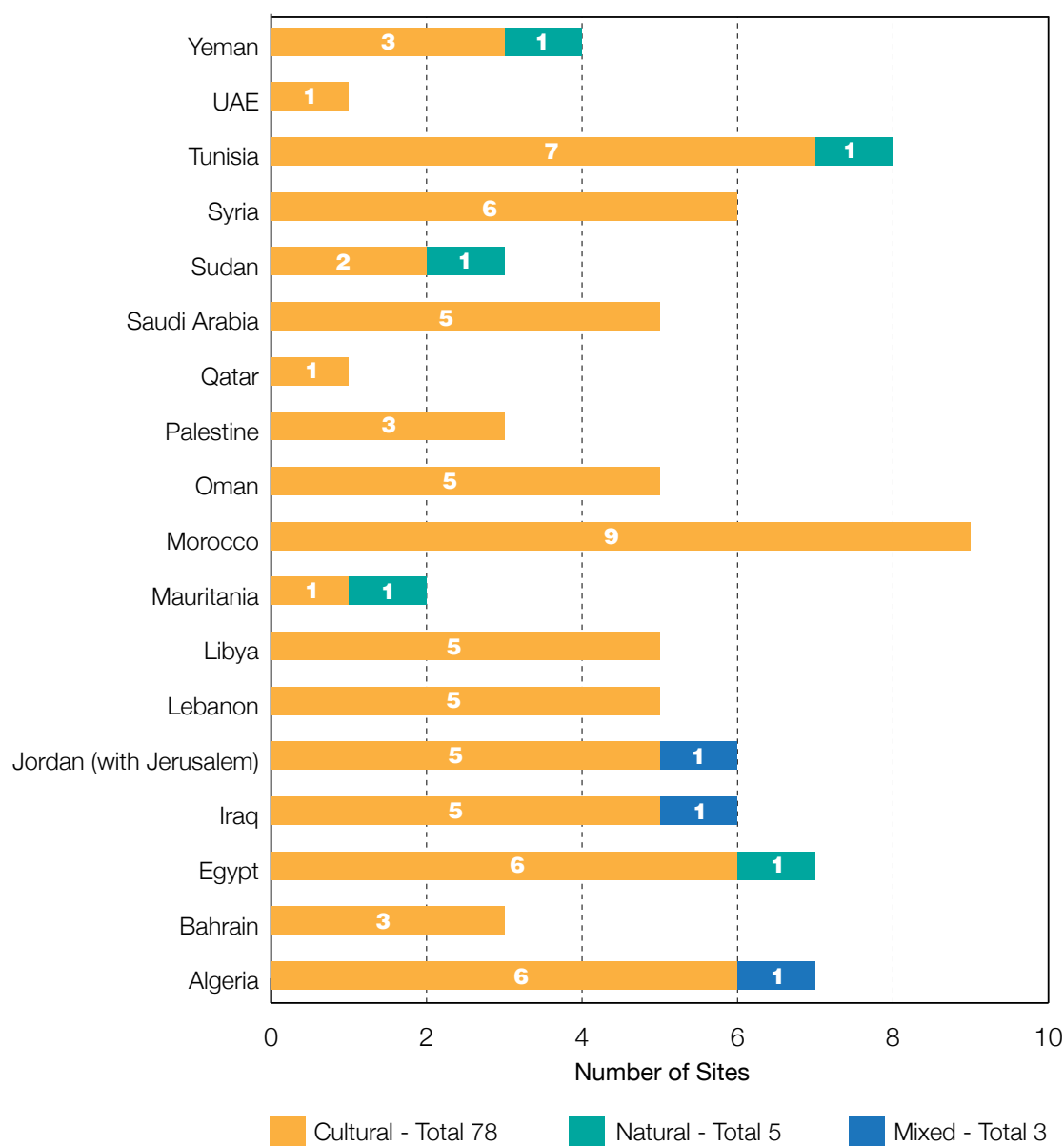


Figure 3: Overview of the 86 World Heritage sites inscribed in the Arab States

for sharing experiences as well as expanding their knowledge towards contributing to a more enhanced implementation of the World Heritage Convention in the Arab region.

Enhancing our Heritage toolkit – Regional EoH training programme

The regional training programme was launched in 2018; it is a pioneering training programme with technical support from IUCN and the World Heritage Leadership programme. It is targeted at site managers from all natural and mixed sites in the region, as well as a number of cultural landscapes, to be trained in management effectiveness skills for World Heritage sites and the application of the Enhancing our Heritage (EoH) toolkit. This training programme represents a pilot initiative allowing the Arab region to serve as a case study and therefore contributing to the global revision of the EoH toolkit.

3. Coordination and communication events

International meeting on ‘Natural Heritage Protection and Management in Arab States’

This meeting in 2015 was attended by Arab national institutions, international organisations and partners, NGOs, international and regional experts, members of the World Heritage Committee, and members of UNESCO Delegations from the Arab region. Participants explored ways to sensitise decision makers to the richness of natural heritage and the necessity to step up its management and protection, to build on international cooperation for achieving better results, and to identify priorities for action.

3rd Cycle of the World Heritage Periodic Reporting

The Arab Regional Centre for World Heritage, as a UNESCO Category 2 Centre, committed itself to assisting the implementation of the 3rd Cycle of the World Heritage Periodic Reporting in the Arab region. A plethora of technical meetings and assistance initiatives were held focusing on both natural and cultural heritage in the region in order to support National Focal Points and site managers in the adequate implementation of this crucial evaluation process whose outcomes will feed into future activity plans focusing on the current State of Conservation and urgent needs of World Heritage sites in the Arab region.

World Heritage in Danger and disaster risk management in the Arab region

With 21 sites in the Arab region currently inscribed on the World Heritage List in Danger, ARC-WH is committed to assisting States Parties and site managers in alleviating pressures on sites resulting from all sorts of dangers, especially primary and secondary effects of armed conflict in the region. For instance, in 2018 a workshop was organised for site managers from the States Parties Palestine and Libya in order to address their needs in regards to capacity building and management effectiveness to cope with the current threats and negative impacts they are facing resulting from armed conflict and related neglect.

Tentative List revision for natural properties

The Tab'e'a Programme organised a series of workshops for the States Parties of Egypt and Morocco focusing on the revision of the natural sites on the Tentative List for potential nomination to the World Heritage List.

4. Specialised training activities

Heritage-Environmental Impact Assessment – HIA-EIA training programme

Recognising the need for more controlled and informed decision making when it comes to development projects within or in proximity to World Heritage sites in the Arab region, ARC-WH has launched an interdisciplinary training programme on both Heritage Impact Assessments (HIA) and Environmental Impact Assessments (EIA), bringing together attendees from 11 Arab States from natural, mixed and cultural World Heritage sites in order to increase their understanding of concepts and mechanisms of the World Heritage Convention, including conservation, management and protection.



Heritage-Environmental Impact Assessment Regional Workshop - Lebanon, 2019 © ARC-WH

5. Country/site specific technical cooperation initiatives and projects

Supporting the safeguarding of the Socotra Archipelago World Heritage site

ARC-WH's support programme for Socotra Archipelago has been one of the prime bilateral technical cooperation initiatives implemented by ARC-WH during the last five years. The following represent the main initiatives implemented:

- a *The organisation of the 17th International Socotra Conference and Annual General Meeting of the Friends of Socotra (FoS) (2018)*: The scientific platform was organised to shed light on past and ongoing research programmes related to natural and cultural heritage, in addition to ways to improve conservation efforts and the livelihoods of Socotries through sustainable development initiatives.
- b *Socotra Heritage Project*: A partnership programme was entered with the Royal Botanic Garden in Edinburgh and the Freie Universität Berlin in order to implement the Socotra Heritage Project funded by the British Council Cultural Protection Fund. This project was launched in 2018 and was designed to document and conserve the cultural heritage of the Archipelago through creating a database that will be integrated within biodiversity conservation and development planning.
- c *Socotra Mangrove Restoration Project*: In response to the drastic decline of mangroves and coastal erosion resulting of climate change and the three most recent cyclones hitting the Archipelago in 2015 and 2018, ARC-WH in partnership with the Friends of Socotra (FoS) supported local efforts aiming to restore and rehabilitate local mangrove ecosystems to mitigate and minimise severe coastal erosion and protect natural habitats of endemic bird species, such as the Socotra Warbler and the Socotra Cisticola.
- d *Mitigation of the hurricane impact on endemic and threatened plants of the Socotra Archipelago – Emergency assistance funded by the UNESCO World Heritage Fund*: The objective was to establish two threatened plant nurseries to support the regeneration of the iconic endemic flora – *Boswellia elongata*, commonly known as Socotran Frankincense tree, as well as *Dracaena cinnabari*, the emblematic Dragoon Blood trees, both of which were severely affected by the destructive impacts of three cyclones in 2015 and 2018.

Technical support to Sanganeb Marine National Park and Dugonab Bay, Sudan

In 2017 and 2018, the Tabe'a Programme provided technical assistance to the site management to increase national and local capacities of stakeholders responsible for the management and safeguarding of this outstanding World Heritage site.

Technical cooperation programme with the Kingdom of Bahrain

ARC-WH has developed a specific programme to address natural heritage conservation in the Kingdom of Bahrain, including:

- a *Yearly International Waterbird Census*: Since 2017, the International Waterbird Census (IWC) takes place yearly in the Kingdom of Bahrain in cooperation with the Supreme Council for the Environment. The wetland study includes sites of international importance (Ramsar) and Important Bird Areas (IBA) and is contributing to the global study of waterbirds in wetland areas.
- b *Regional Red List Assessment*: The Red List Assessment of the Kingdom of Bahrain was launched in 2017 and is considered to be the first attempt of its kind to assess the current status of selected species using the guidelines and techniques adopted by IUCN. A panel of national experts compiled a list of 29 priority species to start the IUCN Red List Assessment.
- c *Technical Support on the Man and Biosphere Programme*: In partnership with the Supreme Council for the Environment of Bahrain, a local team of experts was introduced to the Man and Biosphere (MAB) Programme as an instrument for sustainable conservation and development. Various sites for potential designation as a UNESCO MAB reserve were explored locally, including six natural protected areas, out of which the Hawar Islands were chosen as the most feasible case study for application.

Technical assistance to the Ahwar of Southern Iraq World Heritage site

Since its inscription in 2016, ARC-WH is supporting the Ministry of Environment of Iraq and various local institutions and stakeholders in the adequate management and safeguarding of the four natural components of this outstanding mixed World Heritage site.



Figure 4: Natural and mixed World Heritage sites in the Arab States, according to their Conservation Outlook in 2020
Source: IUCN

5.2 Update on World Heritage sites in the Arab region

Report approach

For each World Heritage site, the following updates were included:

1. World Heritage related reporting, including new technical reports produced since *Tab'e'a II*.
2. Information related to new World Heritage sites inscribed since *Tab'e'a II* (Abulhawa et al., 2015), including on:
 - a. Natural values.
 - b. Protection and management.
 - c. Capacity building.
 - d. Pressures and Threats.
 - e. Benefits.
 - f. Other relevant issues.

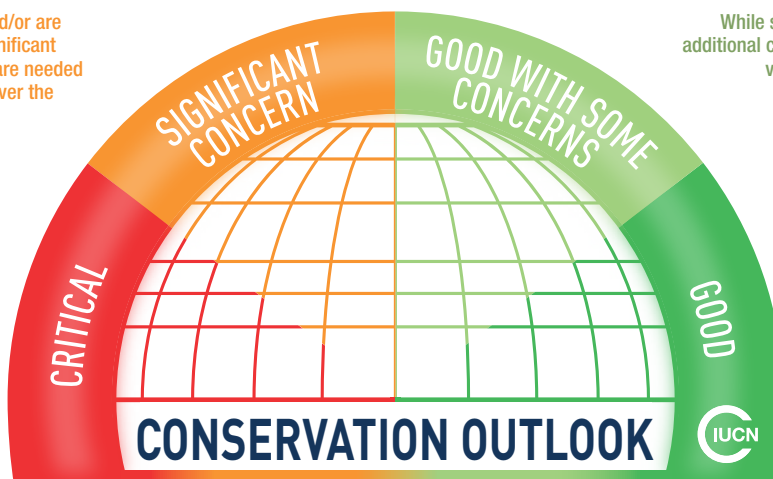
IUCN World Heritage Outlook

IUCN World Heritage Outlook: this section reflects the outcomes of the IUCN World Heritage Outlook, which tracks conservation in all natural World Heritage sites. Updated every three years, it assesses the conservation status and future outlook of sites. . A further update was completed in December 2020 and the latest assessments for all sites are available online at worldheritageoutlook.iucn.org.

The World Heritage properties detailed below are presented in reverse chronological order according to their year of inscription, with the newer sites presented first.

The site's values are threatened and/or are showing signs of deterioration. Significant additional conservation measures are needed to maintain and/or restore values over the medium to long term.

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



While some concerns exist, with minor additional conservation measures the site's values are likely to be essentially maintained in the long term.

The site's values are in good condition and are likely to be maintained for the foreseeable future, provided that current conservation measures are maintained.



Sanganeb Marine National Park and Dungonab Bay – Mukkawar Island Marine National Park © Editions Gelbart

SANGANEB MARINE NATIONAL PARK AND DUNGONAB BAY – MUKKAWAR ISLAND MARINE NATIONAL PARK, SUDAN

Inscribed as a natural site in 2016, criteria (vii) (ix) (x)

World Heritage site overview

- The site is a serial site that consists of two separate areas:
- Sanganeb is an isolated, coral reef structure in the central Red Sea, 25 km off the shoreline of Sudan. It is a predator-dominated coral reef ecosystem that provides important nurseries and spawning grounds to numerous endemic and rare species. The site supports a wealth of marine life including over 300 fish species, resident populations of dolphins, sharks and marine turtles.
- Dungonab Bay and Mukkawar Island is situated 125 km north of Port Sudan. It includes a highly diverse system of coral reefs, mangroves, seagrass beds, beaches and islets. The site provides a habitat for populations of seabirds, marine mammals, fish, sharks, turtles and manta rays. Dungonab Bay also has a globally significant population of dugongs.
- The two components of the property are connected by a coastal stretch extending 125 km including mersas, inlets, fringing reefs and off-shore reef formations, and the whole serial site is geologically and ecologically connected via the open flows that facilitate the exchange of biotic and abiotic elements within the marine ecosystems of the Red Sea.
- The site is a Global 200 priority biogeographic region.
- Both components lie within a Ramsar site.

Reporting trend

- *State of Conservation reports since inscription:* One (2018)
- *Mission reports since inscription:* None.
- *Other reports since inscription:* None

Property information (inscribed after the publishing of Tab'e'a II)

Biodiversity values

- Dugonab Bay – Mukkawar Island Marine National Park (DMNP) hosts the most northerly population of endangered dugong in the Red Sea (State Party of Sudan, 2013; World Heritage Committee, 2018b) and the whale and manta ray seasonal aggregations here are unique to the entire Western Indian Ocean Region.
- Sanganeb Marine National Park (SMNP) lies in a regional hotspot for reef fish endemism (IUCN, 2015a).
- The World Heritage property generally supports a higher than average subset of endemic species than found in other parts of the Red Sea, including the richest diversity of coral west of India and a number of coral species which are at the limits of their global range (World Heritage Committee, 2018b).

Protection and management

- General:
 - ◆ The property presently has almost no on-ground management presence, and unless rectified, there will be very limited capacity to cope with emerging or escalating threats. However, the site and surrounding buffer zone are largely unaffected by human activity and the key threats to its values remain at a relatively low level (Osipova et al., 2017).
 - ◆ The management plan for DMNP was updated in 2016, and the updated management plan for SMNP was to be completed by November 2017. An integrated management plan was also to be developed for the property as a whole by 2017 (Osipova et al., 2017).
 - ◆ There are serious concerns regarding the resources and management capacity applied to the protection of the property and the effectiveness of management actions (IUCN, 2015a).
 - ◆ Five ranger stations have been established for monitoring and patrolling (Osipova et al., 2017).
- Local people/stakeholders:
 - ◆ There are two local communities residing within the buffer zone of the property who practise subsistence fishing (Osipova et al., 2017).
 - ◆ Inscription to the World Heritage List is likely to have had little impact on the activities of local people within the area, however, there was limited evidence of consultation or awareness raising efforts with local communities (IUCN, 2015a).
 - ◆ There is a need for greater integration of stakeholders in the management in areas surrounding the site and a greater awareness of its values.
 - ◆ Local communities are allowed to fish within the marine park as well as the buffer zone with restrictions on fishing activities related to the kind of fishing gear used (Osipova et al., 2017).
 - ◆ There appear to be no significant or ongoing cultural rights issues concerning the local communities (Osipova et al., 2017).
- Tourism:
 - ◆ Sudanese dive operators follow informal rules and anchor boats on sand away from the actual sensitive dive sites (UNESCO, 2018a). However, foreign dive operators have caused damage to coral reefs, disturbance to wildlife and negative impacts on visitor experience. The State Party should establish, in close consultation with local dive operators and other stakeholders, a code of conduct (including formal rules and regulations) for all dive operators. Compliance to the code of conduct should be ensured by:
 - ◆ Reaching out to dive operators, both national and foreign, to raise awareness about these rules and regulations and encourage best practice in line with international standards;
 - ◆ Establishing appropriate mechanisms such as fines or a licensing system to avoid violations;
 - ◆ Ensuring regular patrols to monitor vessels operating within the World Heritage property (42 COM 7B.99, World Heritage Committee, 2018b).
 - ◆ Because international tourism is mainly boat-based, there is little opportunity for local communities to benefit from this potentially lucrative stream of foreign income (Darwin Initiative, 2017).
 - ◆ There is growing interest in the site for tourism, despite limited infrastructure to support it (IUCN, 2015a). Resulting increases in recreational vessels, including live-aboard dive vessels, could have an impact (Osipova et al., 2017).
 - ◆ Increase in tourism could potentially result in pollution, further anchor damage and direct damage to coral reefs (Osipova et al., 2017).
 - ◆ Residential and resort/tourism development in terrestrial areas both within the buffer zones and areas adjoining the property should be closely monitored to ensure population size and tourist numbers do not exceed the limits of infrastructure and ecosystems (Osipova et al., 2017).
- Research and monitoring:
 - ◆ There is a lack of baseline data, and there are no ongoing monitoring or research activities (Osipova et al., 2017).

- ◆ Ongoing research and monitoring projects being conducted by Red Sea University and collaborating scientists and researchers should be linked more closely with the management of the property and used to inform management planning and actions. This includes recent research on the movements and population of dugongs as well as other globally important species found within the property (Osipova et al., 2017).
- ◆ Monitoring of impacts from invasive species such as the Crown of Thorns starfish is required to assess the level of impact and threat (Osipova et al., 2017).
- ◆ No recent surveys have been conducted to assess impacts from subsistence fishing, and there is no baseline (Osipova et al., 2017).
- ◆ Monitoring of impacts from tourism activities should be conducted to detect any impact on key habitat types and species in anticipation of increased visitation (Osipova et al., 2017).
- ◆ Sanganeb has yielded a wealth of information on Sudan's marine habitat and is the centre of much of the country's research into coral reef ecosystems (Rasul & Stewart, 2015).

■ Education/interpretation:

- ◆ There appears to be little if any education or awareness activities around the values of the property, either within local communities or with the limited number of visitors to the property (Osipova et al., 2017). This is demonstrated by the fact that seafront stalls sell marine mementos including turtle carapaces, dried baby sharks and corals (Darwin Initiative, 2017).

■ Finance:

- ◆ Current and future financing for the property are unclear (Osipova et al., 2017).
- ◆ Management is financed from the Federal Ministry of Finance through support provided to the Wildlife Conservation General Administration (IUCN, 2015a). However, while no detail is available, very limited budgets are made available to the management agencies and there is a need to investigate and secure sustainable financing for the property (Osipova et al., 2017).
- ◆ During a coordination meeting between different key institutions supporting the State Party of Sudan, organised at ARC-WH in Manama, Bahrain, the State Party reported that it has increased the management budget by 500%. Nevertheless, the adequacy of the level of funding available to the property still needs to be confirmed (Osipova et al., 2017).
- ◆ Further to the above point, the budget for the running costs of the property was increased twofold from 5,000 SDG (US\$710) per month to 10,000 SDG (US\$1,421) per month in 2017. A request to increase this further to 15,000 SDG has been submitted by the Director of the property. In addition, 3 million SDG (US\$426,317) have been allocated for the property through a decision by the First Vice President of the Republic. However, this budget still remains insufficient (UNESCO, 2018a).

■ Legal framework:

- ◆ There is a commitment from the Government of Sudan at both the national and state level to the protection and conservation of resources within its coastal waters, including the World Heritage property (Osipova et al., 2017).
- ◆ Both SMNP (1990) and DMNP (2004) have been declared as marine protected areas by Presidential Decrees. Both are owned by the Federal Government of Sudan and as such are covered by various pieces of national legislation (Osipova et al., 2017).
- ◆ The management of the site spans both national and state level government with the main responsibility for management assigned to the Wildlife Conservation General Administration (WCGA), under the Ministry of Tourism and Wildlife at the national level (Osipova et al., 2017).
- ◆ The state level is also involved in the management through the Ministry of Agriculture, Animal Wealth and Natural Resources, which is responsible for all environmental matters (Osipova et al., 2017).
- ◆ The multi-agency, national and state level management presence in the area results in somewhat complex procedures. For example, rangers from the national agency aware of infringements are required to report these to the relevant state level authority and then these incidents, if serious enough to warrant further action, are reported to the police (Osipova et al., 2017).
- ◆ The management authorities of SMNP and DMNP have established a management committee for the World Heritage property to improve coordination and communication between the agencies at the Federal and state level given the shared mandate for the management of environmental issues. This committee also includes other key stakeholders in the management of the property (Osipova et al., 2017).
- ◆ However, it is not clear if and to what degree good collaboration occurs between the different levels of government and the relative strength of different pieces of legislation (Osipova et al., 2017).
- ◆ A greater level of coordination and communication with neighbouring countries is definitely needed to ensure the site is included in regional planning and this is also true in regard to national level planning systems. Additionally, threats from mineral exploration and pollution from neighbouring countries will require greater coordination if they are to be assessed and planned for, and the role of the site in supporting resilience in other similar locations should be considered within the wider Red Sea environment (Osipova et al., 2017).

- ◆ There are a number of areas and features that have potential Outstanding Universal Value but are outside the core zones but within the buffer zone. Such consideration should be given in any future revision of boundaries (Osipova et al., 2017). As part of the 'Sharks and Rays of Sudan' programme, the process for declaring Sha'ab Rumi as a Marine Protected Area is underway and is anticipated to be added to the core area of the property (UNESCO, 2018a).
- ◆ There is a lack of demarcation of the marine boundaries, complicating issues of illegal commercial fishing within the property (Osipova et al., 2017).

Capacity building

- The World Heritage Centre organised a technical workshop in July 2018 to bring together key expertise from the UNESCO Marine World Heritage Network and contribute to building local capacities for the property management (UNESCO, 2018a).
- In October 2018, a three-day workshop held in the World Heritage property focused on sharing expertise in balancing conservation of the site's unique natural values with the reduction of poverty among local communities that are directly dependent on the World Heritage site. During the exchange, managers from other World Heritage sites, such as the Banc d'Arguin National Park in Mauritania and iSimangaliso Wetland Park in South Africa shared their long-standing experience in how to use the World Heritage status to leverage jobs, generate income and attract necessary support to provide for environmental protection (UNESCO, 2018b).
- A three-day workshop on sustainable tourism was held in 2017 to enable national stakeholders to learn more about the principles of sustainable tourism (Darwin Initiative, 2017).
- Forty young marine specialists from the local communities have been recruited by the site's management authority since late 2014. There are also 15 rangers and 7 marine biology graduates trained as park wardens (Osipova et al., 2017). Another report states that 17 new personnel were recruited, bringing the total staff number to 39 (UNESCO, 2018a).
- Despite the above numbers, staffing levels were evaluated as very poor and capacity remains low. To address these capacity gaps, various capacity building programmes are being developed by different institutions, including PERGA, Cousteau, ARC-WH and IUCN (Osipova et al., 2017).
- Low staff capacity risks hindering effective management of the property, particularly in the face of increasing tourism (Osipova et al., 2017).

Pressures and threats

- Climate change:
 - ◆ Coral bleaching is considered to be the single most significant impact on the corals present in recent years, and is the property's most pressing threat (IUCN, 2015a). Previous surveys have indicated that bleached corals covered relatively small areas (IUCN, 2015a), but there have been no recent surveys.
- Fishing:
 - ◆ Subsistence fishing is the key direct impact on the property, although human activities have until very recently remained at low levels (IUCN, 2015a). In fact, given the harsh conditions of the area, and an expressed interest from the communities to move away from dependence on fishing, it is unlikely that the fishing communities will expand in number significantly (Osipova et al., 2017).
 - ◆ There are increasing occurrences of illegal commercial fishing inside the property, including with destructive fishing techniques such as trawling (Osipova et al., 2017).
 - ◆ Overfishing takes place from large Egyptian vessels from October to May (IUCN, 2017a).
 - ◆ There is a severe threat to shark species, as they are caught for fins (IUCN, 2017a).
- Unsustainable resource use:
 - ◆ Sustainable use activities are only allowed in the buffer zone and concentrate on artisanal fishing (Osipova et al., 2017).
 - ◆ Although there is no evidence of impact from shipping traffic within the vicinity of the World Heritage property, there are increasing levels of global shipping transport in areas adjacent to the site and the potential for impacts from accidents or physical damage from ships including pollution. There is also an increasing risk of damage to corals caused by ship anchors (Osipova et al., 2017).
- Invasive alien species:
 - ◆ Coral predators such as the Crown of Thorns starfish (*Acanthaster planci*) and *Drupella*, a small gastropod snail, have been recorded within the property in high abundances at some sites (IUCN, 2015a).
- Development projects:
 - ◆ The sites are not designated as no-take areas (NTAs) even though NTAs provide the most effective protection of corals and coral communities from destructive activities such as uncontrolled coastal development (Rasul & Stewart, 2015).
 - ◆ There is some concern over increasing interest by investors to start development projects both outside and within the property, and there is a lack of regulations to manage development activities in the area (Osipova et al., 2017).
 - ◆ There is private ownership of land within the buffer zone, but this is strictly controlled through the legal framework controlling the area (Osipova et al., 2017).

- ◆ There is growth of coastal development outside the World Heritage property, especially in the 70 km of coastline south of Port Sudan, and increased development has also begun to spread northwards from Port Sudan. While the property remains in good condition, there is a potential risk that its protection may be compromised given the strongly growing regional push for increased coastal development, commercial fishing, aquaculture and oil exploration (Osipova et al., 2017).

Benefits

- The benefits from the SMNP/DMNP are largely in the conservation value of the ecosystem, including the relatively pristine reef systems and the unique biodiversity found within the site. The reefs and other associated marine habitats provide a productive environment for a number of species of global conservation concern, as well as in providing food to local communities, and protection of local infrastructure and populations from extreme weather events, the frequency of which may increase under climate change. There are also economic benefits in terms of job creation and tourism (Osipova et al., 2017).

IUCN World Heritage Outlook 2017 Assessment: GOOD WITH SOME CONCERNS

The site contains impressive natural phenomena, formations and areas of great natural beauty and is a relatively undisturbed area that serves as a standard to assess the health of the central Red Sea's regional ecosystems. Its marine habitats are well preserved and remain largely untouched and unspoiled, largely due to isolation and low visitation. However, some degradation of the site's biodiversity values through exploitation by the local community is a potential threat as are increasing impacts from climate change, given it is one of the northernmost tropical coral reef systems on Earth. The protection and effective management of the property is hampered by a complex legal framework covering state and national legislation and limited resources. Home to the only atoll-like feature in the Red Sea – lagoons, islets, sand flats, seagrass beds and mangrove habitats – and displaying a diversity of reefs, from living reefs to ancient fossil reefs, the property remains one of the world's best dive areas; but will require improved resources for management in the face of potential threats.

IUCN World Heritage Outlook, 2017	Assessment at time of Tabe'a I	Assessment at time of Tabe'a II	Assessment at time of Tabe'a III
State and trend of values	N/A	N/A	Good and stable

2017 Summary

The Sudanese Red Sea coast, including the property, boasts high levels of endemism in marine fish and invertebrate species. A number of ecological and socio-economic characteristics of the area mean that the property is of national, regional and international importance for biodiversity conservation, reef resilience studies, interconnectivity and for sustainable use of living marine resources. The relative isolation and low number of visitors to the site have helped to ensure its conservation and the near pristine status of its World Heritage values.

IUCN World Heritage Outlook, 2017	Assessment at time of Tabe'a I	Assessment at time of Tabe'a II	Assessment at time of Tabe'a III
Pressures and potential threats	N/A	N/A	Low threat

2017 Summary

The property is at risk from both direct and indirect impacts from activities both inside and outside its boundaries. However, it is currently subject to legal protection and management that recognises the range of potential impacts and is attempting to consider these in both the legal protection and on the ground management of the property. Direct threats from local communities are somewhat restricted but without careful management and planning could increase. Lack of facilities and infrastructure mean threats from tourism remain low but have the potential to increase, and impacts from climate change are only likely to increase.

IUCN World Heritage Outlook, 2017	Assessment at time of Tabe'a I	Assessment at time of Tabe'a II	Assessment at time of Tabe'a III
Protection and management	N/A	N/A	Some concern

2017 Summary

So far, human impact, including that from the communities situated within the buffer zone is relatively low. There is private ownership of land within the buffer zone but this is strictly guided by the legal framework controlling the area. The laws defining and affecting the property provide for a complementary and generally harmonised suite of protection including to some degree instruments for co-management of the areas within the buffer zone of the property. There is, potentially, a need for greater integration of stakeholders in the management in areas surrounding the property and a greater awareness of the values of the site. Laws and regulations exist to control development within the buffer zone of the property and are consistent in their objectives to protect the key values of the property. Subsistence fishing and some tourism development exist within the property including the buffer zone and are covered by the existing regulations. However, greater monitoring of any impact from these activities is needed to ensure no adverse impacts on the values of the property.



Ahwar Marshlands, Iraq © Mudhafar Salim

AHWAR OF SOUTHERN IRAQ: REFUGE OF BIODIVERSITY AND THE RELICT LANDSCAPE OF THE MESOPOTAMIAN CITIES

Inscribed as a mixed site in 2016, criteria (iii) (v) (ix) (x)

World Heritage site overview⁵

- The Ahwar is made up of seven components: three archaeological sites and four wetland marsh areas (Hawizeh, Central Marshes, West Hammar and East Hammar) in southern Iraq. The Ahwar of Southern Iraq – also known as the Iraqi Marshlands – are unique and may be one of the largest-scale wetland ecosystems that is located in the most arid environment globally (World Heritage Committee, 2016b).
- Breeding and wintering species of waterfowl benefit from the water bodies and extensive reed beds provide them with food and shelter. Three species: Basra Reed-warbler, Marbled Teal and White-headed Duck are threatened. The Marshlands also include various species of aquatic plants, fish, mammals and reptiles of environmental or economic importance, some of which have limited distributions or are threatened due to reduced availability of suitable environments (Salim, 2004; Salim, 2005; Abdulhasan & Salim, 2008). The bird migration and the migration of fish and shrimp species which occur within the property's habitats reflect an adaptation process by these animals to long-term seasonal fluctuations in water levels and other ecological variables (World Heritage Committee, 2016b).
- A number of endemic and restricted range species live in the Ahwar, including four mammals (such as Bunn's Short-tailed Bandicoot Rat and Smooth-coated Otter), five taxa of birds (such as Basra Reed Warbler, Iraq Babbler and Black Francolin) and six fish species.
- There are also five critically endangered species, 12 endangered species and 13 vulnerable species (2 plants, 3 fish, 2 mammals, 1 reptile, 22 birds).
- The Ahwar include seven important bird areas (IBAs) identified in 1995.
- The Central and Hammar Marshes are Ramsar sites since 2014, and Hawizeh Marsh since 2007.

⁵ This section on general information is included for Al Ahwar as it is newly inscribed since Tab'e'a II.

- The archaeological cities of Uruk and Ur and the Tell Eridu archaeological site form part of the remains of the Sumerian cities and settlements that developed in southern Mesopotamia between the 4th and the 3rd millennium BCE in the marshy delta of the Tigris and Euphrates rivers (World Heritage Committee, 2016b).

Reporting trend

- SOC reports since inscription: Two (2018, 2019)
- Mission reports since inscription: None
- Other reports since inscription:
 - ◆ Al-Okailee, M., Mutlak, F. and Lazem, L. (2017). Distribution of Red Belly Tilapia *Coptodon zillii* larvae in Shatt Al-Arab River and East Hammar Marsh, Iraq. *Basrah J. Agric. Sci.*, 30(1): 26–31.
 - ◆ Fazaa, N., Dunn, J. and Whittingham, M. (2017). Distributions and Community Composition of Birds in Iraq's Central Marsh. *Biodiversity*. Volume Article ID 4198690, 28.
 - ◆ Al-Sheikhly, O., Haba, M., Faaza, N., Barbanera, F., Yoxon, G., McLennan, B., Zook, D., Al-Kanani, K. and Abdul Gafor, S. (2017). First Photographic Evidence of Smoothcoated Otter (*Lutrogale perspicillata maxwelli*) and Eurasian Otter (*Lutra lutra seistanica*) in Iraq since 1950s. *International Otter Survival Fund* (IOSF). Vol. 3, May 31.
 - ◆ Zubaidi, A., Mohammad, M., Rasheed and Bull, M. (2017). The Importance of Geodiversity on the Animals' Diversity in Hawizeh Marsh and the Adjacent Area. *Iraq. Nat. Hist. Mus.*, 14(3): 235–249.
 - ◆ Ajmi, R., Al-Newani, H. and Zeki, H. (2017). Monitoring (Biodiversity) Aquatic Plants of Iraqi Marshlands. *International Journal of ChemTech Research*, 10(6): 78–85.
 - ◆ Mohamed, A., Hussein, S. and Mutlak, F. (2017). Some Biological Aspects of Four Fish Species in East Hammar Marsh, Iraq. *Scientific and Engineering Research*, 4(8): 278–287.
 - ◆ Mufid, K., Abou-Turab, H., Abduszhra, N. and Al-Shammary, A. (2017). The value of small dispersed wetland areas for birds: Case study Basrah Province/Iraq. *Mesopo. Environ. J.*, 3(3): 63–73.
 - ◆ Nasir, N. (2016). Distribution and Migration of Hilsa Shad (*Tenuolosa ilisha*) in Iraqi Inland Water. *Mesop. Environ. J. Special Issue A*: 156–166.
 - ◆ Al-Handal, A., Taffs, K., Abdullah, D. and Atun, Z. (2016). Vertical Distribution of Diatoms in the Sediment of Hawizeh Marsh, Southern Iraq and Their Use as Indicators of Environmental Changes. *Algological Studies*, 150: 53–76.

Property information (inscribed after the publishing of Tabe'a II)

Biodiversity values

- Most migratory and breeding bird species are suffering from habitat destruction due to overfishing, shrinking of the water bodies and continuous intensive poaching (IUCN, 2017b).
- Mammals, reptiles and fish are also suffering from habitat destruction, water scarcity, invasive alien species and human disturbance (IUCN, 2017b).
- A national programme was led by governmental and civic society stakeholders in 2018 aiming to preserve species threatened with extinction (especially the beaver) (State Party of Iraq, 2019).
- Unsustainable harvesting of the aquatic reeds is a serious threat; however, it is not known to what extent (IUCN, 2017b).
- Clear environmental change has occurred within the Marshes and tidal areas due to increased domestic and agricultural water use, water scarcity, increased salinity, invasive species and increased concentrations of chemicals and heavy metals (Osipova et al., 2017). Lack of periodic flushing, continued encroachment of salt from tidal flow, and agricultural runoff have adversely affected the ecosystem of much of the region (Jensen & Lonergan, 2012).
- The most affected marsh of the four components is the Central Marsh, followed by the West Hammar and Hawizeh. The East Hammar is the least affected, relative to the others (Iraq MoE & ARC-WH, 2017).
- A joint World Heritage Centre/IUCN/ICOMOS Reactive Monitoring should be invited to assess the current State of Conservation and potential impact of water flow, oil and gas exploration and exploitation, illegal bird hunting, overfishing, archaeological conservation needs, increased visitation, and lack of adequate legal protection on the World Heritage property's Outstanding Universal Value (42 COM 7B.66, World Heritage Committee, 2018c).
- A jellyfish species (*Catostylus perezii*) was recorded for the first time in Iraq in 2016 in the Main Outfall Drain (MOD) channel of the Hammar. The occurrence of this species is evidence of the change in salinity of the area (Al-Obeidi & Abu Zaghlani, 2016).

Protection and management

■ General:

- ◆ There are conflicting reports regarding the Central Marshes; a report (Jensen & Lonergan, 2012) states that this component has essentially disappeared, but this was not seen from other sources. Regarding the Central Marshes, the same report states that agricultural land now occupies a significant part of the former wetlands, so reflooding them would reduce economic output from an already poor region (Jensen & Lonergan, 2012).
- ◆ Regarding deficiencies in management and other institutional factors, the Hawizeh is most affected, by issues such as high staff turnover, lack of equipment and low funding (Iraq MoE & ARC-WH, 2017).

■ Local people/stakeholders:

- ◆ "There is a lack of trust between the majority of the local community and the government because of past negative experiences, making implementation of the management plan very difficult, if not impossible. Most local people believe that those who attend conservation workshops and meetings do not necessarily reflect the actual relationship of the population with the management of the property" (IUCN, 2017b, p.10).
- ◆ According to another report, the local Ma'adan were very accepting that the Marshes be nominated as a World Heritage site (Iraq Ministry of Health and Environment, n.d.).
- ◆ According to World Heritage Watch Civil Society, local communities and independent civil society are still not fully regarded as key partners in the development of a long-term strategy for the Ahwar (Save the Tigris Campaign, 2018).
- ◆ There is a high incidence of tribal conflicts (Abulhawa & Cummings, 2017).
- ◆ Less than 10% of the local people originally displaced during the wars have returned. This is mainly due to ongoing regional security problems and lack of economic opportunities (according to anecdotal evidence from discussions with local sheikhs and government officials) (Jensen & Lonergan, 2012).
- ◆ The Marshes have been historically used by locals for reed harvesting (to be used for homes and structures), fishing and buffalo rearing. These activities can be considered to be a form of local management and a way in which the ecological character of the Marshlands are shaped by human presence and use, thereby ensuring local livelihoods and sustainability (Abulhawa & Cummings, 2017).
- ◆ Support should be provided for the maintenance of the traditional ecological knowledge held by the Ma'adan communities, and for rights-based approaches to management, recognising the customary use of the World Heritage property (40 COM 8B.16, World Heritage Committee, 2016b; 42 COM 7B.66, World Heritage Committee, 2018c).
- ◆ Many projects have been carried out to maintain traditional knowledge of the Ma'adan. These include surveys, booklets and films of traditional knowledge; projects to revive old crafts and transmit knowledge from the older generation to younger ones; and exhibitions of traditional crafts (State Party of Iraq, 2019).
- ◆ References to women were specifically included in the Ahwar's nomination for its World Heritage designation, including the effects of Mesopotamian Marsh desiccation on the cultural knowledge and livelihoods of women, and a focus on the level of disadvantage and poverty that exists within local communities (IUCN, 2016).
- ◆ The Central Marshes and Hawizeh are most used by local people, at a rate of 5 and 4 out of 9, respectively (Iraq MoE & ARC-WH, 2017).

■ Tourism:

- ◆ Tourism to the natural components is popular, especially during mild weather. Statistics showed that the number of visitors in spring 2016 were 7,000 in one area during a single day (Osipova et al., 2017).
- ◆ Tourism activities include boating, swimming, picnicking, bird watching, sport fishing, hunting, camping and general sightseeing (State Party of Iraq, 2019).
- ◆ There are no tourist services or facilities in the area other than those organised by individuals on a very limited scale (Osipova et al., 2017).
- ◆ All Marshes are open to visitors, with no commitment to specific routes or avoidance of critical and environmentally important areas (Osipova et al., 2017).
- ◆ There are investment proposals for large tourism projects, but negative environmental impact of these projects has not been taken into account. In fact, these projects have been given priority by local governments as a key source of income (Osipova et al., 2017).
- ◆ A tourism plan for the whole World Heritage property must be developed and implemented to regulate visitation and ensure visitors' safety and sustainable tourism practices, infrastructure and facilities in light of increasing tourism interest in the property, lack of adequate consolidation and maintenance of the excavated areas of Uruk, Ur and Eridu at the time of inscription, the ongoing loss of archaeological remains from erosion and collapse, and the sensitive ecosystem of the Marshes (42 COM 7B.66, World Heritage Committee, 2018c).

- ◆ The Higher Committee for the Implementation of the Management Plan examined a tourism plan and issued instructions that coordinate tourism activities and ensure that current and future projects will not cause damage. Instructions have also been finalised by the Ministry of Environment to regulate tourism in the property (State Party of Iraq, 2019).

■ Research and monitoring:

- ◆ A periodic environmental monitoring programme is carried out by the Ministry of Environment (and other institutions), but this programme does not focus on the Outstanding Universal Value or integrity of natural values. In fact, in some cases, research causes significant disturbance to important animals and birds (Osipova et al., 2017). Capacity building is needed in this regard.
- ◆ According to the MoE, the monitoring programme that is in place addresses biodiversity, water quality and quantity, socio-economic factors, and threats (Iraq Ministry of Health and Environment, n.d.).
- ◆ 15 monitoring stations have been installed to monitor flow at inlets and outlets (State Party of Iraq, 2017).
- ◆ Further studies need to be conducted regarding the minimum water flow necessary to sustain the biodiversity and ecological processes of the World Heritage property, and demonstrate that these water flows are being provided (40 COM 8B.16, World Heritage Committee, 2016b; 42 COM 7B.66, World Heritage Committee, 2018c).
- ◆ According to the Strategy for Water and Land Resources in Iraq (SWILRI), the minimum flow for Marshlands restoration is 5.8 bcm (billion cubic metres) for an average year, and 3.7 bcm for a dry year (State Party of Iraq, 2019).
- ◆ According to the SWILRI, the Ministry of Water Resources has devoted 3.305 bcm/year to flood 50% of the original area of the Marshes, and the Main Outfall Drain permanently feeds the southern parts of the Marshes with 2.611 bcm/year. The total amount of water flow released to the natural components in 2015 was 2,138,723 m³ (Iraq Ministry of Health and Environment, n.d.).
- ◆ A complex modelling exercise was carried out by the Centre for Restoration of Iraqi Marshes and Wetlands (CRIMW) to simulate the hydrology of Southern Iraq. The aim was to determine the minimum monthly water flows required for the four Marsh components to sustain their biodiversity and ecological processes. It was stated that maximum water requirements occur from June–August, with most of the inflow to the Marshes occurring from March–June (State Party of Iraq, 2017). However, quantitative results were not available.
- ◆ Further studies need to be conducted regarding plant, vertebrate and invertebrate diversity within the property and its surrounding landscapes (40 COM 8B.16, World Heritage Committee, 2016b).
- ◆ Private research has been carried out in the Marshes, including a joint Iraqi-Iranian survey of birds in Hawizeh in 2018, and a survey of biodiversity in the Central Marshes.
- ◆ State of Conservation baseline surveys should be initiated to address the highly unstable conservation conditions of archaeological sites. Based on the surveys, conservation programmes should be developed for all three cities, including a detailed master plan/road map that ensures the conservation of the property on a sustainable basis (40 COM 8B.16, World Heritage Committee, 2016b).
- ◆ According to the MoE, baseline surveys for natural components (plants, mammals and birds) have been conducted around the cultural sites of Uruk, Ur and Eridu (Iraq Ministry of Health and Environment, n.d.).

■ Education/interpretation:

- ◆ Signs have been installed (40 COM 8B.16, World Heritage Committee, 2016b).
- ◆ “There have been many education and awareness raising campaigns (especially since inscription of the property on the World Heritage List) implemented by various institutions. However, there is a lack of coordination between these institutions” (IUCN, 2017b, p.13).
- ◆ Awareness raising activities targeting the local population and fishers have helped create communication channels between management personnel and local communities (State Party of Iraq, 2019).
- ◆ The Ministry of Health and Environment and Ministry of Water Resources are adopting an intensive awareness programme aimed to promote the wise use of water (Iraq Ministry of Health and Environment, n.d.).

■ Finance:

- ◆ Falling oil prices in Iraq and subsequent decreased income has resulted in “many administrative problems and underperformance in the fulfilment of Iraq’s obligations internally and externally. As a result, despite a large allocation for the management of the Marshlands, no funds were spent for this purpose” (IUCN, 2017b, p.12).

■ Legal framework:

- ◆ The components are not sufficiently large to meet integrity criteria, and if they are to be enlarged, it would be important to consider boundaries that might better respond to the application of natural criteria (IUCN, 2016). Aside from the Central Marshes component, the Ministry of Environment is still seeking the approval of the Council of Ministers on the designation of the remaining three natural components as natural parks (Osipova et al., 2017).

- ◆ The designation of all of the natural components of the World Heritage property as protected areas must be completed as a matter of the utmost urgency, in addition to ensuring effective legal protection to regulate oil and gas concessions, and other activities that would potentially impact the buffer zones of the property (40 COM 8B.16, World Heritage Committee, 2016b; 42 COM 7B.66, World Heritage Committee, 2018c).
- ◆ An inter-ministerial committee for the management of the World Heritage property has been established (42 COM 7B.66, World Heritage Committee, 2018c).
- ◆ Given the political and security situation in Iraq in general, as well as tribal power in the region, the imposition of law and its application is a very difficult issue. Law enforcement (at all levels) faces great challenges and requires considerable work with the local community (IUCN, 2017b; 42 COM 7B.66, World Heritage Committee, 2018c).
- ◆ The laws and regulations in force guarantee the legal protection of the natural components of the Ahwar both in terms of the reduction of illegal bird hunting and overfishing and protection against pollution. Since 2003, the new government has exerted considerable efforts to rehabilitate the Marshlands and sought to include them in international agreements (State Party of Iraq, 2019).
- ◆ The proposed 'Water Law' legislation is stipulated in Article 114 of the constitution and is awaiting finalisation. It would regulate water related issues that are not covered by Article 110 (State Party of Iraq, 2017).
- ◆ Other related laws include:

Protection of Water Resources Law, no 2 (2001)	Marshlands, wetlands and swamps are mentioned to be protected according to the law.
Ministry of Water Resources Law no. 50 (2008)	Preserve surface and groundwater from pollution, prioritising environmental aspects, restoration and maintaining the Marshlands.
Ministry of Environment Law no. 37 (2008)	Protect and improve the environment to maintain health, natural resources, biodiversity and cultural heritage.
Protection and Enhancement of Environment Law no. 27 (2009)	Protect natural resources to secure health, prosperity and sustainable development.
Wildlife Protection Law no. 17 (2010)	Protect wild animals from overhunting to avoid the risk of extinction and to consider the wild animals as national assets.
Ministers Council Resolution no. 254 (2011)	Authorises the CRIMW to be in charge of the implementation of Ramsar Convention commitments in Iraq.
Ministers Council Resolution no. 289 (2013)	Declaration of the Central Marshes as a national park.
Ministers Council Resolution no. 75 (2015)	"To study the document of the Marsh in southern Iraq and present the proposals and recommendations related to the development of the property."
General Secretariat of Ministers' Council Decision no. 35368 (2016)	Establish a High Committee that works on the Marshlands to protect and maintain the property.
- ◆ Noting competing demands for water between different users in Iraq, and in recognition of the Iraqi Marshlands as a legitimate water user, a Strategy for Water and Land Resources in Iraq (SWLRI) has been completed in addition to water governance reforms (42 COM 7B.66, World Heritage Committee, 2018c). The SWLRI covers the period until 2035 (UNESCO, 2018c).
- ◆ There is a lack of clarity of overall responsibility in terms of the management of the site, and little current activity at site level (IUCN, 2016). As far as the natural components of the property are concerned, no effective and unified management system has been adopted. The Ministry of Environment relies heavily on its staff in their directorates to follow up with problems and challenges facing the natural components. Overall, however, the impact of a clear and comprehensive system and structure has not yet been integrated into addressing the daily management requirements of natural components (Osipova et al., 2017).
- ◆ Effective implementation of the consolidated management plan should be ensured. It should be publicised in both English and Arabic, setting out the governance systems and how they relate to management plans for individual component sites, and ensuring effective consultation and communication with local communities and other stakeholders (40 COM 8B.16, World Heritage Committee, 2016b).
- ◆ A programme should be put in place to ensure an adequate level of protection and effective site-level management capacity for all component parts of the property, along with appropriate capacity building activities (40 COM 8B.16, World Heritage Committee, 2016b).
- ◆ The State Party should submit an edited version of the nomination text and of the map showing the boundaries according to the statement jointly signed with the State Party of the Islamic Republic of Iran (40 COM 8B.16, World Heritage Committee, 2016b).

Capacity building

- There have been training and capacity building programmes, however, most were “not focused on protection of the Outstanding Universal Value, but rather on the public administration of protected areas” (IUCN, 2017b, p. 12).
- Training events and workshops have focused on many topics, including GIS courses, database building, impact of climate change, invasive species, catastrophe management, risks of overhunting, sustainable management and more (State Party of Iraq, 2017).
- “The field management team needs much technical support and focused training to safeguard the Outstanding Universal Value and integrity of the natural components of the Marshes, and there needs to be coordinated action among partners” (IUCN, 2017b, p.12).
- The Arab Regional Centre for World Heritage (ARC-WH) initiated a support programme for the Ministry of Environment and other stakeholders, including two training courses (one on threats assessment, and one on developing reporting skills) (Osipova et al., 2017).

Pressures and threats

- The OUV of the Hawizeh component of the Ahwar is most affected by climate change, as compared to other threats. This is due to severe water shortages each summer, in addition to the Iranian dyke that blocks inflow from the Iranian highlands. The Hawizeh are the northernmost component, and least affected by human pressures (Iraq MoE & ARC-WH, 2017).
- The OUV of the Central Marshes component is also most affected by climate change, as compared to other threats, due to severe water shortages in the summer. Further, the natural hydrological system is severely impaired, as it is being fed mainly from the southern Marshes now as opposed to being fed from the Tigris in the north. Compared to the other components, the Central Marshes are most affected by visitor pressure (Iraq MoE & ARC-WH, 2017).
- The West Hammar is the largest component of the Ahwar and is fed by the Euphrates and the Main Outfall Drain (MOD). The water from the MOD, which is used to combat serious water shortages, unfortunately brings with it waste and pollution. The OUV of the West Hammar is also most affected by climate change, as compared to other threats, because of decreased water volume coming from the Euphrates, and severe water shortages in the summer (Iraq MoE & ARC-WH, 2017).
- The East Hammar is the smallest of the components but is important ecologically as it is linked to the tidal system. It is fed by the Shat Al-Arab river from the north, and the MOD from the south. This component is most affected by unsustainable resource use, as compared to other threats (Iraq MoE & ARC-WH, 2017).
- Climate change:
 - ◆ Climate change is the most pressing factor affecting the Ahwar, due to the shallow, fragile nature of the Marshes, and the continuous evaporation that occurs (Iraq MoE & ARC-WH, 2017).
 - ◆ Drought and extreme heat causes shrinking of water bodies, in addition to continued population pressure on natural resources (Osipova et al., 2017).
- Hunting and fishing:
 - ◆ Illegal bird hunting and overfishing represent significant challenges, and these issues are unlikely to be effectively controlled due to the continued absence of legal protection for most of the World Heritage property and insufficient management capacity (42 COM 7B.66, 2018).
 - ◆ Fishing is carried out using chemicals and toxins, as well as electric shock, all of which are dangerous to fish and other aquatic fauna (IUCN World Heritage Outlook, 2017).
 - ◆ Electrofishing has been banned by the local Higher Council for Agriculture in the Missan District (Iraq Ministry of Health and Environment).
 - ◆ Overfishing is of concern in some parts of the property (IUCN, 2016).
 - ◆ Illegal poaching occurs of ducks and other water birds including flamingos (IUCN World Heritage Outlook, 2017).
 - ◆ Field campaigns are conducted by the monitoring team of the Ministry of Environment to address hunting and fishing violations (State Party SOC 2019).
 - ◆ Educational campaigns led to a significant reduction in illegal bird hunting and overfishing in the last months of 2018. Additionally, the administrative capacity of workers to control illegal activities improved (State Party of Iraq, 2019).
- Grazing:
 - ◆ Unregulated grazing of buffalo occurs, as well as sheep grazing on the Marsh margins (IUCN World Heritage Outlook, 2017).
- Mining/oil drilling:
 - ◆ The World Heritage property remains vulnerable to oil and gas developments and the State Party must make a permanent commitment not to explore for or exploit oil and gas within the property, and ensure that any such activities outside the property do not cause a negative impact on its OUV (42 COM 7B.66, 2018).

- ◆ The anti-pollution laws provide adequate legal coverage to protect from drilling activities, according to the State Party. Environmental Impact Assessments are required for any activities planned in the vicinity of the buffer zone, and these are examined by several ministries. Licenses to drill are only granted if the OUV will not be affected (State Party of Iraq, 2019).
- ◆ To ensure that oil and gas related activities are in conformity with Iraq's obligations, a high coordination committee was established to coordinate with the relevant ministries. The committee is to monitor extraction activities in the light of applicable laws, legislations and guidelines (State Party of Iraq, 2017).
- ◆ There is significant interest in developing oil fields in the vicinity of nearly all the natural components of the property. Particularly, the intention of the Ministry of Oil to expand exploration of the Majnoon oil field into the Hawizeh component is a major risk (IUCN World Heritage Outlook, 2017).
- ◆ The oil industry near the Marshes is one of the main water users. The extraction of one barrel of oil requires at least one and a half barrels of water to be injected into the land. This quota is currently taken from the waters of the Marshes. The oil fields produce about 100 million barrels per month (excluding the oil fields of Maysan and Dhi Qar) (Azhar et al., 2012; Stevens & Ahmed, 2011).
- ◆ An oil-spill response plan was written by a Japanese firm in 2011 and adopted by the Iraqi government (Iraq Ministry of Health and Environment, n.d.).
- ◆ The Central Marshes are the most affected by this threat at a rate of 3 out of 9. The other three components of the Ahwar are affected at a rate of 1 out of 9 (Iraq MoE & ARC-WH, 2017).

■ Pollution:

- ◆ Liquid pollution and solid waste are directly dumped into the rivers feeding the Marshes and into the Marshes themselves, and the western Hammar component receives water polluted with high concentrations of chemical and heavy metals. Further, as water scarcity causes the volume of the Marshes to decrease, increased concentrations of pollutants affect nutrient production (IUCN, 2017b).
- ◆ All four components of the Ahwar are affected by pollution, with West Hammar being slightly more affected than the others (at a rate of 6 out of 9). Central and East Hammar rated 4 out of 9, and Hawizeh at 3 out of 9 (Iraq MoE & ARC-WH, 2017).

■ Unsustainable resource use:

- ◆ "Despite communal and governmental efforts to conserve natural resources and promote wise use, weaknesses in law enforcement result in low compliance" (IUCN, 2017b, p.13).
- ◆ Unsustainable reed gathering is of concern in some parts of the property (IUCN, 2016). Directives regarding reed cutting management were issued in 2014 (Iraq Ministry of Health and Environment, n.d.).
- ◆ Efforts towards the establishment of long-term water sharing agreements between the States Parties of Iraq, Iran and Turkey have begun (42 COM 7B.66, 2018). Also, the Collaborative Programme Euphrates and Tigris (CPET, 2014–2018), implemented by a number of international organisations, brought together Iraq, Turkey and Syria (Iran was excluded) to discuss technical issues (UNESCO, 2019).
- ◆ A Ramsar/UNEP visit to Hawizeh Marsh in 2017 concluded with a joint Iraqi-Iranian agreement for collaboration and efficient management of the transboundary Marsh (Alobaidi, 2018).
- ◆ To ensure that the Marshlands receive a minimum amount of water, Iraq has taken the following measures:
 - To provide water to the Marshlands:
 - Rehabilitation of river branch feeders;
 - Connection of the feeders from the Tigris to the Marshes.
 - To provide water to people, cattle and agriculture:
 - Drilling of wells equipped with water treatment plants, with a capacity of 1 m³/hr;
 - Conveyance of water in large tanks for buffaloes;
 - Installation of two new water treatment plants on the rivers with a production capacity of 1,000 m³/day.
 - These provisions have provided the Marshlands with 3.15 bcm in both 2017 and 2018 (however, still below the 3.7 bcm stipulated in the SWLRI) (UNESCO, 2019).
- ◆ The movement of motor-boats throughout the Marshes causes water turbidity and ecosystem change (Osipova et al., 2017). This threat affects all four components of the Ahwar, with the Central Marshes at a rate of 6 out of 9, the East and West Hammar at 5 out of 9, and Hawizeh at 4 out of 9 (Iraq MoE & ARC-WH, 2017).

■ Invasive alien species:

- ◆ Invasive alien species are present in the Marshes (including millions of exotic fish released by the Ministry of Agriculture such as *Tilapia zillii*), some of which have a significant impact on native species and environments; however, detailed information is not available (Osipova et al., 2017).

■ Development projects:

- ◆ Upstream infrastructure projects and increased demand for water for non-agricultural uses has severely reduced the flow of water to the Ahwar (IUCN World Heritage Outlook, 2017; Jensen & Lonergan, 2012).
- ◆ Dams have been built upstream of the Marshes by Turkey, and infrastructure development by Iran has dammed many of the small rivers that provided water to the Hawizeh Marsh (Jensen & Lonergan, 2012).
- ◆ A six-metre high ‘security’ dam, built by Iran in 2009, effectively divided the Hawizeh Marsh into two, cutting “vital natural corridors that extend across the two countries leading to further reductions of water inflow” (IUCN, 2017b, p. 7; Jensen & Lonergan, 2012).
- ◆ World Heritage Watch, a civil society group, attended the 42nd World Heritage Committee Session and is of the opinion that UNESCO underestimates the consequences of the upstream dam construction. They claim that despite 42 COM 7B.66 (which states there are ongoing efforts between the three countries), there are no such negotiations taking place – that Iraq has received oral confirmation that Turkey will not disrupt water flows, but no written agreement. They also state that there is no water-sharing treaty with Iran. The civil society group calls on the World Heritage Committee to: facilitate international mediation between the three States Parties; strongly advocate for a participatory process within Iraq to restructure the water management plan; support the formation of an Iraqi civil society coalition that includes all stakeholders, including advocating with Iraqi authorities to involve civil society and local communities in all levels of planning (Save the Tigris Campaign, 2018).
- ◆ The Ministry of Water Resources has established several artificial soil-islands in areas that have not been inhabited since the 1970s to resettle populations that had been present when the Marshes were twice as large as they are presently. This has caused ecosystem destruction in what were the last refuges for fauna species. Despite questions raised about these unassessed projects, the Ministry is continuing their construction (various media sources, according to IUCN World Heritage Outlook, 2017).
- ◆ The Central Marshes are most affected by building or associated infrastructure (at a rate of 4 out of 9), followed by Hawizeh (3 out of 9). West Hammar is slightly affected (1 out of 9), and East Hammar not affected. Possible threats include artificial soil-islands (mentioned above) and tourism infrastructure (Iraq MoE & ARC-WH, 2017).
- ◆ The Central Marshes (4 out of 9) and West Hammar (3 out of 9) are threatened the most by transportation infrastructure; Hawizeh and East Hammar not at all (Iraq MoE & ARC-WH, 2017).
- ◆ The Central Marshes (3 out of 9) and Hawizeh (2 out of 9) are most affected by service infrastructure such as utilities and dams, followed by East Hammar (1 out of 9). West Hammar is not affected (Iraq MoE & ARC-WH, 2017).

■ Armed conflict:

- ◆ Political instability within Iraq might contribute to redrawing the political map of Iraq, which could have repercussions for the Marshes as upstream water use changes. This could lead to severe degradation, if not disappearance of the Marshes (Osipova et al., 2017).
- ◆ Political instability and competition for water resources in neighbouring countries also pose a threat to the Marshes (Osipova et al., 2017).

Benefits

- Environmental benefits and ecosystem services have declined significantly over the past decade due to a number of reasons, the most important of which is water scarcity, a persistent and growing factor over the years. The shrinking of the Ahwar and the low levels of water, as well as increasing pressure from unsustainable resource use, the increasing access to remote places within the Marshes due to motor-boats, and the change in fishing methods (including the use of electric shock, which has largely replaced the traditional methods of net and spear fishing) in the Marshes have led to a significant quantitative and qualitative decline in the Marshes’ productivity (Osipova et al., 2017).

Other

- The first Mesopotamian Water Forum was to take place in April 2019 to promote a society-wide coalition for transboundary water cooperation that includes all relevant actors from Iraq, Turkey, Syria and Iran (Save the Tigris Campaign, 2019).
- HIMA Mesopotamia is an international non-profit corporation whose vision is to restore and manage the biodiversity and cultural heritage of the Mesopotamian Marshes. They propose community generated conservation throughout the Tigris Euphrates watershed as a mechanism to provide social justice, biodiversity conservation and equitable water allocation (Stevens, 2013).
- The Ahwar have considerable cultural and spiritual value and are featured in the *Epic of Gilgamesh*.
- The Marshes have been featured on Iraqi postage stamps and the 50,000 dinar note (Iraq Ministry of Health and Environment, n.d.).

IUCN World Heritage Outlook Summary: **SIGNIFICANT CONCERN**

At the time of preparing the 2017 IUCN World Heritage Outlook, the legal framework of the Ahwar was not sufficient as three out of four components are still not designated as protected areas. Conflicting interests are leading to a lack of clarity as to which national authority is responsible for the management of the property. In addition, there is a lack of funding for conservation, with government investment focusing rather on the development of surrounding oil fields. This has a direct impact on the availability of water, which is further deteriorating due to other upstream water uses (residential, agricultural, industrial), including outside Iraq. There is a significant concern that the minimum water requirements of the Marshes are not being fulfilled, and that there is an increasing release of polluted drainage water (that contains fertilisers, chemicals and heavy metal concentrations) into the southern parts of the Marshes.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
State and trend of values	N/A	N/A	High concern and deteriorating

2017 Summary

The current state of the property's values has dramatically deteriorated from their status when the most recent field surveys were conducted in the Marshes during the period 2005–2010. The habitats of threatened species in the Marshes are under pressure in many locations; also, the species themselves are facing pressures from hunting and disturbance due to the shrinkage of waterbodies and the degradation of water quality as a result of increasing concentrations of chemicals and other factors. For instance, observations of Marbled Teal (VU) in the Central Marshes (Baghdadiya site) have decreased from 18,000 during the aforementioned field survey to only 50 in 2017. The situation of the threatened Basra Reed Warbler (with a restricted breeding range) is similarly concerning.

Due to the absence of an active management system and a lack of law enforcement, as well as increasing investment in oil and the continuous lack of fresh water, the state and trend of the property's values and integrity are of significant concern, and will continue to deteriorate, unless urgent conservation measures are taken.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
Pressures and potential threats	N/A	N/A	High threat

2017 Summary

The natural values are facing many threats and challenges of which some are serious. The threats might be categorised in two groups: 1) the controllable threats and factors which may be mitigated through adequate planning and implementation of conservation actions by different stakeholders under the guidance of one national authority; 2) threats and factors that are beyond the control of management authorities, such as the shortage of water, which is caused both by factors outside Iraq, and internal factors, such as the consumption of water for the purposes of extracting crude oil. Iraq is continuously planning to raise the production of oil (currently already at over 100 million barrels per month), which will lead to an increasing consumption of already dwindling water resources in the Marshes.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
Protection and management	N/A	N/A	Serious concern

2017 Summary

Until now, aside from the Central Marshes component, none of the other three components have any legal protection at the national level. The partners and stakeholders working on the conservation of the Marshes lack the capacities that are required for managing the natural components technically, financially and institutionally. All of the key stakeholders have expressed their interest to lead the process, and there are attempts to mitigate the threats on the ground, but due to a lack of involvement from national level authorities in the management of the natural components, management effectiveness is of significant concern, further exacerbated by a lack of funding.



Wadi Rum Desert Landscape © Selma Kassem

WADI RUM PROTECTED AREA, JORDAN

Inscribed as a mixed site in 2011, criteria (iii) (v) (vii)

Reporting trend

- SOC reports since *Tab'e'a II*: Two (2016, 2018)
- Mission reports since *Tab'e'a II*: None
- Other reports since *Tab'e'a II*:
 - ◆ Abuamoud, I., Alrousan, R. and Bader, M. (2015). 'Impacts of Ecotourism in Jordan: Wadi Rum'. *European Journal of Social Sciences*, 50(1):119--129. <https://eis.hu.edu.jo/deanshipfiles/pub109847447.pdf>

IUCN World Heritage Outlook Summary: **GOOD WITH SOME CONCERNS**

The IUCN World Heritage Outlook is predominantly positive with only low-level threats to the scenic World Heritage values currently identified (IUCN, 2017c). The integrated management plan was to be revised and completed by 2017. The main concern in relation to the management plan has been its implementation, which has been lacking in some areas. There are some concerns over sustainable visitor management, although tourism has been decreasing due to regional political instability. The potential for increased infrastructure to support a future growing tourism industry needs to be carefully managed. A successful future for Wadi Rum is dependent on managing to balance conservation of natural and cultural heritage with the maintenance of traditional livelihoods and sustainable tourism that specifically and equitably benefits the local Bedouin communities.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
State and trend of values	N/A	Low Concern	Good with some concerns

2017 Summary

The 2017 State of Conservation of Wadi Rum's World Heritage scenic values is considered good and the information available indicates the trend is stable. Low population density and lack of development impacts have helped maintain Wadi Rum in a relatively pristine and authentic condition. No major construction projects are known of that might affect the exceptional scenic beauty values of the site. Tourism represents the most significant activity in and outside the site with both positive and negative impacts depending on the level of effectiveness in its management and monitoring.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
Pressures and potential threats	N/A	Low threat	Low threat

2017 Summary

Due to its remoteness and mountainous nature, much of Wadi Rum has been relatively inaccessible and therefore naturally protected until relatively recently. Whilst there is illegal hunting, woody fuel collection and pastoral grazing by local communities, these are currently thought to be within sustainable limits and their impacts are limited to other biodiversity values. There are no commercially viable mineral resources known within the area so no actual or potential threat from mining. Unsustainable use of the fossil aquifer under the site does not directly impact it, but has potential to impact on the local communities living within and around the protected area. Tourism presents the greatest current threat with poorly regulated off-road driving by tour operators, construction of illegal campsites, and self-guided tourists causing vegetation damage and also threatening the integrity of the site. Increased impacts from a growing tourism economy, now that the site has received the World Heritage designation, are considered a potential threat for Wadi Rum, however, with the current regional instability, this remains limited in the midterm. These would include inappropriate tourism infrastructure both within and adjacent to Wadi Rum and the growing impact of unregulated off-road driving. There is also the potential for climate change impacts on flora and fauna dependent on the elevated mountainous areas of Wadi Rum.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
Protection and management	N/A	Mostly effective	Some concern

2017 Summary

Wadi Rum's protection and management has benefited significantly from support by NGOs, international aid and the national government over the past few decades. The legal and governance framework is strong. Since its inscription on the World Heritage List in 2011, the Wadi Rum Protected Area (WRPA) has gone through major structural and technical changes to ensure the protection and maintenance of the OUV for both the cultural and natural components of the property, as well as its integrity and authenticity.

Staff levels and financial resources are currently good. The visitor centre and staff administration building are relatively modern and well equipped. Wadi Rum has a good first management plan, but implementation is lacking in some areas due to staff capacity particularly with regard to technical knowledge of natural and heritage management. A revision of the management plan was launched to ensure the enhancement of the cultural and natural components of the plan in light of the OUV statement, to build the capacity of the site team in both disciplines to ensure that the property is managed effectively, well presented to local stakeholders and visitors, as well as carefully monitored against present and potential factors influencing its integrity and authenticity (ASEZA, 2016). With growing visitor numbers and associated pressures, the finalisation of the new draft management plan and ensuring sufficient capacity to implement it is a priority. Wadi Rum is still dependent on external technical expertise and financial support to achieve this. Finally, it is important to note that the level of political support and strategic guidance to the site does not seem to match its global significance and sensitivity.



SOCOTRA ARCHIPELAGO, YEMEN

Inscribed as a natural site in 2008, criterion (x)

Reporting trend

- SOC reports since *Tabe'a II*: Four (2016, 2017, 2018, 2019).
- Mission reports since *Tabe'a II*: None (last one in 2014).
- Other publications since *Tabe'a II*:
 - ◆ Van Damme, K. (2018). 'A record of Notostraca on Socotra Island and the importance of local conservation of the habitat'. *Zootaxa*, 4446(4): 555–556. <https://doi.org/10.11646/zootaxa.4446.4.8>
 - ◆ Peutz, N. (2018). *Islands of Heritage. Conservation and Transformation in Yemen*. Stanford, CA, USA: Stanford University Press.
 - ◆ Garcia, C. and Vasconcelos, R. (2017). 'The beauty and the beast: Endemic mutualistic interactions promote community – based conservation on Socotra Island (Yemen)'. *Journal for Nature Conservation*, 35: 20-23. <https://doi.org/10.1016/j.jnc.2016.11.005>
 - ◆ Vasconcelos, R. (2015). Dragon Blood Tree's Gecko (*Hemidactylus dracaenacolus*) – a flagship for Socotra. Mohamed bin Zayed Species project number 14259910. <https://www.speciesconservation.org/case-studies-projects/dragon-blood-trees-gecko/9910>.

IUCN World Heritage Outlook Summary: **SIGNIFICANT CONCERN**

Socotra's values are exceptional on a global scale and have been comparatively well preserved until very recently (IUCN, 2017d). Therefore, much is at stake currently, as the island is undergoing rapid development that brings about unprecedented pressures and threats, and critical conditions associated with political turmoil could negatively affect the archipelago. Current and potential threats to Socotra's values are increasing rapidly. Infrastructure development, tourism and unsustainable natural resource management (following

the deterioration of traditional management) are already affecting the island (IUCN, 2018b). The management regime of Socotra needs to be strengthened (in terms of legislative basis, cross-sector mainstreaming, capacity, science-based decision making and use of traditional knowledge), in order to ensure sustainable development, and control pressures and threats.

IUCN World Heritage Outlook, 2017	Assessment at time of Tabe'a I	Assessment at time of Tabe'a II	Assessment at time of Tabe'a III
State and trend of values	Low concern	High concern	High concern and deteriorating

2017 Summary

Most of the existing key values have enjoyed a stable and satisfactory conservation status until the late 20th century (mainly due to Socotra's geographic isolation). However, there is no systematic biodiversity monitoring system to enable an accurate scientific assessment of changes since the 2008 baseline (IUCN, 2013). The conservation status of reptiles and invertebrates is poorly understood, but no immediate cause for concern is apparent. However, the status of some values, particularly ecosystems and endemic flora, has begun to deteriorate, with further deterioration predicted, following rapid ongoing socio-economic changes, justifying therefore the assessment of the current state of World Heritage values to be of 'High concern'.

IUCN World Heritage Outlook, 2017	Assessment at time of Tabe'a I	Assessment at time of Tabe'a II	Assessment at time of Tabe'a III
Pressures and potential threats	High threat	High threat	High threat

2017 Summary

Current and potential threats to Socotra's values are increasing rapidly. Infrastructure development and unsustainable natural resource management (following the increasing abandonment of traditional management) are already affecting the islands. Additional future threats include further habitat destruction, invasive species, climate change and uncertainty of the political climate.

IUCN World Heritage Outlook, 2017	Assessment at time of Tabe'a I	Assessment at time of Tabe'a II	Assessment at time of Tabe'a III
Protection and management	Significant concern	Some concern	Some concern

2017 Summary

A management framework for Socotra's values is under development, taking into consideration institutional arrangements to facilitate the process of the implementation of management and conservation measures effectively. It should be improved to deal with the rapidly increasing pressures and threats to the archipelago's values, including projected further increases in tourism, infrastructure development and unsustainable natural resource use. Priority areas include the creation of an archipelago-wide authority, visitor management and the participation of local people in management, including schemes to promote sustainable natural resource use where possible.



Prehistoric whale skeleton in Wadi Al Hitan, Egypt © Editions Gelbart

WADI AL-HITAN (WHALE VALLEY), EGYPT

Inscribed as a natural site in 2005, criterion (viii)

Reporting trend

- SOC reports since *Tabe'a II*: None (last one in 2010).
- Mission reports since 2014: None (there has never been one)

IUCN World Heritage Outlook Summary: **GOOD WITH SOME CONCERNS**

The IUCN World Heritage Outlook for Wadi Al-Hitan is good overall (IUCN, 2017e) Wadi Al-Hitan comprises exceptionally rich values related to the record of life, in a generally very good State of Conservation. An appropriate management framework is in place and could be further strengthened (e.g. update of the management plan, control of vehicle access, financial resources). An as yet unresolved issue is the possible inclusion of the Gebel Qatrani site (its inclusion in a boundary extension has been in preparation since 2011) which would considerably complement the values already comprised by Wadi Al-Hitan. Wadi Al-Hitan is close to the requirements for the highest assessment rating in relation to its management, and this would be achieved if the key issues of the management plan update and sustainable finance were resolved.

IUCN World Heritage Outlook, 2017	Assessment at time of Tabe'a I	Assessment at time of Tabe'a II	Assessment at time of Tabe'a III
State and trend of values	Low concern	Good	Good and stable

2017 Summary

Overall status of whale skeletons and other fossils very good. Different stages of weathering (from natural erosion) and some limited impact of damage/removal by visitors observed.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
Pressures and potential threats	Low threat	Low threat	Low threat

2017 Summary

Damage, theft and vandalism by visitors (including damage by 4x4 vehicles) are the main threat. Natural wind erosion also affects exposed fossils, and there is a potential threat from illegal quarrying operations.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
Protection and management	Adequate	Mostly effective	Some concern

2017 Summary

A management framework is in place but could be further strengthened (e.g. update of the management plan, control of vehicle access, financial resources). An as yet unresolved issue is the possible inclusion of the Gebel Qatrani site (its inclusion in a boundary extension has been in preparation since 2011) which would considerably complement the values already comprised by Wadi Al-Hitan. Financing and resource allocation remain a challenge to management.



Banc d'Arguin, Mauritania © Selma Kassem

BANC D'ARGUIN NATIONAL PARK, MAURITANIA

Inscribed as a natural site in 1989, criteria (ix) (x)

Reporting trend

- SOC reports since *Tabe'a II*: Two (2016, 2018).
- Mission reports since *Tabe'a II*: None (last one in 2014).
- Other reports since *Tabe'a II*:
 - ◆ Salim, M. and Abdulhaleem, H. (2016). 'Technical Report on a mission to Mauritania 25th of March -- 2nd of April, 2016'. Technical report. The Arab Regional Centre for World Heritage and International Union for Conservation of Nature.
 - ◆ *Rapport Atelier de Partage sur le Processus de Mise en Oeuvre de la Convention du Patrimoine Mondial, Nouakchott Les 25 et 26 Octobre 2015*. [Sharing Workshop Report on the Process of Implementing the World Heritage Convention, Nouakchott 25–26 October 2015].
 - ◆ Oudman, T., Schekkerman, H., Kidee, A., van Roomen, M., Camara, M., Smit, C., Ten Horn, J., Piersma, T. and El-Hacen, E. (2019). Changes in the waterbird community of the Parc National du Banc d'Arguin, Mauritania, 1980–2017. *Bird Conservation International*: 1–16. <https://doi.org/10.1017/S0959270919000431>

IUCN World Heritage Outlook Summary: **SIGNIFICANT CONCERN**

The values of Banc d'Arguin National Park have attracted major efforts by the Government of Mauritania and international partners for the protection and sustainable management of the site. These efforts have created a legal, institutional and financial basis for the management of the park, which should be used to its full potential in order to avert significant emerging pressures and threats from unsustainable fishing, hydrocarbon exploitation and the degradation of terrestrial ecosystems. While the marine and avian values are largely intact and the protection and management framework for the Banc d'Arguin National Park is strong, its conservation outlook is of significant concern due in large part to emerging challenges originating within and outside its boundaries, principally from unsustainable fisheries and increasing industrial activities (IUCN, 2017f).

IUCN World Heritage Outlook, 2017	Assessment at time of Taba'a I	Assessment at time of Taba'a II	Assessment at time of Taba'a III
State and trend of values	High concern	Low concern but deteriorating	Low concern but deteriorating

2017 Summary⁶

The values of Banc d'Arguin National Park were nearly undisturbed until the late 20th century but are increasingly under pressure and some values have begun to deteriorate. While there is a good follow-up of fish landing in the park, fish stocks are not evaluated and the importance of the park as a nursery zone is not well documented.

Knowledge on this subject should be improved at least in regard to species of commercial value. The status of terrestrial ecosystems and their fauna remains of high concern and overall the status of the property appears to be deteriorating despite intensive management efforts. However, the property continues to host significant numbers of overwintering birds.

IUCN World Heritage Outlook, 2017	Assessment at time of Taba'a I	Assessment at time of Taba'a II	Assessment at time of Taba'a III
Overall threats	High threat	High threat	High threat

2017 Summary

Unsustainable fishing (including fishing for sharks and rays) within and outside Banc d'Arguin National Park is the main current pressure. Fishing effort and captures inside the park have steeply increased but seem stable and are relatively well-controlled. The increasing commercialisation of artisanal fishing is a real concern. Accidental oil spills from oil platforms or tankers near Banc d'Arguin National Park are an increasing potential threat.

Mining activities are likely to expand in the near future and may cause negative impacts on freshwater resources. Climate change related increases in flooding are negatively affecting some coastal parts of the site. Pressures on terrestrial ecosystems may increase in the short term due to new urban developments under construction outside of the park's eastern boundary in Chami and in Mamghar inside of the park. All of these developments will require a thorough assessment of their impacts on the park, including their cumulative impacts.

IUCN World Heritage Outlook, 2017	Assessment at time of Taba'a I	Assessment at time of Taba'a II	Assessment at time of Taba'a III
Protection and management	Some concern	Some concern	Some concern

2017 Summary

The legislative, institutional and financial framework for the protection and management of Banc d'Arguin National Park is strong, but the wider protection of the surrounding seas needs to be developed further in order to meet emerging challenges to the site, principally from unsustainable fisheries and exploration as well as increasing shipping of hydrocarbons. The management effectiveness and capacity of the park to raise sustainable funding are also in need of further improvement. Most of the staff are located in Nouakchott and field work activities and support to communities are currently insufficient, although this situation is expected to improve when the park headquarters are moved to Chami.

⁶ Information presented under this section could be similar to that presented in Taba'a II due to lack of update in the Conservation Outlook database.



Tassili n'Ajjer © Office National du Parc Culturel de Tassili n'Ajjer

TASSILI N'AJJER, ALGERIA

Inscribed as a mixed site in 1982, criteria (i) (iii) (vii) (viii)

Reporting trend

- SOC reports since *Tabe'a II*: None (there has never been a SOC)
- Mission reports since *Tabe'a II*: None (last one in 1985)
- Other reports since *Tabe'a II*:
 - ◆ UNDP-GEF (2018). *Midterm Review. Conservation of globally significant biodiversity and sustainable use of ecosystem services in Algeria's cultural parks. Final Report*. Algeria: UNDP. <https://erc.undp.org/evaluation/documents/download/11317>
 - ◆ Belbachir, F. (2017). 'The Cheetah in the Algeria's Central Sahara – Ahaggar and Tassili n'Ajjer'. *Sandscript*; Issue 22

IUCN World Heritage Outlook Summary: **GOOD WITH SOME CONCERNS**

The IUCN World Heritage Outlook for Tassili n'Ajjer seems good overall regarding its World Heritage status, but there are significant wider conservation concerns related to other biodiversity values (IUCN, 2017g). The main issue regarding the conservation status of the natural values of Tassili n'Ajjer is that relatively little recent information about them is available. The information that is available suggests that pressures and threats to the natural values of the site under criteria (vii) and (viii) are limited and that the current management is therefore adequate for the site's values under the Convention, but that it does not appear to be conserving wider biodiversity values. There may be a need to continue developing the management system of the site, in order to be prepared for potential increases of threats in the future, and to strengthen its governance by including representatives from government departments dealing with protected areas (the site is currently managed by the Department of Culture).

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
State and trend of values	Low concern	Low concern	Good and stable

2017 Summary

The geo-morphological values of Tassili n'Ajjer appeared relatively well-preserved at the time of inscription, because of the remoteness and difficulty of access to the area. Little information on their status has become available since.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
Pressures and potential threats	Low threat	High threat	Data deficient

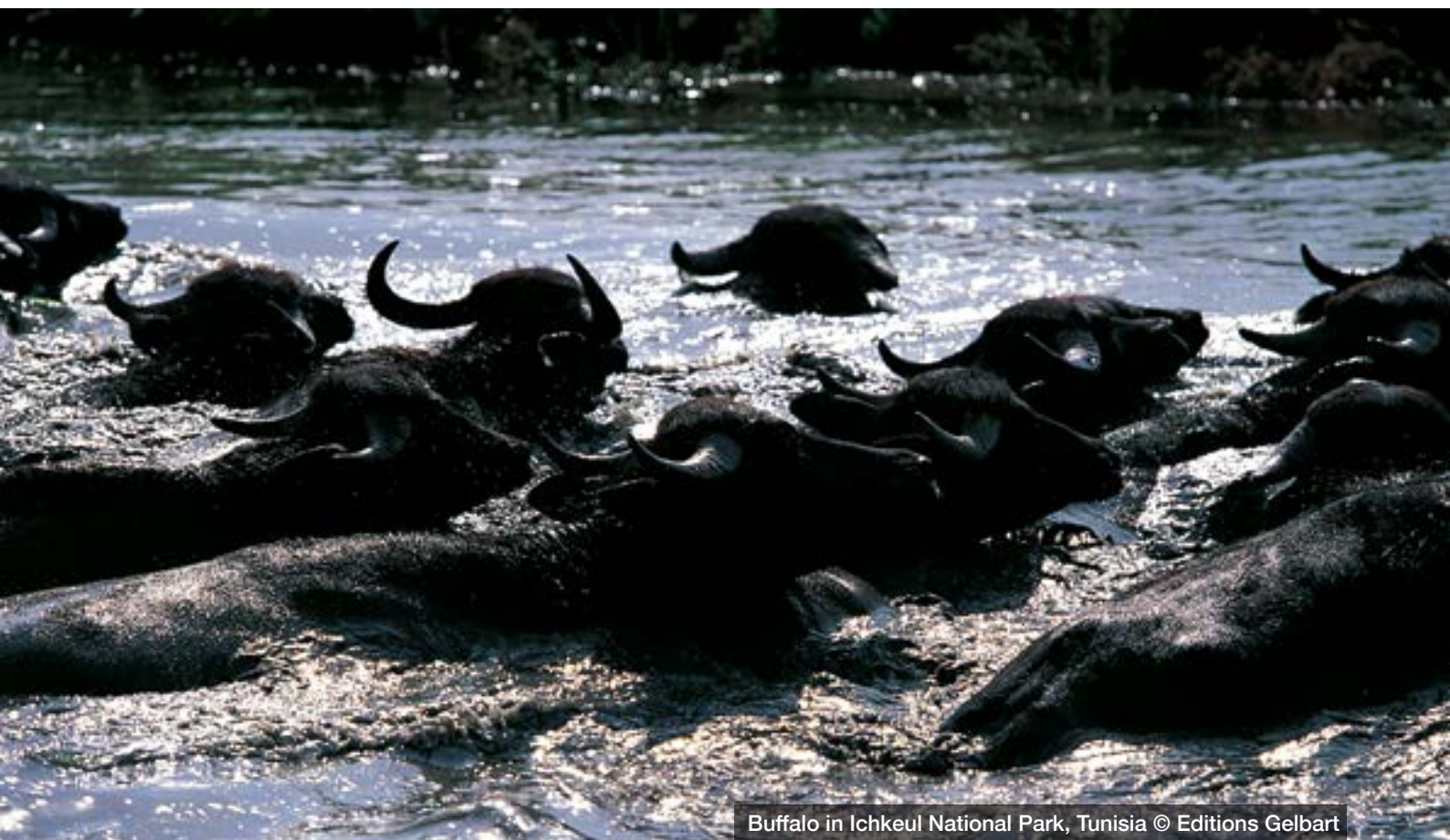
2017 Summary

The main pressures and potential threats to the cultural and geological values of the site are being caused by damage and littering by visitors. These pressures appear limited, although detailed recent information is unavailable. Threats to additional biodiversity values from unsustainable resource use (poaching, fuel wood collection, grazing, etc.), disturbance and climate change are considered significant and growing, based on recent information. The site suffers from a major lack of updated information. No reports or missions for a long period of time except for one brief unpublished mission report in 2010.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
Protection and management	Data deficient	Some concern	Some concern

2017 Summary

The site suffers from a major lack of updated information. No reports or missions for a long period of time except for one brief unpublished mission report in 2010. The site has been protected as a Cultural Park under the Law on Protection of Cultural Heritage since 2004. Management planning was still in progress in 2010, and management was based on ad-hoc annual plans in 2010. The legal and policy framework for the site's protection was improved from 2010, but the immense size of the site and the relatively low number and capacity of the staff remain a challenge. Financial support is reportedly sufficient. There is a GEF programme on strengthening biodiversity management at the site. The protection of the site may be sufficient to control the limited current pressures on its geomorphological values, but the same is probably not true for the protection of additional biodiversity values.



Buffalo in Ichkeul National Park, Tunisia © Editions Gelbart

ICHKEUL NATIONAL PARK, TUNISIA

Inscribed as a natural site in 1980, criterion (x)

Reporting trend

- SOC reports since *Tabe'a II*: None (last one in 2010)
- Mission reports since *Tabe'a II*: None (last one in 2006)
- Other reports since *Tabe'a II*:
 - ◆ Daly-Hassen, H. (2017). *Valeurs économiques des services écosystémiques du Parc National de l'Ichkeul en Tunisie*. [Economic values of ecosystem services in Ichkeul National Park in Tunisia] Malaga, Espagne: UICN. <https://doi.org/10.2305/IUCN.CH.2017.03.fr>.
 - ◆ *Zones Humides en Tunisie. Rapport Final de l'étude*. (2016). [Sustainable management of Wetlands in Tunisia. Final Report].
 - ◆ GOPA Consulting Group (2008). '*Plan d'Amenagement et de Gestion du Parc National de l'Ichkeul*'. Tunis: GOPA Consultants. Ministry of Agriculture and Hydraulic Resources – CRDA de Bizerte.
 - ◆ *Projet MEET – Experience Méditerranéenne d'Ecotourisme. Plan de gestion des visiteurs du PNI*. (2015) [Project MEET – Mediterranean Experience of Ecotourism. Visitor Management Plan from the PNI].
 - ◆ Aouissi, J., Chabaane, Z., Benabdallah, S. and Cudennec, C. (2014). 'Assessing the hydrological impacts of agricultural changes upstream of the Tunisian World Heritage sea-connected Ichkeul Lake'. *Complex Interfaces Under Change: Sea-River-Groundwater-Lake*, *IAHS Publ.* 365. <https://doi.org/10.5194/piahs-365-61-2015>
 - ◆ *Projet MEET Planification strategique des activites eco touristiques dans le Parc National d'Ichkeul. Rapport final*. (2014) [MEET Project Strategic Planning of Eco-Tourism Activities in Ichkeul National Park. Final Report].

7 French language reports presented a limitation due to translation difficulty.

IUCN World Heritage Outlook Summary: **GOOD WITH SOME CONCERNS**

The IUCN World Heritage Outlook for Ichkeul National Park (IUCN, 2017h) is of low concern considering the improving overall status demonstrated by the fact that it was removed from the Montreux record in 2016 (MedWet, 2016). The hydrological status of the property has improved significantly over the last 10 years, but the site remains somewhat vulnerable with regards to its hydrological management and the recovery of its values could be reversed by a series of low-precipitation seasons.

Following the water supply crisis of the 1990s and early 2000s, and thanks in part to unusually rich rainfalls in 2004–2006, Lake Ichkeul has recovered a significant part of its outstanding value as a waterbirds' resting and breeding site and as one of the last intact examples of coastal lakes along the southern Mediterranean. Since the sustainable development of this ecosystem cannot rely on favourable weather conditions alone, there remains the need to mainstream conservation of the national park and strengthen the institutional setup, local support and management (including effective monitoring) of Ichkeul National Park.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
State and trend of values	Low concern	High concern	Low concern and improving

2017 Summary⁸

The main values of the Ichkeul National Park underwent a severe crisis starting in the early 1990s due to critically reduced water supply. Since 2004, these values have partially recovered, partly due to increased precipitation and partly thanks to the improved hydrological management. The effects of this recovery have been sustained through sluice water provision even during the low-precipitation season 2007–2008. However, the recovery of the site's values could be reversed in the future by a series of several consecutive low-precipitation seasons, or as a consequence of a relaxation of the current hydrological management regime of the property.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
Pressures and potential threats	High threat	High threat	High threat

2017 Summary

By far the greatest pressure on Ichkeul National Park has been insufficient water supply due to dam construction, with salinisation, partial desiccation and shifts in the vegetation to halophytic forms of low food value to waterbirds. Recent activities aimed at hydrological management have contributed to reducing this pressure. Secondary pressures and potential threats to the park's values are poaching, agricultural encroachment, increasing use of fertilisers and unsustainable grazing. Climate change is likely to aggravate existing pressures in the future. Potential impacts are yet unclear.

IUCN World Heritage Outlook, 2017	Assessment at time of Tab'e'a I	Assessment at time of Tab'e'a II	Assessment at time of Tab'e'a III
Protection and management	Some concern	Some concern	Some concern

2017 Summary

Significant efforts aimed at hydrological management of Ichkeul National Park have contributed to its recovery since 2004. A management plan was developed with GEF support in 2005–2008. At the same time, there is still no sufficiently broad consensus, adequate institutional setup and strong local participation for the sustainable long-term management of the site.

⁸ Information presented under this section could be similar to that presented in Tab'e'a II due to lack of update in the Conservation Outlook database.



Farasan Islands Protected Area on the Tentative List of the Kingdom of Saudi Arabia. © Tarek Abulhawa

5.3 Tentative Lists update

Report approach

In this section, the report summarises progress and changes which have taken place on the World Heritage Tentative Lists and Nominations since Tabe'a II in 2015.

The first part lists the natural World Heritage sites which were moved from the National Tentative Lists to the World Heritage Lists as a result of successful nominations.

The second part gives – in tabulated form – an update on the developments associated with the National Tentative Lists for all Arab States Parties categorised in alphabetical order.

Successful World Heritage Nominations

The Ahwar of Southern Iraq (Iraq)

- 2003 added to Tentative List.
- 2014 Nomination for World Heritage inscription initiated.

2016 Inscription of *The Ahwar of Southern Iraq: Refuge of Biodiversity and the Relict Landscape of the Mesopotamian Cities* on the World Heritage List as mixed site under criteria (iii) (v) (ix) (x).

Sanganeb Marine National Park and Dugonab Bay – Mukkawar Island Marine National Park (Sudan)

- 1983 Sanganeb Atoll presented for Nomination and recommended for resubmission after improvements.
- 2004 added to Tentative List.
- 2012 Nomination for World Heritage inscription of Sanganeb Marine National Park and Dugonab Bay initiated.
- 2014 Nomination deemed incomplete by the World Heritage Centre.
- 2016 Inscription of *Sanganeb Marine National Park and Dugonab Bay – Mukkawar Island Marine National Park* on the World Heritage List as a natural site under criteria (vii) (ix) (x).

With the successful inscription of the Ahwar of Southern Iraq and the Sanganeb/Dungonab properties on the World Heritage List, the Arab region currently includes five natural and three mixed World Heritage sites in eight States Parties. This represents an important development in achieving a better representation of natural and mixed World Heritage properties from the Arab region in the global network of sites of Outstanding Universal Value

Developments on National Tentative Lists since *Tab'e'a II*

The table below summarises the number of sites with natural criteria on the National Tentative Lists of the Arab States. The table also includes an approximation of the number of sites with cultural criteria for indicative comparison. Numbers included in the table below represent the update up to mid-2019.

Table 1: Classification of World Heritage sites and properties on the National Tentative Lists of the Arab States.

No	Country	Natural/mixed properties		Cultural properties	
		Tentative	Inscribed	Tentative	Inscribed
1	Algeria	1	1	5	6
2	Bahrain	1	0	4	3
3	Egypt	9	1	23	6
4	Iraq	2	1	9	5
5	Jordan	3	1	11	5
6	Kuwait	0	0	2	0
7	Lebanon	1	0	8	5
8	Libya	0	0	0	5
9	Mauritania	0	1	3	5
10	Morocco	4	0	8	9
11	Oman	5	0	3	4
12	Palestine	2	0	11	2
13	Qatar	1	0	0	1
14	Saudi Arabia	0	0	1	3
15	Sudan	3	1	3	2
16	Syrian Arab Republic	0	0	12	6
17	Tunisia	4	1	6	7
18	United Arab Emirates	2	0	5	1
19	Yemen	5	1	5	3
		43	8	119	78

By examining the below table, which summarises the number of natural and mixed sites on the National Tentative Lists of the Arab States Parties categorised by country, the following points are noted on the status and trends of natural World Heritage Tentative Lists on the Arab region:

- There is generally little development which took place on the National Tentative Lists since *Tab'e'a II*. This reflects the relatively low interest and capacities to enhance the regional network of natural and mixed World Heritage sites.
- Until June 2019, there are 47 sites with natural criteria on the National Tentative Lists of 15 out of 19 States Parties.
- There are no natural or mixed sites on the National Tentative Lists of Lebanon, Libya, Mauritania and Syria.
- Since *Tab'e'a II*, 7 sites with natural criteria were added to the National Tentative Lists of Kuwait (1 site), Saudi Arabia (2 sites), Tunisia (3 sites) and UAE (1).
- One additional site from UAE was changed from a mixed to cultural site on the National Tentative List.

Table 2: Natural and mixed sites on the National Tentative Lists of the Arab States - as of 2019.

No.	Country and number of Tentative List sites proposed under natural criteria	Site name	Date of inclusion in Tentative List	Category	Proposed under the following WH criteria	Habitat type or special interest	Updates since Tabe'a II
1	Algeria (1)	Parc des Aures avec les établissements oasiens des gorges du Rhoufi et d'El Kantara	30/12/2002	Mixed	(ii) (iii) (iv) (v) (vii) (x)	N/A	No developments since Tabe'a II
2	Bahrain (1)	Hawar Islands Reserve	07/11/2001	Natural	(vii) (ix)	coastal, sea [coral reef]	No developments since Tabe'a II
3	Egypt (10)	Ras Mohammed	22/01/2002	Natural	(vii) (viii) (ix) (x)	coastal, fossil site [coral reef]	No developments since Tabe'a II
		Bird Migration Routes	12/06/2003	Natural	(vii) (x)	wetland, coastal [lake system]	No developments since Tabe'a II
		Desert Wadis	12/06/2003	Natural	(vii) (viii) (ix) (x)	watershed, coastal [mangroves]	No developments since Tabe'a II
		Gebel Qatrani Area, Lake Qaroun Nature Reserve	10/02/2003	Mixed	(not specified)	fossil site	Nomination submitted to the World Heritage Centre in 2018, however, the dossier was deemed incomplete.
		Great Desert Landscapes	12/06/2003	Natural	(vii) (viii) (ix)	rocky barren, desert, karst [sabkhas]	No developments since Tabe'a II
		Mountain Chains	12/06/2003	Natural	(vii) (viii) (ix) (x)	mountain, watershed, coastal, desert [coral reefs, mangroves]	No developments since Tabe'a II
		Southern & Smaller Oases, the Western Desert	12/06/2003	Natural	(vii) (viii) (ix) (x)	wetland (including saline), desert	No developments since Tabe'a II
		Dababiya	24/07/2008	Natural	(viii)	stratigraphic site	No developments since Tabe'a II
		Helwan Observatory	3/11/2010	Mixed	(ii) (vi) (vii)	(unclear)	No developments since Tabe'a II
		Kharga Oasis and the Small Southern Oases	03/09/2015	Mixed	(i) (ii) (iii) (iv) (v) (vii) (viii) (ix) (x)	wetland site	
4	Iraq (1)	Amedy City	02/02/2011	Mixed	(i) (ii) (iii) (vii) (viii)	mountain, stratigraphic site	No developments since Tabe'a II
5	Jordan (3)	Azraq	11/05/2007	Mixed	(iv) (v) (x)	wetland	No developments since Tabe'a II
		Dana Biosphere Reserve	11/05/2007	Mixed	(iv) (vii) (viii) (x)	wadis & highlands, stratigraphic site	No developments since Tabe'a II
		Mujib Nature Reserve	11/05/2007	Natural	(vii) (viii)	watershed, wetland	No developments since Tabe'a II
6	Kuwait (1)	Boubyan Island and Mubarak Al-Kabeer Marine Reserve	17/05/2017	Natural	(ix) (x)	coastal [marine/ sabkha]	Included in the Tentative List in 2017. Island of terrestrial, intertidal and marine ecosystems populated with rich biodiversity.
7	Lebanon (0)	(no natural or mixed properties on the National Tentative List)					

No.	Country and number of Tentative List sites proposed under natural criteria	Site name	Date of inclusion in Tentative List	Category	Proposed under the following WH criteria	Habitat type or special interest	Updates since Tabe'a II
8	Libya (0)	(no natural or mixed properties on the National Tentative List)					
9	Mauritania (0)	(no natural or mixed properties on the National Tentative List)					
10	Morocco (4)	Aire du Dragonnier Ajgal	12/10/1998	Natural	(vii) (viii) (ix) (x)	N/A	No developments since Tabe'a II
		Lagune de Khnifiss	12/10/1998	Natural	(vii) (x)	coastal/ intertidal [sabkha]	No developments since Tabe'a II
		Parc national de Dakhla	12/10/1998	Natural	(x)	N/A	No developments since Tabe'a II
		Parc naturel de Talassemtane	12/10/1998	Natural	(vii) (x)	forest	No developments since Tabe'a II
11	Oman (5)	Al Dimaniyyat Islands Nature Reserve	23/05/2013	Natural	(x)	coastal, sea [marine/ coral reef]	No developments since Tabe'a II
		Al Hallaniyyat Islands Proposed Nature Reserve	23/05/2013	Natural	(x)	coastal, rocky barren, sea [marine/ coral reef]	No developments since Tabe'a II
		Bar al Hakman Proposed Nature Reserve	23/05/2013	Natural	(x)	coastal, sea [marine/ sabkhas, mangroves, coral reefs]	No developments since Tabe'a II
		Ras al Had Turtle Reserve & the Heritage Site of Ras al Jinz	23/05/2013	Mixed	(ii) (iii) (x)	coastal [marine/ mangroves, coral reefs]	No developments since Tabe'a II
		Smahan's Mountain Nature Reserve	23/05/2013	Natural	(vii) (x)	wadis & highlands, coastal	No developments since Tabe'a II
12	Palestine (2)	Umm Al-Rihan Forest	02/04/2012	Natural	(x)	forest	No developments since Tabe'a II
		Wadi Gaza Coastal Wetlands	02/04/2012	Natural	(x)	coastal, wetland, wadis	No developments since Tabe'a II
13	Qatar (1)	Khor Al-Adaid Natural Reserve	18/03/2008	Natural	(vii) (viii)	coastal, rocky barren, desert, wadis & highlands [marine/ sabkhas, coral reefs]	No developments since Tabe'a II

No.	Country and number of Tentative List sites proposed under natural criteria	Site name	Date of inclusion in Tentative List	Category	Proposed under the following WH criteria	Habitat type or special interest	Updates since Tabe'a II
14	Saudi Arabia (2)	'Uruq Bani Ma'arid Protected Area	3/01/2019	Natural	(vii) (ix) (x)	desert	Included in the Tentative List in 2019. Part of Ar-Rub' al Khali (the Empty Quarter) iconic wilderness of sand dunes and other desert habitats, including perhaps the last wild Arabian Oryx.
		Farasan Islands Protected Area	3/01/2019	Natural	(x)	coastal [marine/ coral reef]	Included in the Tentative List in 2019. Archipelago of islands and islets containing significant natural habitats that support high concentrations of important species.
15	Sudan (2)	Dinder National Park	28/09/2004	Natural	(vii) (viii) (ix) (x)	wetland, savanna, forest	No developments since Tabe'a II
		Wadi Howar National Park	28/09/2004	Natural	(vii) (viii) (ix) (x)	wetland, desert	No developments since Tabe'a II
16	Syria (0)	(no natural or mixed properties on the National Tentative List)					
17	Tunisia (7)	Chott El Jerid	28/05/2008	Natural	(vii) (viii) (ix) (x)	desert	No developments since Tabe'a II
		Oasis de Gabes	28/05/2008	Mixed	(iv) (vii) (x)	coastal	No developments since Tabe'a II
		Parc National d'El Feija	28/05/2008	Natural	(vii) (viii) (x)	forest	No developments since Tabe'a II
		Parc National de Bouhedma	28/05/2008	Natural	(vii) (viii) (x)	pseudo-savanna, mountain	No developments since Tabe'a II
		Le Stratotype de la limite Cretace-Tertiaire (limite K-T)	24/02/2016	Natural	(vii) (viii)	stratigraphic site	No developments since Tabe'a II
		Le Permien marin de Jebel Tebaga	24/02/2016	Natural	(vii) (viii)	stratigraphic site	Included in the Tentative List in 2016. Sedimentary records of outcropping, illustrating a significant period in the history of the Earth.
		La Table de Jugurtha a Kalaat-Senen	29/09/2017	Mixed	(ii) (iii) (v) (vi) (vii) (viii)	stratigraphic site	Included in the Tentative List in 2017. Geological and geomorphological site around which historical human activities have occurred.

No.	Country and number of Tentative List sites proposed under natural criteria	Site name	Date of inclusion in Tentative List	Category	Proposed under the following WH criteria	Habitat type or special interest	Updates since Tab'e'a II
18	UAE (2)	Sir Bu Nair Island	30/1/2012	Natural	(ix) (x)	coastal, sea	No developments since Tab'e'a II
		The Cultural Landscape of the Central Region in the Emirate of Sharjah	9/03/2018	Cultural	(vii) (iii) (v)	desert landscape	This site has been changed from mixed to cultural in 2018.
		Abu Dhabi Sabkha	20/06/2018	Natural	(viii)	coast [sabkha]	Included in the Tentative List in 2018. Flat, salt-encrusted sabkha landform, representing the four layers in one site: lagoon mud, microbial mat, gypsum mud and anhydrite nodules. Considered to be one of the most significant desert landscapes of the Arab region, as stated in the Tab'e'a Factsheet.
19	Yemen (5)	Balhaf/Burum Coastal Area	08/07/2002	Mixed	(not specified)	coastal, sea [marine/ coral reefs]	No developments since Tab'e'a II
		Jabal Bura	08/07/2002	Mixed	(not specified)	mountain, forest	No developments since Tab'e'a II
		Jabal Haraz	08/07/2002	Mixed	(not specified)	mountain	No developments since Tab'e'a II
		Sharma/Jethmun Coastal Area	08/07/2002	Natural	(not specified)	coastal	No developments since Tab'e'a II
		The Hawf Area	08/07/2002	Natural	(vii) (x)	(unclear)	No developments since Tab'e'a II

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