

WORLD HERITAGE

CLIMATE CHANGE

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DUTCH WATER DEFENCE LINES

UNESCO WORLD HERITAGE



Water as an ally

In 1996, the Defence Line of Amsterdam was awarded with the UNESCO World Heritage status. Though for the story to be complete, the New Dutch Waterline had to be included within this heritage. This is why in 2021 the two water defence systems were combined as one World Heritage site: The Dutch Water Defence Lines.

The Dutch Water Defence Lines are constructed to defend the Netherlands' economic heart against military attacks. The defence lines were built in the 19th century and improved until World War II. The two defence lines together are a linear monument with a length of 220 km. The key aspect in its defence system was a controlled inundation of large areas of land. These inundations made large parts of the Netherlands inaccessible for hostile armies. After World War II the defence lines lost their defensive function.

Nowadays the defence lines function as a green belt for the nearby Metropolitan Region. They are widely appreciated for their historical, cultural, recreational and ecological qualities.





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World Heritage site

World Heritage pioneering the maritime green shift



© Arne Aasheim

This is the story about how polluted clouds over the West Norwegian Fjords led to the introduction of strict local emission requirements for ships and a decision to fully halt emissions from cruise ships and ferries – making the fjords zero-emission zones by 2026. A reminder of the crucial role that World Heritage status might play in bringing about positive change for nature and people.

No place other than Norway's only natural World Heritage site better portrays the geological story of how water and ice over time can carve out and form narrow and deep fjords surrounded by steep-sided crystalline rock walls. A landscape with outstanding natural beauty where the geological setting, waterfalls, free-flowing rivers and flora and fauna formed the basis for its inscription on the World Heritage List in 2005.

Countless cruise ships have visited the fjords and offered guests natural experiences over the past 150 years. Some days, however, the pollution from ships forms clouds of smoke covering the fjords causing reduced visibility and periodical health concerns. This has also become a reputational problem. As one of 252 natural World Heritage sites, it became clear that change was needed to comply with the necessary management standards that this flagship marine site deserves.

Responding to the challenge, the Site Managers in collaboration with the research communities, the tourism industry and the authorities, started a project to achieve traceless travel in the West Norwegian Fjords. Brought together by the UNESCO Marine Programme, the Site Managers also initiated a partnership with World Heritage staff in Glacier Bay, resulting in valuable exchange of management experience. Ultimately, these efforts led to the legal framework set out to reduce local pollution from ships and furthermore, to the decision to achieve emission-free sailing of cruise ships and ferries in the fjords and their harbours by 2026.



Smog covering the fjords

© Merete Lovoll Rønneberg

Transformative change is necessary to achieve global goals pertaining to climate action, biodiversity conservation and sustainable development. The zero-emission decision demonstrates such a change, involving a range of sectors and stakeholders. Ambitious goals and sound legal frameworks are prerequisites for industries to develop innovative technology to address climate and environmental challenges.

The zero-emission decision in the West Norwegian Fjords is in line with the implementation of the 'EU action plan on zero pollution' and its 2050 vision concerning air, water, and soil. In addition to setting management standards for sea transport in World Heritage sites it may also inspire transformation to a zero-emission mode of transport globally. The response to reduced visibility and pollution in this World Heritage site, and its subsequent contribution to the maritime green shift, clearly demonstrates the power of the Convention.

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World Heritage site





Cover: Lagoons of New Caledonia: Reef Diversity and Associated Ecosystems (France).

Coral bleaching is a stress response that occurs when corals expel the microalgae (zooxanthellae) that provides them food. Rising water temperatures associated with climate change have caused severe coral bleaching and mortality of coral reefs around the world over the past three decades. Without drastic action, the 29 World Heritage sites containing coral are expected to experience annual severe bleaching this century, leading to dramatic deterioration in ecological functioning.

Climate change is the defining issue of our time, and among the greatest threats facing cultural and natural heritage today. One in three natural sites and one in six cultural heritage sites are currently threatened by climate change. In recent months and years, we have seen cultural and natural heritage sites, including many World Heritage sites, threatened by wildfires, floods, storms and mass-bleaching events. We have also seen how climate change puts living heritage – oral traditions, performing arts, social practices, festive events and traditional knowledge – at risk. As climate change leads to displacement and forced migration, entire ways of life risk being lost forever.

In the midst of a historic COP26, with more than 100 countries pledging to end deforestation by 2030, UNESCO's recent report, *World Heritage forests: Carbon sinks under pressure*, which we analyze at length in this issue, could not be more timely. The report finds that a staggering 60% of World Heritage forests are threatened by climate change-related events. Marine sites are equally under pressure. Two-thirds of these vital carbon stores - home to 15% of global blue carbon assets - are currently experiencing high risks of degradation, according to the *UNESCO Marine World Heritage: Custodians of the globe's blue carbon assets* study, and if no action is taken, coral may disappear at natural heritage sites by the end of the century.

In response to this undeniable impact of climate change on culture, UNESCO is working to build the capacities of countries and communities to prepare for and recover from climate-change related impacts and disasters. At the same time, we are committed to harnessing the potential of culture for climate action, which still remains largely untapped. From tangible and living heritage to museums and creativity, culture represents a wellspring to combat climate change through mitigation and adaptation.

Our strengthened collaboration with partners and Member States to address the growing need for enhanced monitoring of the impact of climate change on heritage through more accurate and relevant data has been critical, as well as our efforts to leverage global platforms, including the Urban Heritage Climate Observatory.

The development of inclusive public policies for climate action through culture is another essential step to advance a shared global climate agenda, which will be strongly supported through the implementation of the updated Policy Document on climate action for World Heritage. Lastly, building knowledge on culture and climate change will allow us to nourish and inform our future roadmap towards reversing climate change, and in this regard the International Co-sponsored Meeting with the IPCC and ICOMOS on 'Culture, Heritage and Climate Change' next month will help assess the state of knowledge and practice in this domain.

UNESCO is committed to ensuring that culture is fully integrated into climate action and strategies, both as a shared global asset that needs to be safeguarded from the effects of climate change and as a transversal tool for climate change mitigation and adaptation. The stories and highlights found in this issue of the World Heritage Review point to the way forward.

Ernesto Ottone R.

Assistant Director-General for Culture of UNESCO



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World Heritage Convention



As we reach the milestone of the 100th issue of the World Heritage Review, we would like to extend our warmest thanks to our readers for their continued interest and support.

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World Heritage sites – particularly natural ones – show both the scale of impacts resulting from climate change and the opportunities for concerted efforts to combat them.

The authors are responsible for the choice and the presentation of the facts contained in the articles and for the opinions expressed therein, which are not necessarily those of UNESCO and do not commit the Organization. The designations employed and the presentation of material throughout this publication do not imply the expression of any opinion whatsoever on the part of UNESCO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

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Climate change, World Heritage, COVID-19 and tourism
Climate change impacts on World Heritage, and their complex interactions with tourism, remain an important area for development in the management of sites. As the world continues to respond to COVID-19, it is more important than ever that World Heritage play its part, both in drawing attention to climate change and in developing ways to respond and adapt to it.

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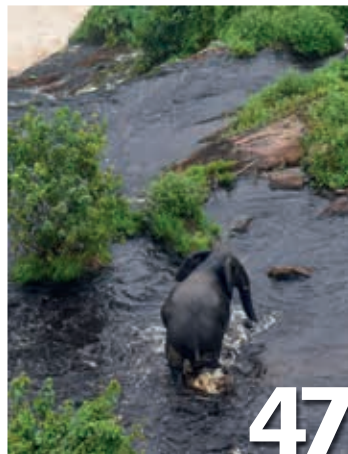
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The World Heritage Convention and climate change

May Cassar CBE
Professor of Sustainable Heritage
Director, Bartlett Institute for Sustainable Heritage
University College London

Several iconic landscapes found in World Heritage sites will be affected by rising temperatures. Los Glaciares National Park (Argentina) contains some of the largest glaciers on Earth and a very large ice loss – about 60% of the current volume – is predicted by 2100 within this site.

© Deensel



The World Heritage Convention was adopted in 1972. The associated framework, mechanisms and instruments have evolved, however, and they continue to develop in response to issues affecting the Outstanding Universal Value of the World Heritage properties.

Among the more significant components of the framework are the Operational Guidelines for the Implementation of the World Heritage Convention that can be described as ‘top down’, while the Periodic Reporting and Reactive Monitoring from the regions and individual properties are ‘bottom up’, though defined centrally.

Operational Guidelines and climate change

The *Operational Guidelines*, which are updated regularly, are the written rules at the summit of the framework. They present a handbook or rulebook for interpreting and applying the Convention in the real world, which includes *inter alia* the criteria and procedures for inscription of sites on the World Heritage List; how periodic and reactive monitoring should take place; and conditions for putting a site on the List of World Heritage in Danger. They also reflect the concepts contained in policy documents.

The historical inclusion of climate change in the Operational Guidelines goes back to 1997. Since then, awareness of climate change threats has continued to grow among World Heritage practitioners. The following table summarizes how reference to climate change in the Operational Guidelines has increased.



In October 2021, the Historic City of Ayutthaya (Thailand) faced a severe flood.

© Image by Franck Barske from Pixabay

The current edition of the Operational Guidelines (2019) contains ten references to climate change. They present a qualitative as well as quantitative advance relative to the 2017 edition, in the form of guidance given to States Parties preparing sites for nomination to the World Heritage List. Guidance on Protection and Management (IIF) is explicit in its advice that ‘*an assessment of the vulnerabilities of the property to social, economic, environmental and other pressures and changes, including disasters and climate change, as well as the monitoring of impacts of trends and proposed intervention*’ (111d) should take place. Recent consultation on the revision of the *Policy Document on the Impacts of Climate Change on World Heritage Properties* has led to a policy shift

from ‘impacts’ to ‘strengthening of heritage resilience’ (118bis). This signals acceptance of the fact that climate change impacts are undeniable and that World Heritage sites need to prepare positively for change by focusing on resilience rather than dwelling on the inevitable. This should encourage a more holistic approach – that is, including social and economic resilience – rather than focusing on physical resilience alone. To reflect this approach, the title of the updated 2007 Policy Document, as endorsed by the World Heritage Committee at its extended 44th session in July 2021, has been changed to *Policy Document on climate action for World Heritage*.

This guidance is carried through in the granting of International Assistance to Endangered Sites (239c) by the World Heritage Fund. A condition of the World Heritage Committee in granting international assistance is the requirement to demonstrate that the Strategic Objectives or policies, including specifically the *Policy Document on climate action for World Heritage*, are taken into consideration so that adaptation in the face of climate change is built into support for endangered sites.

From 2021, recommendations in this Policy Document should ensure that reporting on climate change impacts, resilience and adaptation is reflected strongly in changes to the Operational Guidelines, through Periodic Reporting tools and obligations, requirements for nominating new sites and requirements for adding sites to the List of World Heritage in Danger. This is elaborated further under Policy Development and Climate Change.

References to climate change in the Operational Guidelines

| | | |
|--|--|--|
| 1997, 1999 and 2002 editions | Climate change is mentioned only once as a potential factor affecting sites, in all three editions | Reference to the United Nations Framework Convention on Climate Change (UNFCCC) as a global convention relating to the protection of cultural and natural heritage |
| 2005, 2008, 2011, 2012 and 2013 editions | Climate change is mentioned twice, identically in all five editions | The Nominations format required major sources of environmental deterioration including climate change to be listed and included reference to the UNFCCC (Annex 5) |
| 2015, 2016 and 2017 editions | Enhanced treatment of climate change | Besides mention of the UNFCCC, references include, in descending order of strategic significance, the Policy Document (2007), the World Heritage Report 22 (2007), the World Heritage Paper 37 (2014) and World Heritage Case Studies (2007) |



Canopy at Lamington National Park, part of the Gondwana Rainforests of Australia World Heritage site. The recent fires of 2019-2020 were unprecedented and their longer-term impacts are still being evaluated.

© Klaus Stiefel



Cape Coast Castle, part of the World Heritage site Forts and Castles, Volta, Greater Accra, Central and Western Regions (Ghana). The site overall remains vulnerable to environmental pressures such as sea level rise.

© Cordelia Persen

Periodic Reporting and climate change

The Periodic Reporting framework is a self-reporting tool for use by States Parties to the Convention. Systematic Periodic Reporting started in the late 1990s. The States Parties in each of five different regions of the world – the Arab States, Africa, Asia and the Pacific, Latin America and the Caribbean, and Europe and North America – report in turn, on all listed World Heritage sites in their territory. The cycle of Periodic Reporting takes almost a decade to cover the whole globe, including periods of reflection between cycles. The entire globe has been reported on twice so far. The first cycle took place between 1998 and 2006, followed by a period of reflection and the second cycle took place between 2008 and 2015. While this reporting schedule is driven by practical considerations, in the context of climate change timelines, for example the Intergovernmental Panel on Climate Change (IPCC) periodic assessment reporting, synchronicity of longer timescales gives a broader perception of change over time and allows for scientific research to be undertaken, published and peer-reviewed.

Taking Europe as an example region (similar reports are available for each region), in the first cycle the States Parties did not cite climate change as a challenge and there was only one reference to environmental monitoring (climate, seismic factors) in the report presented to the 30th Session of the World Heritage Committee in Vilnius (2006). This may be explained partly by the time response between funded research and policy implementation. In the first decade of the 21st century, research projects on the impact of climate change on cultural heritage in Europe had begun to be funded nationally, for instance in the United Kingdom by English Heritage, the Arts and Humanities Research Council and the Engineering and Physical Sciences Research Council, and at a European level through the European Union Framework Programmes for Research. Scientific research on the risks, vulnerabilities and impacts of diverse climate change parameters on a range of cultural heritage assets had just begun to be published. Significant among these is *The Atlas of Climate Change Impact on European Cultural Heritage Scientific Analysis and Management Strategies*,



Rock Islands Southern Lagoon (Palau). Small islands are particularly vulnerable to the impacts of climate change.

© Image by Franck Barske from Pixabay

which was awarded the Europa Nostra Grand Prize for Research in 2009.

World Heritage policy documents on the impact of climate change on World Heritage were developed in parallel and separately to the reflection period, which focused on revising the Periodic Reporting questionnaire. There were no ‘formal’ links between the two, nor any request at this time by the World Heritage Committee to integrate this issue of climate change into the revised Period Reporting questionnaire. This inclusion was at the initiative of the Secretariat at the WHC and some members composing the Periodic reporting reflection working group. Fortunately, during this revision process, the issue of climate change was introduced in the questionnaire under a new section on the factors affecting the property. This required all States Parties to reflect on climate change threats to listed World Heritage sites in their territory in the second cycle.

By 2015, the final report on the second cycle of Periodic Reporting for the Europe region demonstrated that awareness among site managers of the threat of climate change had risen substantially, leading to this threat being listed as one of three main factors affecting properties in Europe. In particular, lack of preparedness to address threats related to climate change, as well as risk management in general, are mentioned frequently in the chapter on capacity-building needs in the second cycle. In contrast to the first cycle, in the second, over one-third of 432 World Heritage properties in the Europe region reported

climate change and severe weather events as potential negative factors. The Synthetic Regional Report for Europe reveals an increase in local awareness of climate change impacts, reflecting the evolution in thinking and availability of research and advice between these two cycles. It would be interesting to do similar comparisons between the first and second cycle for the other regions, to achieve a global perspective rather than that of one sub-region.

Policy development and climate change

Policy development may be instigated by States Parties or brought to the attention of the World Heritage Committee by the WHC, the secretariat to the Committee. If policies are endorsed by the World Heritage Committee and approved by the General Assembly, they set in train a sequence of processes of enactment.

From 2005 to 2007, and again from 2017 to 2021, the WHC led two periods of policy development on climate change and World Heritage. The first period focused on raising awareness among site managers on the impacts and led to the development of the 2007 *Policy Document on the Impacts of Climate Change on World Heritage Properties*. The second period reflected the changes that had taken place over a decade in acceptance, recognition, understanding and resolve to protect Outstanding Universal Values of World Heritage properties in the face of climate change, recognizing additionally that World Heritage properties also have a role in adaptation and mitigation alongside the efforts of other sectors. The historical development of policy actions is a clearly documented process of engagement and consultation with stakeholders and experts, working in partnership with States Parties, before endorsement by the World Heritage Committee and adoption by the General Assembly.

An online consultation of all stakeholders of World Heritage highlighted the improvements that an updated Policy Document must deliver. Reflecting on the 2007 Policy Document, its implementation was considered a challenge due to lack of engagement with policy implementation by States Parties; lack of awareness of the alarming rate of impact of climate change on World Heritage properties; lack of resources

(financial, human and knowledge); and lack of political connectivity between local and national levels.

Important gaps in policy provision were identified in the second period of reflection (2017-2021). These were identified as lack of recognition of impacts on intangible heritage; of the role that World Heritage properties can have in climate change mitigation; of the need for guidance at all levels to support policy implementation; and of the role of communication in the wide dissemination of an Updated Policy Document in regional languages to enable access at local level.

After official endorsement and approval of the Updated Policy Document in 2021, the next months and years should see these policy gaps being addressed by the WHC through a number of key measures. The framework, mechanisms and instruments are expected to shift their focus towards climate change more strongly through amendments in the Operational Guidelines and Nomination format. The WHC has a central role to play in encouraging States Parties to participate actively in monitoring, adapting, mitigating and responding to climate change. It should facilitate active monitoring of World Heritage properties through Periodic Reporting and Reactive Monitoring. And with the emphasis shifting from impact to resilience in the Operational Guidelines, there is scope for the Periodic



© Robert J Health

Reporting questionnaire to reflect this shift by moving from impacts, in other words climate change as a physical hazard, to a rethinking of resilience within bottom-up approaches, especially in the context of local and traditional knowledge systems.

The WHC will also have an increasingly stronger strategic role to play in developing synergies with related international conventions and organizations. The WHC and the UNFCCC have established mutual recognition since the beginning. More recently UNESCO, led by the WHC, founded a strong working relationship with the IPCC

that should deliver mutual benefits. Most recently, preparations were launched for a Culture, Heritage and Climate Change meeting by UNESCO, IPCC and ICOMOS, which has as its overarching objective the development of policy recommendations to contribute to the integration of culture in the international climate agenda, including the IPCC 7th Assessment Report (AR7) and the Special Report on Climate Change and Cities. In the light of this development, this might be the moment to reflect on how useful it would be to align World Heritage climate change terminology with the IPCC risk framework that uses 'hazard', 'exposure' and 'vulnerability' rather than 'impact'.

What else for World Heritage and climate change?

It is inevitable that those working in World Heritage conservation must now look more deeply at their own practices, to consider their relationship with the planet and what changes are necessary to mitigate their impacts. A key question that needs to be answered is to what extent can the World Heritage Committee reflect the ideals and ambitions of the *Policy Document on climate action for World Heritage*? Perhaps more importantly, how are States Parties to the Convention behaving in other fields of activity, which affect World Heritage sites as well as the planet generally? 🌍

More information:

Operational Guidelines

- ▶ <https://whc.unesco.org/en/guidelines/> gives all the successive versions of the Operational Guidelines, which makes it easy with a term search in successive pdfs to trace the emergence of a new consideration such as climate change

Periodic Reporting

- ▶ <https://whc.unesco.org/en/periodicreporting/> gives a very good overview, starting with the 3rd (current) cycle. Scrolling down on the same web page, there are links to the report for every region for the first two cycles
- ▶ <https://whc.unesco.org/archive/2006/whc06-30com-inf11Ae.pdf> Final Report of 1st Periodic Reporting Cycle for Europe (2006)
- ▶ <https://whc.unesco.org/archive/2015/whc15-39COM-10A-en.pdf> Final Report of 2nd Periodic Reporting Cycle for Europe and North America (2015)

Pre-policy report

- ▶ <https://whc.unesco.org/uploads/activities/documents/activity-474-1.pdf> 2007 publication based on Document WHC-06/30.COM/7.1 presented to the World Heritage Committee at its 30th session, Vilnius, Lithuania, 2006

Policy Documents

- ▶ <http://whc.unesco.org/archive/2007/whc07-16ga-10e.pdf> 2007 Policy Document on the Impacts of Climate Change on World Heritage Properties and Draft Resolution based on Document WHC-06/30.COM/7.1 presented at the 16th Session of the General Assembly of States Parties to the Convention Concerning the Protection of the World Cultural and Natural Heritage (WHC-07/16.GA/10)
- ▶ <https://whc.unesco.org/document/187773> 2021 Draft Updated Policy Document on the Impacts of Climate Change on World Heritage Properties as requested by the World Heritage Committee at its 40th Session, Istanbul, Turkey, 2016 (WHC/21/44.COM/7C)



The Sundarbans World Heritage site. If the sea level were to rise by 45 cm worldwide as a consequence of climate change, 75 per cent of the Sundarbans mangroves could be destroyed and many species and millions of people would be affected.

© NASA image created by Jesse Allen, Earth Observatory, using data obtained from the University of Maryland's Global Land Cover Facility



▷ Colchic Rainforests and Wetlands of Georgia inscribed on the UNESCO World Heritage List

Nestled at the crossroads of Europe and Asia, Georgia boasts of diverse culture and traditions, ancient history, delicious cuisine, a rich wine culture spanning 8 000 years, making the country the birthplace of wine, and its world-famous hospitality towards guests, whom Georgians genuinely consider to be a blessing. For its small size, Georgia has an impressively large amount of diversity in its natural landscapes, rich with a beautiful blend of mountainous regions and Black Sea coastline, unique and rare biodiversity, national parks of international importance and the country's only existing Natural World Heritage site, which proudly holds a worthy place in the List alongside the other Natural Heritage sites around the world.

Although there are several cultural heritage sites to be discovered in Georgia, showcasing its vibrant culture, it is the first time in the history of the country that four protected areas have been inscribed on the UNESCO World Heritage List. Following the decision taken at the 44th extended session of the UNESCO World Heritage Committee, the "Colchic Rainforests and Wetlands", comprised of Kolkheti and Mtirala National Parks and Kintrishi and Kobuleti Protected Areas, were added to the UNESCO World Heritage List.

The Colchic Rainforests and Wetlands are distinguished by their unique ecosystems and rich biodiversity. In fact, in terms of ecosystem diversity, the Caucasus is among the top 36 hotspots in the world. The Natural World Heritage site is located in the Autonomous Republic of Adjara and in the regions of Guria and Samegrelo-Zemo Svaneti. These regions of the country are prominent for their rich biodiversity, diverse ecosystems and outstanding landscapes. Adjara region, with its mountainous resorts and turquoise-colored coastlines, attracts tourists from all over the world.

These Protected Areas of Georgia have been granted World Heritage status in accordance with UNESCO World Heritage Criteria (ix) and (x), which denote uniqueness of world importance, living ecosystems and geological processes. Kolkheti and Mtirala National Parks and Kintrishi and Kobuleti Protected Areas fully meet these criteria.

The aforementioned territories carry significant global importance. Kolkheti

National Park and Kobuleti Protected Areas are Ramsar sites. The Colchic lowlands are home to numerous important species of biodiversity that have survived the glacial period. Furthermore, the temperate zone forests here have been continuously flourishing since the Tertiary period.

▷ Kolkheti National Park

Kolkheti National Park is one of the most unique and special places in Georgia, known locally as the "Georgian Amazon". The Colchic Plain first came to international attention when Georgia joined the Ramsar Convention. Kolkheti National Park was established to protect its wetlands of national, as well as of international importance.

The live sphagnum peat of Imnati is extremely noteworthy, a treasure not only of Georgia, but also of the world. This ancient, unique peat bog, which dates back about 10 000 years, has survived from the glacial period and the peat formation process continues uninterrupted to this day.

▷ Kobuleti Protected Areas

Ancient living ecosystems, long evolutionary processes of flora and fauna, bird migration and a distinctive geology that make Kobuleti Protected Areas a unique and important place, not only in Georgia, but worldwide as well.

Kobuleti Protected Areas, located in the subtropical belt of the Earth's northern hemisphere, are the only peatlands that have been discovered and studied to date. They resemble tundra and taiga-type wetland ecosystems in terms of floristics.

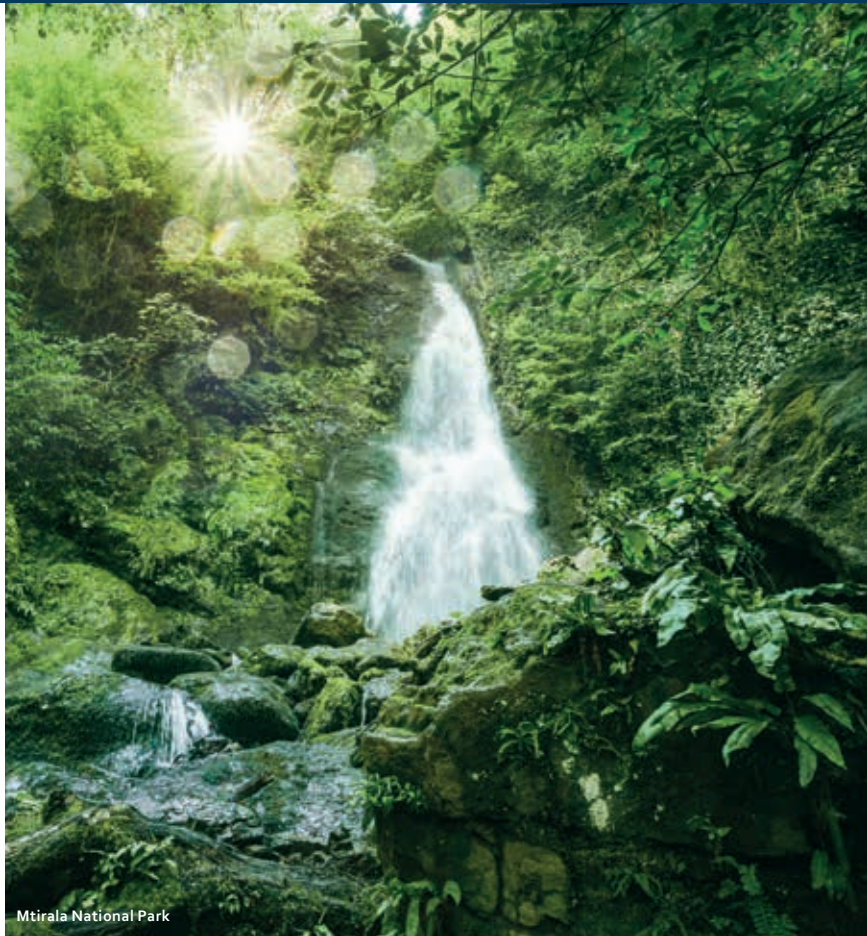
Kintrishi Protected Areas

About 80% of Kintrishi Protected Areas are covered with forest, representing the largest forested protected area in Georgia.

Kintrishi Protected Areas are characterized by the diversity of mammals, invertebrates, and reptiles, including local, ancient and globally-endangered species. The area is an important refuge for local reptiles, where examples of ongoing evolution and species formation are clearly visible. The oldest forest



Kobuleti Protected Areas



Mtiral National Park

species of the Tertiary period, which survived the Tertiary glaciation and are known as the "Colchic flora," are fully preserved here.

► **Mtiral National Park**

The area of Mtiral National Park is covered with forest which is 100% impassable and includes all the elements and characteristics of the Colchic forests.

Mtiral National Park, like Kintrishi Protected Areas, has been given UNESCO World Heritage site status due to the diversity of its species and the groups of mammals, reptiles and invertebrates that can be found there, including some of the most ancient, critically and globally-endangered species in the world.

Mtiral National Park is considered to be the rainiest place in the entire Caucasus and its name was chosen for this reason. The area is characterized by rich vegetation and the abundance of rare and endangered plants. Like Kintrishi Protected Areas, Mtiral National Park is part of the Emerald Ecological Network, which emphasizes the importance of nature conservation and protection.



Kolkheti National Park



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AGENCY OF PROTECTED AREAS

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www.nationalparks.ge



პროექტი ზრდა საქართველოში
ZRDA ACTIVITY IN GEORGIA



Quantifying climate benefits from World Heritage forests

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Wet Tropics of Queensland (Australia)

© Image by Monika Häflliger from Pixabay



In combatting climate change, society must pull hard on two planet-size levers: reducing greenhouse gas emissions and increasing carbon sequestration. Many economic sectors can mitigate climate change only through the first of those, but with forests we can work both levers at once. We can—and indeed must—simultaneously reduce emissions from deforestation and forest degradation and maintain or increase the carbon captured by forests. This is the promise of forests in combatting climate change.

Forests should generally capture more carbon than they emit, making them net carbon sinks. Indeed, forests globally are substantial net carbon sinks. However, disturbances, including from human activities, can cause forests to emit more carbon than they capture, which is happening regularly around the world. This is the peril of forests in combatting climate change.

What about forests in World Heritage sites? Are forests in these protected, treasured places capturing the carbon that we expect them to? Newly available global maps of how much carbon forests absorbed and emitted between 2001 and 2020 allow localized estimates of carbon fluxes between

forests and the atmosphere. This allowed us to estimate forest carbon emissions and sequestration from World Heritage forests over the last 20 years. What we found is both reassuring and troubling. Our analysis confirmed that forests in World Heritage sites were an important carbon sink. However, it also showed that in ten sites more carbon was emitted than stored over this period of time. With further investigation using site-level monitoring from the state of conservation reporting process of the World Heritage Convention and the IUCN World Heritage Outlook of 2020, we were able to ascribe some emissions to specific human activities.

Strong carbon stores and sinks

UNESCO World Heritage forests, whose combined area of 69 million hectares is roughly twice the size of Germany, have been absorbing and storing carbon for centuries or longer. Our new analysis estimates that they hold 13 billion metric tonnes of carbon (Gt C) in vegetation and soils, which exceeds the amount of carbon in Kuwait's 101 billion barrels of proven oil reserves.

Although the carbon stored in World Heritage forests is important, the climate is more directly affected by the carbon flows,

meaning the carbon they absorb and emit. We estimated that forests across World Heritage sites absorbed approximately 190 million more tonnes of CO₂ per year between 2001 and 2020 than they emitted, which corresponds to roughly half of the United Kingdom's annual carbon emissions from fossil fuels in 2019. Ten large sites were responsible for half of the World Heritage network's total net carbon sink, but even sites that are smaller sinks (absorbing less carbon dioxide overall) can play an important role in mitigating climate change. In fact, an average hectare of World Heritage forest at 55 sites can absorb in one year the same amount of carbon that a passenger vehicle emits.

Marine and coastal sites also store carbon (known as blue carbon) at very high densities, in seagrass meadows, tidal marshes, and mangroves (see Box). The forested portions of these sites can have very high carbon sequestration rates as they contain highly productive mangrove forests.

Climate benefits under threat

Although World Heritage sites are protected and globally recognized, they collectively lost 3.5 million hectares of forest between 2001 and 2020, more than the



Chiribiquete National Park – 'The Maloca of the Jaguar' (Colombia) is located in a unique biogeographical context where evolutionary processes have shaped the high floral and faunal diversity.

© Steve Winter

area of Belgium. This forest loss resulted in 42 million tonnes of CO₂ equivalent emissions per year. More troublingly, however, is that we identified forests in 10 World Heritage sites as net carbon sources (that is, they emitted more carbon than they absorbed). Other sites, despite remaining net carbon sinks over the last 20 years, showed spikes or clear upward trajectories in emissions that threaten the strength of the future sink.

According to information from the reactive monitoring process of the World Heritage Convention and the IUCN World Heritage Outlook of 2020, the two most widespread threats to natural and mixed UNESCO World Heritage sites are climate change with associated severe weather (e.g. fires, storms, floods, droughts, temperature extremes, and habitat shifting/alteration) and land-use pressures associated with various human activities such as illegal logging, wood harvesting, and agricultural encroachment due to livestock farming/grazing and crops. These types of pressures are each reported in about 60% of World Heritage sites. But because of the nature of these threats, it is likely they will affect more sites in the coming years. That means that what World Heritage forests have experienced so far is just the tip of the iceberg. For example, as

climate change causes climate-related events to intensify, tree cover loss and emissions may spike in the short term and capacity for carbon sequestration may be reduced in the longer term.

Individual climate-related events can result in pulses of emissions greater than those from sustained land-use pressures. For instance, the Greater Blue Mountains (Australia) and Morne Trois Pitons National Park (Dominica) were hit by intense wildfires and a hurricane respectively, which produced sufficient emissions to make these sites net carbon sources. Other prominent examples are the wildfires that hit the Russian Federation's Lake Baikal in 2016 and Australia's Tasmanian Wilderness in 2020. Each of these wildfires generated greenhouse gas emissions above the equivalent of 30 million tonnes CO₂ equivalent in a single year, higher than the national annual emissions from fossil fuels of more than half of the countries in the world.

Pathways to protecting World Heritage forests

To protect the Outstanding Universal Value, integrity and authenticity of World Heritage sites from the adverse impacts of climate change and other threats,

UNESCO and its partners have developed several institutional policies, strategies and guidelines (see list at end of article). While diverse interventions are needed to address all threats, three distinct pathways for action emerge to secure World Heritage forests against the aforementioned threats.

1. Rapid and effective responses can help prevent devastation from climate-related events

When climate-related events like extreme fires occur, precious days are often lost in organizing an emergency intervention due to lack of funding and reliable data, while during this time, extensive greenhouse gas emissions can occur. Some World Heritage sites have already taken steps to better manage climate-related risks by adopting climate change adaptation plans (e.g. Wet Tropics of Queensland in Australia and Mount Kenya National Park/Natural Forest in Kenya), implementing integrated fire management programmes (e.g. Cerrado Protected Areas: Chapada dos Veadeiros and Emas National Parks in Brazil), and supporting disaster risk reduction initiatives through coastal protection and flood regulation (e.g. The Sundarbans in Bangladesh and Sundarbans National Park



Ivindo National Park (Gabon) features rapids and waterfalls bordered by intact rainforest, which make for a landscape of great aesthetic value.

© Lee White



Yosemite National Park (United States) has exceptional natural beauty, including five of the world's highest waterfalls, a combination of granite domes and walls, deeply incised valleys, three groves of giant sequoia, numerous alpine meadows, lakes and a diversity of life zones.

© David Geldhof

in India). However, the number of World Heritage sites with established policies, plans or processes for managing or reducing risks associated with disasters remains low.

2. Support mechanisms that maximize intactness and connectivity of forests

Protection and sustainable management of sites' broader landscapes protects the sites themselves. Most pressures to World

Heritage sites originate outside their boundaries, where forest protection is weaker. The fragmentation of the forest landscape around sites can generate increased carbon emissions and disrupt ecological connectivity with implications for broader ecosystem functioning (e.g., tree mortality, movement of species, etc.) and the stability of carbon stocks. Integrated landscape management and the creation

of ecological corridors and buffer zones are therefore necessary to ensure that sites' integrity, and ability to store and sequester carbon, is preserved. The creation of buffer zones is specifically recommended in the guidelines for nomination and management of World Heritage sites. In addition to adding a layer of protection to sites, they can act as valuable net carbon sinks. For example, the net carbon sink of Sangha Trinational (transboundary site in Cameroon, Central African Republic) buffer zone is more than twice as large as the site itself.

3. Integrate World Heritage sites into climate, biodiversity, and sustainable development agendas

With the interaction between global climate change and increasing local human pressures, coordinated action is needed at all levels. Explicitly including World Heritage sites in countries' national policies can contribute to international initiatives, such as the Sustainable Development Goals, climate action plans (e.g., Nationally Determined Contributions under the Paris agreement), and biodiversity strategies under the Post-2020 Global Biodiversity Framework, as they have the inherent potential to serve as living laboratories and influence policy development. For example, Gabon's research programme at Lope National Park since the early 1980s has underpinned many of the country's conservation- and climate-related national policies. The subsequent implementation of such policies led Gabon to become the first country in Africa to receive results-based payments for reduced emissions from deforestation and forest degradation in 2021.

Marine UNESCO World Heritage sites: blue carbon assets

Over the last decade, scientists have discovered that seagrass meadows, tidal marshes, and mangroves, known as "blue carbon" ecosystems, are among the most intensive carbon sinks. Found on the fringes the world's coastlines, blue carbon ecosystems are highly productive, playing important ecological roles in nutrient and carbon cycling, as nurseries and habitat for a broad range of marine and terrestrial species, in shoreline protection and in sustaining the livelihoods and well-being of local communities. Despite representing less than 1% of the global ocean area, the 50 marine and coastal sites inscribed on the UNESCO World Heritage List for their unique marine values, and their immediate surrounding areas for which data were available, comprise at least 15% of global blue carbon assets. These carbon stores are estimated at around 1.4 Gt C, and the five sites with the highest blue carbon stocks are: Great Barrier Reef (Australia) (502 Mt C), Everglades National Park (United States) (400 Mt C), Banc d'Arguin National Park (Mauritania) (110 Mt C), The Sundarbans (Bangladesh) (110 Mt C) and Sundarbans National Park (India) (60 Mt C).

Source: UNESCO, 2021.

Looking ahead

The recent national commitments at the climate COP26 in Glasgow to stop deforestation by 2030 show the urgency and global importance of forests in combatting climate change. Forests in World Heritage sites are part of this effort. But they are also bellwethers for how forests are faring in general. If society cannot keep World Heritage forests as net carbon sinks by protecting them from local and global threats, how can we hope to keep other forests, with less recognition and attention, as carbon sinks? 🌿

Top five sites by...

| Rank | Net carbon sink (million tonnes CO ₂ e/yr) | Net carbon sink per unit area (tonnes CO ₂ e/ha/yr) | Total carbon stored (million tonnes C) | Biomass carbon storage density (tonnes C/ha) | Soil carbon storage density (tonnes C/ha) |
|------|---|--|---|---|--|
| 1 | Tasmanian Wilderness (Australia) (21) | Los Glaciares National Park (Argentina) (16) | Central Amazon Conservation Complex (Brazil) (1020) | Redwood National and State Parks (United States) (302) | Lorentz National Park (Indonesia) (130) |
| 2 | Te Wahipounamu - South West New Zealand (New Zealand) (13) | Tasmanian Wilderness (Australia) (14) | Salonga National Park (Democratic Republic of the Congo) (840) | Yosemite National Park (United States) (280) | Te Wahipounamu - South West New Zealand (New Zealand) (130) |
| 3 | Central Amazon Conservation Complex (Brazil) (10) | Laurisilva of Madeira (Portugal) (13) | Tropical Rainforest Heritage of Sumatra (Indonesia) (720) | Olympic National Park (United States) (250) | Tasmanian Wilderness (Australia) (120) |
| 4 | Salonga National Park (Democratic Republic of the Congo) (9.3) | Plitvice Lakes National Park (Croatia) (12) | Lorentz National Park (Indonesia) (670) | Okapis Wildlife Reserve (Democratic Republic of the Congo) (220) | Tongariro National Park (New Zealand) (120) |
| 5 | Canadian Rocky Mountain Parks (Canada) (8.3) | Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe (18 countries) (11) | Chiribiquete National Park (Colombia) (570) | Sangha Trinational (Cameroon, the Central African Republic, the Republic of the Congo) (220) | Rwenzori Mountains National Park (Uganda) (110) |

Source: UNESCO, WRI, IUCN, 2021.

Note: Table does not include marine sites. Blue carbon at UNESCO World Heritage sites is covered in more detail in *UNESCO Marine World Heritage: Custodians of the globe's blue carbon assets*. UNESCO World Heritage Centre, 2021.

Further reading:

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► <https://unesdoc.unesco.org/ark:/48223/pf0000379527.locale=en>

UNESCO. 2021. *UNESCO Marine World Heritage: Custodians of the globe's blue carbon assets*. Paris: UNESCO World Heritage Centre.

► <https://unesdoc.unesco.org/ark:/48223/pf0000375565>

Policy Document on Climate Action for World Heritage:

► <https://whc.unesco.org/en/climatechange/>

Climate Change Adaptation for Natural World Heritage Sites – A Practical Guide:

► <https://whc.unesco.org/en/series/37/>

Policy for the Integration of a Sustainable Development Perspective into the Processes of the World Heritage Convention:

► <https://whc.unesco.org/en/sustainabledevelopment/>

Strategy for Risk Reduction at World Heritage Properties:

► <https://whc.unesco.org/en/disaster-risk-reduction/>

Managing Disaster Risks for World Heritage:

► <https://whc.unesco.org/en/managing-disaster-risks/>

Managing Natural World Heritage:

► <https://whc.unesco.org/en/managing-natural-world-heritage/>

Great Spa Towns of Europe



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4



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The Great Spa Towns of Europe is a 'Serial Transnational' World Heritage site, comprising 11 famous historic thermal spa towns and cities in seven countries. The Great Spa Towns of Europe World Heritage site was inscribed on the World Heritage List on 24th July 2021 at the Extended 44th session of the World Heritage Committee, meeting in Fuzhou, China. The Great Spa Towns of Europe represent a unique cultural achievement which reached its height in the 18th and 19th centuries, as well as a particular urban type and form which deserves global recognition as a phenomenon which helped to shape the Europe we recognise today.

In 1987, the City of Bath was inscribed as a 'cultural site' on the World Heritage List, because of its Roman remains, 18th Century Architecture and town planning, its social and landscape setting and of course its hot springs. It is not surprising that over the years other significant and renowned European spa towns, looked to Bath and asked why they were not World Heritage sites as well. After a major conference held in Baden-Baden in 2010, several Mayors of other outstanding spa towns in Europe formed a group, which first met in Paris in January 2011, to look at the possibility of also becoming World Heritage sites, and the "Great Spas of Europe" project was born.

The next few years of the project were incredibly complicated, involving State Parties; international experts in spas towns, medicine and landscape; Mayors and politicians in various towns; and local municipality heritage and planning officers and local experts, some of whom would eventually become Site Managers for the individual spa towns included in the nomination. One of the hardest parts of the project was the development of the criteria against which a large group of spa towns could be measured. These criteria had to reflect the essence of the phenomenon of European spa towns, while at the same time measuring the past and present significance of the towns, the extent to which they were "international" not only in their outlook but in their clientele, and their significance, then and now. Most importantly they had to be able to demonstrate a continuing living tradition.

UNESCO was encouraging transnational and serial nominations, at this time, and this approach, which at the time was relatively new, was adopted for this nomination. The Great Spas embody the most internationally famous spa towns of the 18th and 19th centuries which transformed the health and leisure business and created Europe's first tourist resorts. No one spa town can illustrate all the attributes of a Great Spa by itself, but together all of them meet the proposed criteria, and so a serial approach represented the most appropriate methodology.

ICOMOS requested that the group carry out a global comparison of all the spa and thermal traditions across the world, and this confirmed that it was indeed the European phenomenon that was of international significance. In the 19th century there were well in excess of 600 European spa towns listed and these were considered and chosen through a comparative analysis which measured each spa against the UNESCO criteria. Numbers were slowly reduced by a complex interdisciplinary analysis from 87 to 42 to 16 and finally to the 11 Great Spas we see today; Baden bei Wien (Austria), Spa (Belgium), Františkovy Lázně, Karlovy Vary and Mariánské Lázně (Czech Republic), Vichy (France), Bad Ems, Baden-Baden and Bad Kissingen (Germany), Montecatini Terme (Italy), and City of Bath (United Kingdom). Consequently, the City of Bath now finds itself in the very small group of places that have a double World Heritage inscription.

These eleven most representative spa towns epitomise the most famous and fashionable spa resorts of the 18th century and 19th century. They are recognized not only for architectural and historical reasons but as towns at the forefront of communication and cultural activity in a society where the bourgeoisie and middle-classes were emerging and the concepts of internationalism and democracy were prevalent. These were 'the' places to be seen and became known as the Cafés, Salons and Summer Capitals of Europe.

The Great Spas were places where royalty and paupers benefitted from the healing springs at their heart. They were places where writers and musicians

1. Austria's largest Rosarium in Baden bei Wien originally dates back to 1694 and was redesigned in 1816
2. One of Spa's original iron- and sulphur-rich springs, the Source Geronstère (structure built in 1651) (Belgium)
3. Františkovy Lázně, laid out from the end of the 18thC around 24 springs (Czechia)
4. The Deer Jump Lookout in Karlovy Vary, one of many lookouts in the 'therapeutic landscape' (Czechia)
5. Main Colonnade (1899), Mariánské Lázně, the symbol of the Great Spa Towns of Europe. (Czechia)

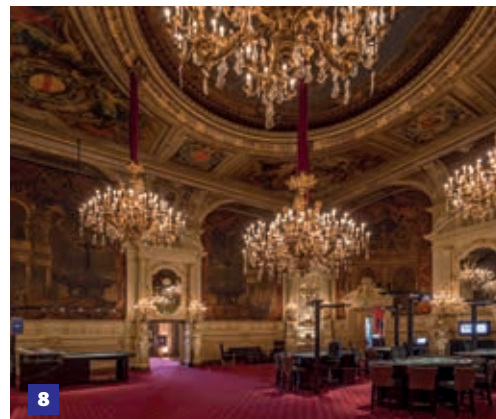
6. The former 1860s Casino in Vichy, now an international congress centre (France)
7. Bad Ems, on the River Lahn, a tributary of the Rhine, where spa guests used to arrive by river (Germany)
8. The richly decorated Casino (Florentinersaal 1853-55), is located in Baden-Baden's Kurhaus. (Germany)
9. Former Luitpoldbad, Bad Kissingen (1867-71/1905-11) (Germany)
10. Tettuccio Terme in Montecatini Terme, built in 1779 and extended and renovated in the 1920s (Italy)
11. The Royal Crescent and Circus in the City of Bath built by John Wood the Elder and his son, John Wood the Younger, during the mid 18th century (United Kingdom)



© L. Plancke



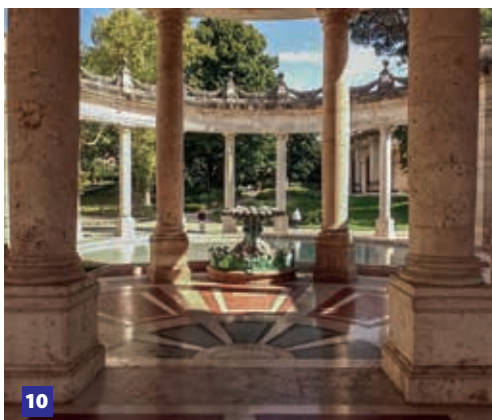
© Dominik Ketz



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© Flavio Burul



© Comune di Montecatini Terme



© Bath & North East Somerset Council

such as Goethe and Beethoven walked and talked together while taking the cure, and where they gained inspiration too. They were where the rules of polite society were written, and where the rules also changed to allow mixing across class and gender in a way that was not allowed in other places. They were places that were deliberately planned to be imposing (to impress and invite the high-end clients), beautiful and also practical, providing access to medicine for all. In the Great Spas the surrounding landscape was used for health and exercise as well as for its 'Romantic' aesthetics. The Great Spas were places of innovation, creativity, peace, and healing. Planned diversions for spa guests such as gaming, dancing, theatre, strolling in parks listening to spa orchestras playing have created a legacy of buildings, parks and gardens, landscape and tradition which is instantly recognisable as a particular phenomenon.

The Great Spas of Europe delivered its 1200 page nomination document, weighing over 6kg and representing 10 years of intense work to UNESCO in January 2019, and ICOMOS set to work to evaluate the project in the summer of 2019. The expected 44th World Heritage Committee did not take place in

2020, due to the global pandemic, so it was a further year before the project learned the extremely welcome news that the (renamed) "Great Spa Towns of Europe" was now inscribed on the World Heritage List.

The Great Spa Towns of Europe is possibly one of the most complex nominations that UNESCO has seen for many years; 11 sites, each one of which is a living and thriving town or a city, in 7 different countries with the attendant differences in Federal and national protective legislation.

www.greatspatownsofeurope.eu



**GREAT
SPA TOWNS
of Europe**

Natural World Heritage versus climate change

Matthew Emslie-Smith
World Heritage Monitoring Officer
International Union for Conservation of Nature (IUCN)

During El Niño events when temperatures are warmer, blue footed boobies have abandoned breeding colonies and increased migrations (Ecuador).

© Neil Gibson



A core idea of World Heritage is to ensure that the places most iconic and valuable to humanity outlast all crises and are conserved across generations. Today we face perhaps our biggest challenge yet, an environmental crisis unprecedented in human history, and at its centre is climate change.

World Heritage sites – particularly natural ones – show both the scale of impacts resulting from climate change and the opportunities for concerted efforts to combat them. By looking at what happens within these sites, we can identify key issues and measure the challenges and successes of conservation action. That is precisely one of the main objectives of the IUCN World Heritage Outlook, which assesses all natural World Heritage sites.

Since the first IUCN World Heritage Outlook report in 2014, two subsequent assessment cycles in 2017 and 2020 have tracked the conservation prospects for natural World Heritage, based on an evaluation of the state of their values, threats to these values and the effectiveness of their protection and management.

The most striking finding regards climate change: it is now the most prevalent threat to natural World Heritage, affecting a third of sites. In 2014, the IUCN World Heritage Outlook identified climate change as the most significant potential threat to natural World Heritage and in 2017, it became the fastest-growing threat. The IUCN World Heritage Outlook 3, published on 2 December 2020, assessed climate change as a high or very high threat in 33% (83 out of 252 listed sites) of natural World Heritage sites – up from 26% in 2017 (62 out of 241 sites), and from 15% in 2014 (35 out of 228 sites). Climate change remains by far the largest potential threat in 2020.

Manifold negative impacts

The manifold impacts of climate change – increasing frequency and severity of fires, coral bleaching, damage from severe weather events, droughts, to name a few – are often accompanied and even compounded by other threats. For some sites, the combination of such threats has resulted in a deteriorated conservation outlook, as in the case of the Great Barrier Reef (Australia), now assessed as having a ‘critical’ outlook.



Ogasawara Islands' ecosystems (Japan) reflect a range of evolutionary processes illustrated through its assemblage of plant species from both South-East and North-West Asia, alongside many endemic species.

© Froeschmann

While the largest reef on Earth provides compelling evidence of the scope of climate change impact, it is by no means the only marine World Heritage site to be affected. Climate change is now a high or very high threat in 60% of marine sites, which experience different impacts across the vast area and array of ecosystems of our oceans. For instance, chemical changes to oceanic waters affect 16 out of 50 marine and

coastal sites assessed in 2020. The effects can range from ocean acidification (which, in reef sites, leads to coral bleaching) to disruption of food chains (as seen in the Galápagos Islands, Ecuador and in Macquarie Island, Australia) and alterations in the nutrient cycles underpinning ecological processes (such as in Ogasawara Islands, Japan and in the French Austral Lands and Seas, France).



Flamingos at Doñana National Park (Spain).

© Miguel G.S.

Sea level rise due to climate change is another threat specific to coastal and marine sites. Its impacts are seen for instance in East Rennell (Solomon Islands), where water levels and salinity have increased in Lake Tegano, with adverse effects on plant growth in low-lying areas. A 2019 monitoring mission concluded that 'enhancing resilience of ecosystems and livelihoods, including by mainstreaming

climate change adaptation and disaster risk reduction strategies into the management plan, will therefore become a priority in the future.'

Among the different impacts of climate change, temperature changes are the most frequently seen to threaten natural World Heritage, posing a high or very high threat to 60 sites. The specific effects of temperature changes vary according to the ecosystem

and values present within any given site, and are thus as diverse as the important natural values they threaten. Storms and flooding represent another common threat related to climate change, affecting 34 sites. These include the iconic Galápagos Islands (Ecuador), where intensifying El Niño and La Niña patterns may damage the site's Outstanding Universal Value in the future.

On land, changing weather patterns include reduced precipitation, resulting in drought. This is now a threat in 23 sites of diverse World Heritage values and in an array of ecosystems. In forests, droughts have caused negative impacts on ecosystem processes and functions, and exacerbated wildfires. For example, in the Cerrado Protected Areas of Brazil, increasingly extreme fluctuations of rainfall patterns have caused excessive rains and severe droughts in the past decade. For millennia, these areas have served as a refuge for many rare and endemic species during periods of historical climate change. The growing impacts of climate change, as currently experienced, highlight the importance of the site for maintaining one of the world's oldest and most diverse biomes.

Effects on habitats and populations

In lakes and wetlands, decreased precipitation and increased temperatures caused by climate change has brought about significant impacts, with reduced water availability altering hydrodynamics and causing knock-on ecological effects. For example, in Doñana National Park (Spain), seasonal freshwater ponds now occur for shorter periods, resulting in a decline in plankton. This in turn is expected to alter population dynamics of migratory and resident birds. Other species such as native rodents have also been declining with increasing temperatures and lighter rainfall.

Climate change impacts are causing major alterations to the composition and location of habitats in 41 natural World Heritage sites in total. In the Laponian Area (Sweden), glacier disappearance is expected to severely jeopardize the site's natural values with cascading consequences on ecosystems locally (for example, formation of new terrestrial and freshwater ecosystems) and downstream through

modification of water and sediment fluxes.

In the Everglades National Park (United States of America), another danger-listed coastal/marine site, sea levels have been rising in the region, exacerbating the already reduced water flow to the site. This is causing shifts in plant communities, changes in wading bird feeding locations and saltwater intrusion into formerly freshwater locations. Given the situation, the single most effective strategy to preserve the aquatic ecosystem in the face of climate change and sea level rise is the rapid implementation of hydrological restoration and water quality initiatives.

Contributing solutions

Beyond these threats, natural World Heritage sites contribute significantly to global climate stability; they can be seen to represent some of the most vital places for securing solutions to address the climate crisis and support human well-being. Two-thirds of natural sites on the World Heritage List are crucial sources of water and about half help prevent natural disasters such as floods or landslides, according to a 2014 IUCN study, *The Benefits of Natural World Heritage*. Some sites help to reduce disaster risk, for instance providing coastal protection against floods, such as the Sundarbans' 2,200 km mangrove coastline (shared by two sites in Bangladesh and India).

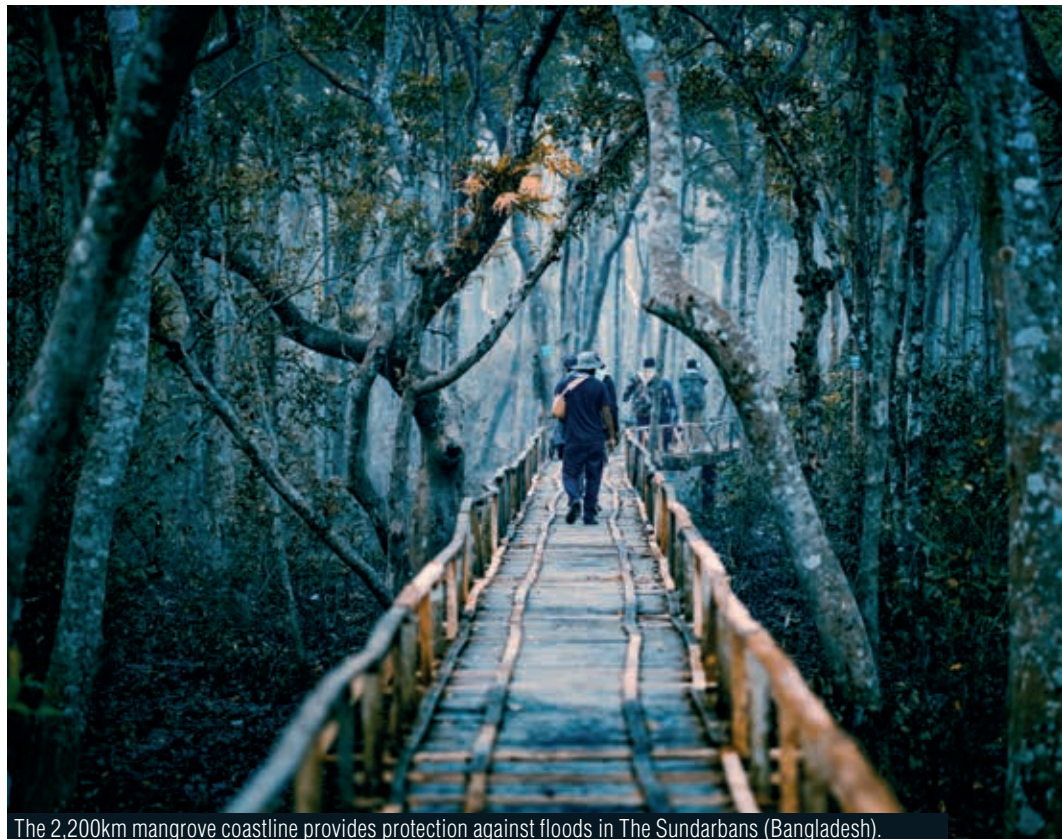
The sheer size of some natural World Heritage sites, which include some of the largest intact ecosystems on the planet, also helps respond to climate change, for instance by stocking huge amounts of carbon, while providing habitats to a wide diversity of animal and plant species. For instance, the French Austral Lands and Seas (France) – the largest World Heritage site covering an area larger than mainland France – protects more than 50 million birds, including the world's largest populations of King Penguin and endangered Yellow-nosed Albatross. The protection of these iconic species also helps to maintain their function as vital regulators of the Southern Ocean food webs, which provide globally significant ecosystem services including carbon sequestration.

Forests and wetlands found in World Heritage sites across the tropical regions, such as the Central Amazon Conservation



The World Heritage Committee inscribed the Everglades National Park (United States) on the List of World Heritage in Danger in 2010 because of serious and continuing degradation of its aquatic ecosystem.

© Kimon Berlin



The 2,200km mangrove coastline provides protection against floods in The Sundarbans (Bangladesh).

© Altab Uzzaman



The Okavango Delta is an exceptional example of the interaction between climatic, hydrological and biological processes (Spain).

© Kate Tann



For millennia, Chapada dos Veadeiros and Emas National Parks have served as refuge for several species during periods of climate change and will be vital for maintaining the biodiversity of the Cerrado region during future climate fluctuations.

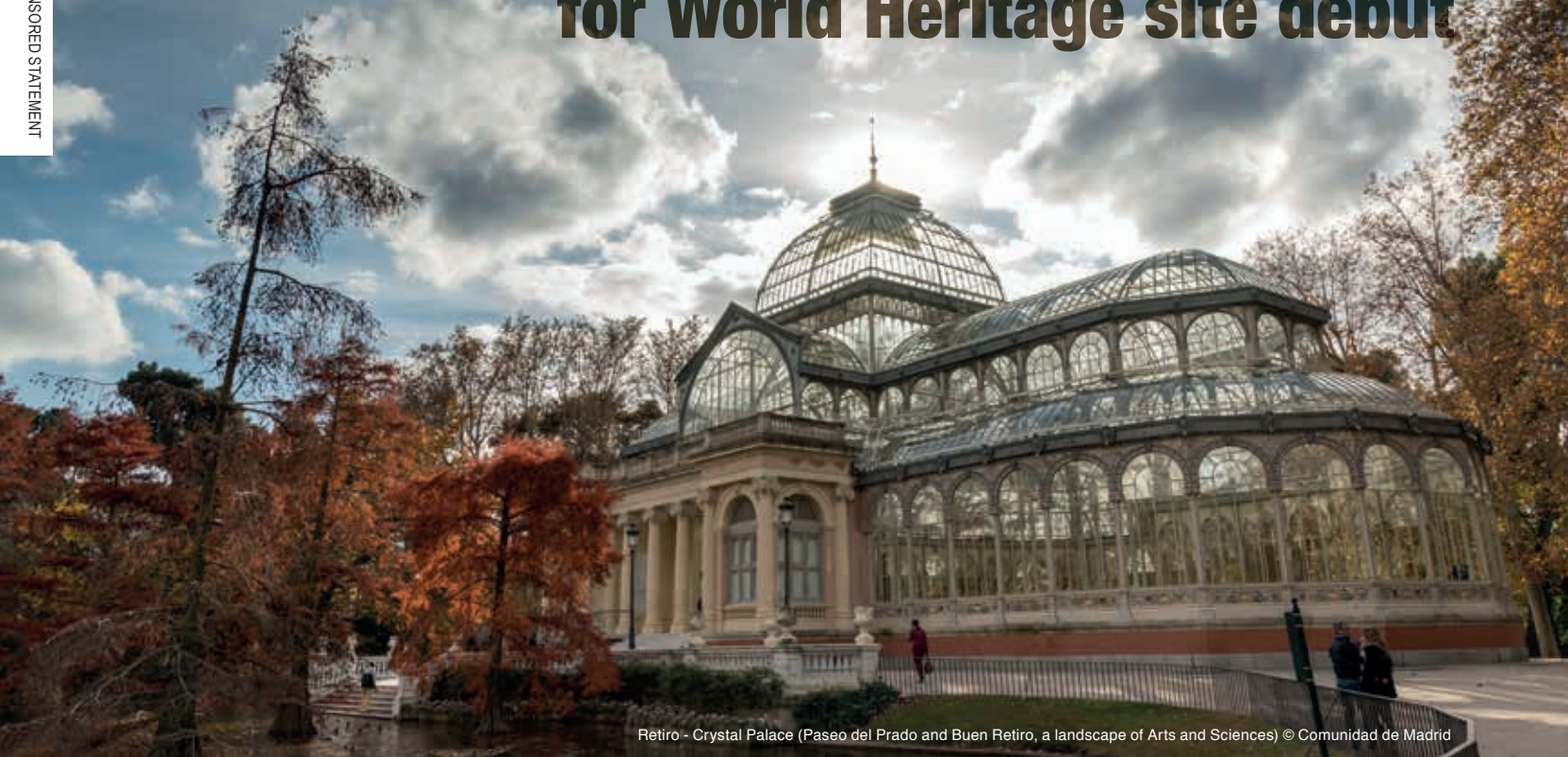
© IUCN-Elena Osipova

Complex (Brazil) or the Okavango Delta (Botswana), store 5.7 billion tonnes of carbon. Many landscapes of such large size have remained intact for millennia under the stewardship of indigenous peoples and local communities. The World Heritage Convention helps to recognize that, to conserve nature in the face of a changing climate, it is vital to uphold these living cultures, livelihoods, identities and belief systems, which are intrinsically interconnected with the natural landscape. In this regard, the inscription in 2018 of Chiribiquete National Park – ‘the Maloca of the Jaguar’ (Colombia) and Pimachiowin Aki (Canada), which represent two of the largest intact forest ecosystems on Earth and remain under the custodianship of indigenous communities, made a powerful statement that indigenous peoples and local communities are leaders in conservation, and the recognition of their rights is crucial.

The Convention on Biological Diversity, which will determine the new post-2020 global biodiversity framework in negotiations taking place this year and next, highlights that protecting biodiversity and combating human-induced climate change go hand in hand, pointing to the need to implement the Paris Agreement to achieve biodiversity targets. World Heritage sites can make significant contributions on both the climate and biodiversity fronts. Ensuring their effective protection across generations – the primary objective of the World Heritage Convention – thus supports broader objectives for global biodiversity conservation and solutions to climate change.

The climate crisis calls for us to restore harmony between human life and nature. World Heritage, which embodies our interconnectedness with nature in all its diversity, can show us the many ways we can achieve this. Beyond figures and percentages, all World Heritage sites are special in their own way; they urge us to protect them from climate change, while demonstrating that we can look to them for solutions through their unique set of benefits and ecosystem services. 🌱

Madrid and its light pave the way for World Heritage site debut



Retiro - Crystal Palace (Paseo del Prado and Buen Retiro, a landscape of Arts and Sciences) © Comunidad de Madrid

Madrid now boasts a new World Heritage site as awarded by UNESCO. The property is called Paseo del Prado and Buen Retiro, a landscape of Arts and Sciences (also known as the 'Paisaje de la Luz' - Landscape of Light) and is an exceptional place in the heart of the Spanish capital that combines nature, history, art, science, language and architecture. And life. Because it is also a place where many locals and tourists come and go on a daily basis, making it a place full of life, a place to stroll and enjoy a magical setting that has become the first historic urban landscape in Europe to be declared a World Heritage Site. A place with that clean, clear light which characterises Madrid, thanks its height above sea level, and which has attracted famous painters such as Velázquez. A place with pioneering character: it was the first of Europe's tree-lined promenades and the first in the world to be opened for public use by all classes of society, not just nobility or royalty.

The site covers 190 hectares in the heart of Madrid, a third of which is green space, with two of the most important historical parks and gardens in Europe: the Parque del Buen Retiro and the Botanical Gardens. The space also includes some of the most recognisable symbols of Madrid, including two of its most iconic statues, the Cibeles fountain and the Puerta de Alcalá, and 21 cultural attractions. Some of these attractions are of truly universal significance, such as the Museo del Prado, one of the best art galleries in the world, the century-old house that houses the main paintings of Goya, Velázquez, El Greco, Rubens, Rembrandt...

These masterpieces have neighbours of equal importance. Behind the Museo del Prado is the Real Academia Española. Founded in 1713, it works to ensure the best use of the Spanish language, a language spoken by more than 530 million people and in which geniuses of world literature, such as Cervantes and García Márquez, have expressed

themselves and continue to express themselves. On one side of the house of Las Meninas is the Royal Botanical Garden, which was founded in 1755, although its current location on the Paseo del Prado dates back to 1781. In the finest spirit of the Enlightenment, King Charles III decided on its current location, following the groundbreaking idea of gathering a number of scientific institutions in this part of Madrid, along with the Royal Botanical Garden, an astronomical observatory and a natural history museum, which later became the Museo del Prado of today. Many of Spain's expeditions to America and Asia were scientific in nature and this is reflected in the Royal Botanical Garden: it has 5,000 living species from all over the world, a herbarium with more than one million sheets and approximately 10,000 pictures showing the importance of these plants and their uses. King Charles III's idea was an urban model ahead of its time, a world pioneer and still in use today: to create a place for leisure, enjoyment and education in the heart of the city which would be accessible to all citizens.

This is precisely one of the reasons why this urban landscape has been chosen as a World Heritage Site, for its ability to bring together nature, culture, science and leisure in a city environment. Walking through this pleasant and magical area, with the natural light and culture that illuminates its corners, the visitor will be able to enjoy the beauty of other museums and cultural institutions that have been added over time to this unique and valuable central hub. There is also the Museo Nacional Centro de Arte Reina Sofía and the Museo Nacional Thyssen-Bornemisza. And in them you will find Picasso's Guernica and countless works by Miró, Dalí, Monet, Degas, Morisot, Van Gogh, Gauguin, Kirchner, Mondrian, Hopper... There are also other interesting museums, such as the Museo Naval and the Museo Nacional de Artes Decorativas. The Paisaje de la Luz is also home to public institutions of great architectural importance, including the

Royal Astronomical Observatory, the Congress of Deputies, the Bank of Spain, the Madrid Stock Exchange, the Cervantes Institute and the Casa de América, which coexist with elegant buildings that are home to iconic European hotels, such as the Ritz and the Palace. And if you think light, culture, history and nature make this space exceptional and special, you can also feel the Spanish way of life within its terraces, in its tapas, in those Sunday strolls through the Retiro Park, where you can lose yourself and discover its hidden corners, its statues and fountains.

With the addition of the Paseo del Prado and Buen Retiro, a landscape of Arts and Sciences, the Community of Madrid thus adds the city of Madrid to its list of municipalities included on the World Heritage List: Monastery and Site of the Escorial, Madrid; University and Historic Precinct of Alcalá de Henares and Aranjuez Cultural Landscape. We should also add the Montejo Beech Forest is inscribed as a natural World Heritage site. The nomination of the new World Heritage site was presented jointly by the City Council, the Community of Madrid and the Ministry of Culture and Sport of the Spanish Government. The Paseo del Prado and Buen Retiro, a landscape of Arts and Sciences brings together the skies of Velázquez, the words of the great writers of the Spanish language and the enlightened spirit of the Kings of Spain. Its light captivates and excites and now seems to envelop the city with a renewed energy that invites you to discover all these treasures in more depth. And also look at other nearby places that also enjoy the coveted status of World Heritage Cities. The historic town centres of Ávila, Segovia and Toledo are only about an hour's drive from Madrid. And at the same distance by high-speed train is the city of Cuenca, which is also a World Heritage site. Four crown jewels of Castilla that astonished the world and that continues to enchant visitors and perfectly complement what Madrid has to offer. Now, it is brighter than ever.



Prado Museum (Paseo del Prado and Buen Retiro, a landscape of Arts and Sciences) © Comunidad de Madrid

Paseo del Prado and Buen Retiro, a landscape of Arts and Sciences, inscribed on the World Heritage List in 2021



www.turismomadrid.es

Retiro - Palacio Cristal (Paseo del Prado and Buen Retiro, a landscape of Arts and Sciences) © Comunidad de Madrid



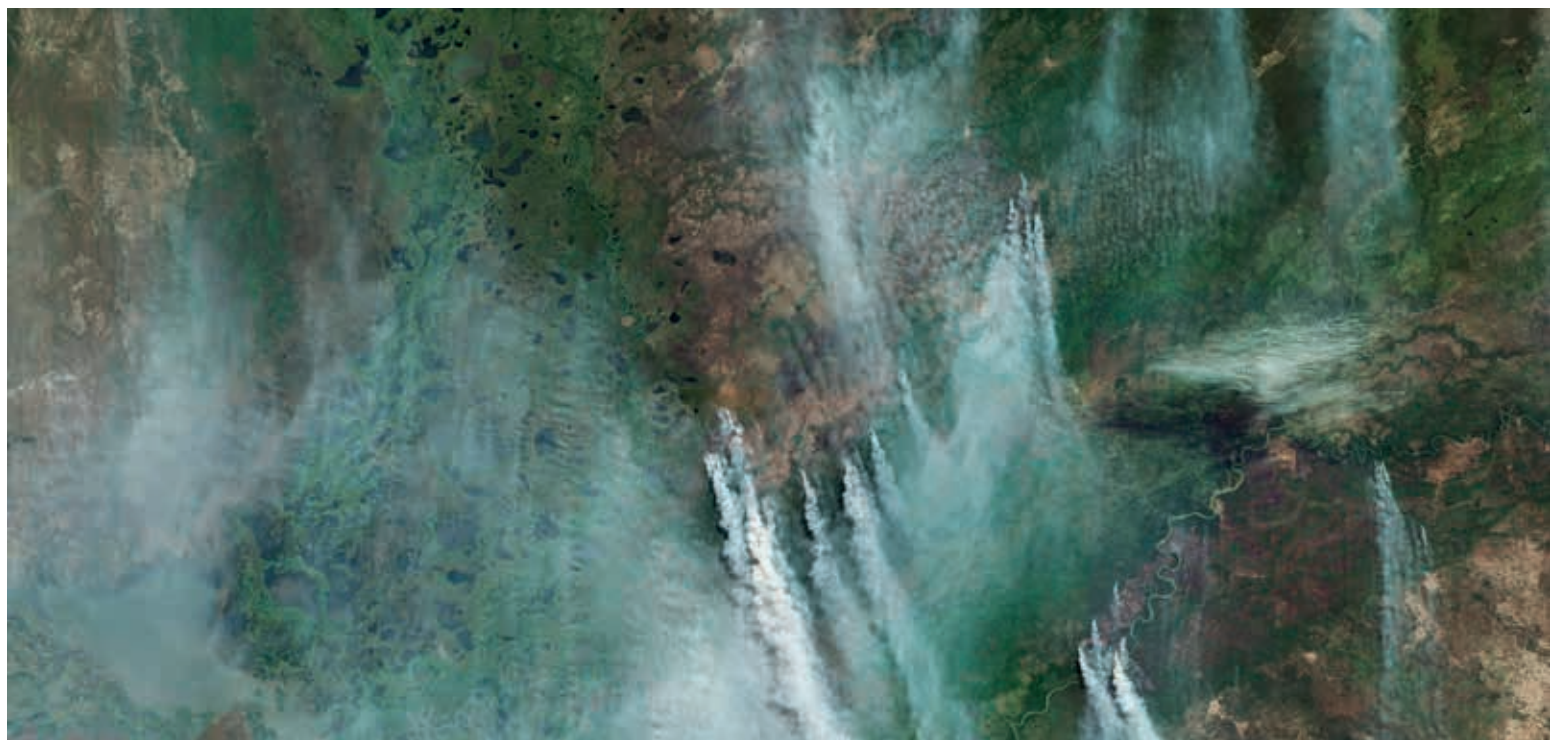
Climate change, World Heritage, COVID-19 and tourism

Adam Markham
Acting director of the Climate and Energy program
Union of Concerned Scientists

Yellowstone National Park (United States) hit records for visitors in 2021 after partial closure during the COVID-19 pandemic in 2020.

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This image captured by the Copernicus Sentinel-2 mission shows the forest fires close to the Brazilian-Bolivian border, in the Pantanal region. The image was acquired on 14 August 2020, at the peak of last year's fire season.

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Climate change is the fastest-growing threat to World Heritage globally. From the canals of Venice in Italy to the forests of the Tasmanian wilderness in Australia, World Heritage is at risk.

In its 2020 World Heritage Outlook report, IUCN assessed climate change as a high or very high threat to at least a third of all natural properties. Further studies have found that almost half of World Heritage glaciers could be lost by 2100 if the world fails to reduce significantly the carbon emissions from fossil fuel use and deforestation that are causing climate change, and that at least 49 cultural sites are at risk from sea level rise and flooding on the Mediterranean coast. Alarmingly, between 2014 and 2017, 25 of 29 World Heritage coral reef properties suffered from severe bleaching events, many more than once. Coral reefs need time to recover from bleaching events, so the more often they are damaged, the less resilient they become. The Intergovernmental Panel on Climate Change (IPCC) has predicted that 90% of living coral reefs worldwide will be lost if we do not limit warming to 1.5°C as targeted by the UN's 2015 Paris Agreement.

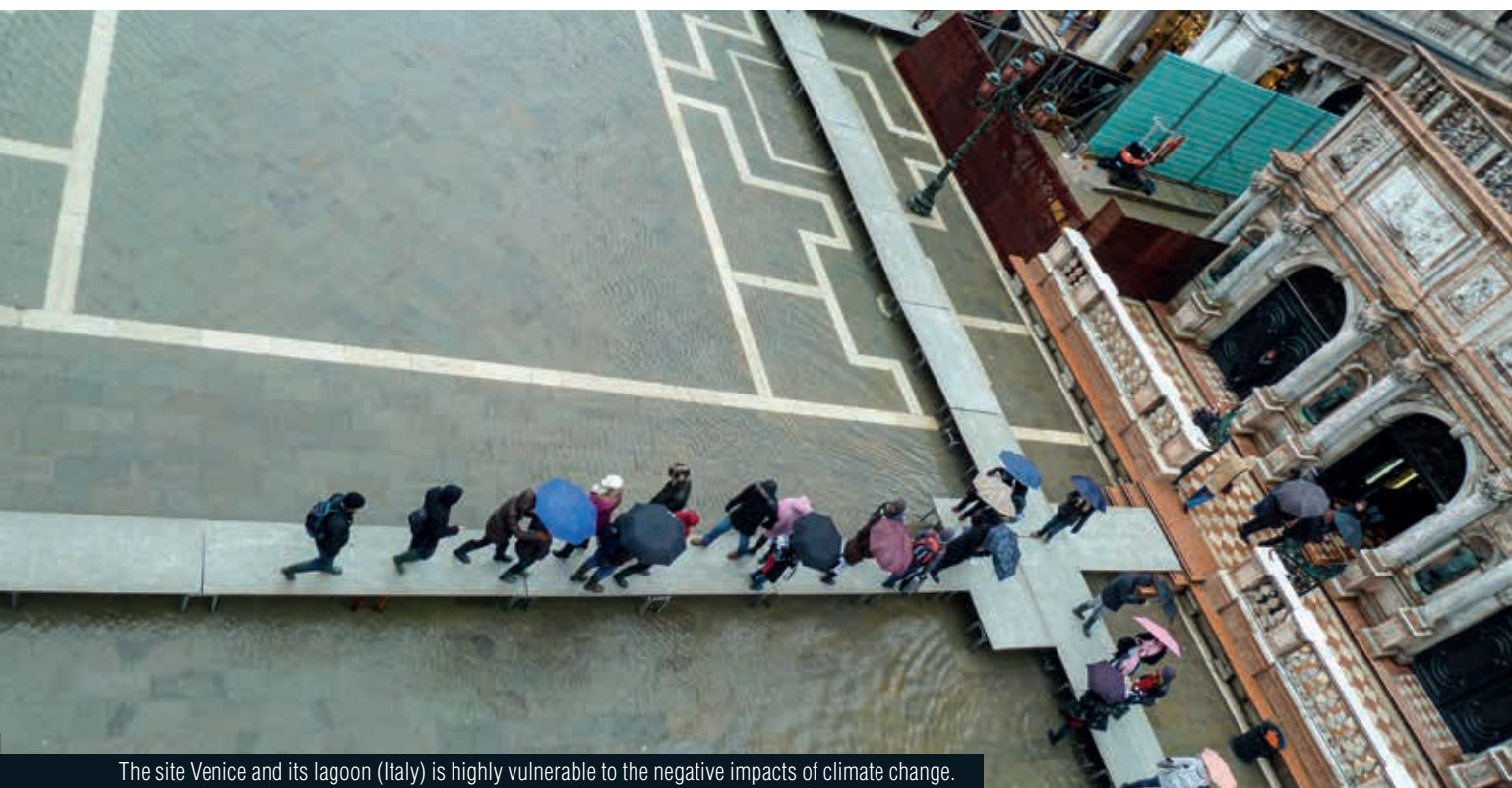
So, the outlook for World Heritage in a changing climate is very worrying. This has implications not just for the degradation or loss of the values for which sites were originally placed on the list, but also for interactions with tourism. World Heritage sites include some of the most iconic tourism destinations in the world – places like Australia's Great Barrier Reef, or the pyramids of Giza in Egypt – but hundreds of lesser-known sites attract increasing numbers of tourists too. Indeed, part of the attraction for countries in getting new World Heritage sites approved is the boost in tourism and funding for development that can result from the listing.

Tourism, however, is a double-edged sword. It can deliver economic development in the form of jobs, infrastructure and revenue, but at the same time, if poorly managed, it can add to uncontrolled development, environmental problems and degradation of sites and their World Heritage values. In the Galápagos Islands, for example, as tourism numbers have grown and infrastructure increased, surveys show a steady decline in visitor satisfaction. And in Venice, the impact of visiting cruise ships has been a growing source of controversy.

The interaction of climate change and tourism

Climate change and tourism interact closely with each other. Climate change adds to and exacerbates negative impacts of heavy visitor pressure on World Heritage sites, and it can also affect the visitor experience, or increase the risk to visitors or tourism infrastructure. Some of these issues were explored in a 2016 report – *World Heritage and Tourism in a Changing Climate* – published by UNESCO and the Union of Concerned Scientists with case studies for 35 sites in 31 countries, including the Galápagos Islands in Ecuador, Yellowstone National Park in the United States and Lebanon's Ouadi Qadisha with its sacred cedar forests. Since 2016, the evidence of climate impacts on World Heritage sites has only become more acute. For example, wildfires are becoming larger, more intense and more frequent in many parts of the world. Fires have recently damaged parts of Australia's Blue Mountains, Brazil's Pantanal and South Africa's Cape Floral Region, and threatened the ancient site of Olympia in Greece.

Climate-driven increases in intensity of typhoons, hurricanes and storms, extreme rainfall events, floods, drought, heatwaves and



The site Venice and its lagoon (Italy) is highly vulnerable to the negative impacts of climate change.

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wildfires affect tourists directly, impact insurance costs and threaten infrastructure. For example, 60% of the Caribbean region's tourist resorts would be at risk from a one-metre rise in sea level, and more than 250 airports across the globe are already at risk from rising seas, despite current flood protections being in place. Airports at risk include La Guardia and Newark (New York, USA), Schiphol (Amsterdam, Netherlands) and Shanghai (China); this number is likely to double by 2100, with major disruptions to passenger and freight operations along the way. The cost to maintain flood protections at today's level for the conditions expected by the end of the century has been estimated at US\$38bn. The cost of climate damage to tourism sites can be enormous too. When Hurricane Sandy hit the Northeastern United States in October 2012, the damage to tourist facilities at the Statue of Liberty was severe. Liberty and Ellis Islands usually receive about four million visitors a year, but because of Sandy, the Statue of Liberty had to be closed for nine months and US\$60 million spent on restoring ferry docks, pathways, electrical systems and other infrastructure.

Here are some relevant statistics on tourism: it accounts for about 3.2% of global GDP but is significantly higher in some regions, contributing 7.2% of GDP in the Caribbean countries, for example. Tourism is responsible for at least 8% of carbon emissions worldwide and is the fastest growing emissions source worldwide. About 40% of tourism's carbon footprint is from air travel and another 20% from hotels and accommodation. Global tourism expenditure doubled from 2009 to 2013. International travel represents 23% of tourism emissions, while carbon growth from tourism is 3% annually. The key countries and regions driving tourism emissions are North America, Northwestern Europe, Russia, India, China and Japan.

Struggling with visitor numbers

Many World Heritage sites are struggling to deal with visitor numbers and the consequences of the local development – including airports, roads, hotels, energy infrastructure and service industries — that comes with it. Pre-COVID-19, over-tourism was becoming increasingly apparent at some of the most popular sites, including, for example, the ancient city of Dubrovnik in Croatia and China's Great Wall. The Spanish city of Barcelona, home to nine World Heritage sites, has experienced anti-tourism demonstrations and protests by local residents, and it is well documented that the high cost of living caused by tourism in Venice has forced most local workers and former residents to live outside the city where costs are lower.

In Angkor (Cambodia) tourist numbers nearly doubled from 2010 to 2014, to 2.3 million a year. Site managers have noted the conflict between many visitors' desire to gain Instagram-worthy selfies and the sacred nature of the ancient temple complex, which is still a vital part of Cambodian culture today. Also at Angkor, there is a clear demonstration of the combined impacts of climate and tourism on the site. Extraction of groundwater to serve the growing local tourism infrastructure is causing land subsidence. This, together with decreasing rainfall resulting from climate change causing drying soils, is predicted to destabilize the ground under many of the ancient temples, some of which are already experiencing cracking walls and need to be supported.

Luang Prabang, a Buddhist centre and Silk Route city on the banks of the Mekong River in northern Laos, was given World Heritage status in 1995. World Heritage listing brought both funding and tourism. Visitor numbers went from 14,400 in 1990 to 4.9 million in 2018 and are predicted to reach 6.9 million in 2025, with nearly 90% of visitors



The COVID-19 threatens the health and conservation of endangered mountain gorillas. Here a mountain gorilla and her baby munch on the vegetation in Bwindi Impenetrable National Park (Uganda).

© Ralph Earlandson

coming from the Asian-Pacific region. The city, whose origins date back to the 7th century, is increasingly at risk from extreme precipitation events and flooding due to climate change, adaptation to which is hampered and complicated by tourism infrastructure developments.

Even sites that do not receive exceptionally high visitor volume can see big impacts from tourist footfall, causing erosion that causes damage to sites or the closure of paths and access, as has happened recently in the United Kingdom's Lake District and at the Viking settlement of Birka near Stockholm in Sweden. At the Ring of Brodgar, a stone circle that is part of the Heart of Neolithic Orkney property in Scotland, increased rainfall due to climate change, together with growing numbers of tourists, is causing the closure of the main path around the site more and more frequently, thus preventing visitors from getting a true sense of the site by walking close to or being able to touch the ancient stones.

Coral reefs may provide one of the best examples of how climate change will directly affect tourism. More than 870 million people live close to coral reefs, and tourism in these areas is worth at least US\$35.8 billion annually, representing more than 15% of annual tourism revenue in at least 23 countries. Continued loss and damage to coral reefs will diminish tourism potential. For example, Australian coral reefs, including the World Heritage Great Barrier Reef, receive 7.9 million visitors a year, accounting for 3.1% of national GDP. The Great Barrier Reef itself brings in US\$8 billion and supports 46,000 jobs. The Great Barrier Reef has been identified as critically threatened because of climate change and other environmental threats and a recommendation was made in 2021 that it be added to the List of World Heritage in Danger.

The impact of COVID-19

Pre-COVID-19, over-tourism was becoming increasingly apparent at some of the most popular sites, including the previously-cited examples of the ancient city of Dubrovnik, China's Great Wall and the city of Barcelona. COVID-19 restrictions on air travel and cruising, as well as site closures, provided a respite for residents in some of the most-visited World Heritage cities, including Rome and Venice. According to UNESCO, more than 50 countries closed or partially closed World Heritage sites during the first wave of the pandemic. In the US for example, Yellowstone and some other National Parks closed for part of 2020, but visitor numbers bounced back to record levels in 2021 and so did the traffic and congestion along its most popular roads and trails.

COVID-19's impacts on World Heritage and tourism have yet to be fully analysed and the pandemic is far from over. However, it is clear that although reduced visitor numbers may have decreased damaging visitor pressure on some World Heritage sites, loss of service jobs and tourism revenues had major negative impacts in many places, as did direct health impacts in local and associated communities. World Heritage sites that were closed or operated with reduced staff numbers suffered from vandalism, theft and pollution from garbage and human waste. Scientific monitoring programmes were interrupted, and conservation and restoration programmes came to a halt. Some World Heritage sites also suffered an increase in poaching, and illegal encroachment and resource extraction, as a result of reduced enforcement or availability of rangers, as for example in Bwindi Impenetrable National Park, Uganda. Of even greater concern



The Climate Vulnerability Index assessment has been completed in the Heart of Neolithic Orkney in Scotland (United Kingdom).

© A.Currell

at Bwindi is the potential COVID-19 infection threat to gorillas that may come through contact with tourists as gorilla trekking opens up again, an issue on which local NGOs such as Uganda's Conservation through Public Health have been keeping a close eye.

Climate change impacts, tourism and site management

Climate change impacts on World Heritage, and their complex interactions with tourism, remain an important area for development in the management of sites. The multi-country Wadden Sea property is one of the very few that has so far integrated its management strategy jointly with strategies to respond to climate change and develop sustainable tourism. As part of its climate efforts, the Wadden Sea also undertook a rapid climate assessment workshop using the Climate Vulnerability Index (CVI) developed at James Cook University in Australia to help guide management decisions in the face of climate change. Similar CVI assessments, which include socio-economic assessments of the interactions of climate change and tourism, have also been completed for the Heart of Neolithic Orkney in Scotland, Sukur in Nigeria and Shark Bay in Australia; they are in preparation for Kilwa Kisiwani in Tanzania and the Vega Archipelago in Norway.

As more becomes understood about the impacts of climate change on World Heritage, the tourism industry can do more to address its carbon footprint, participate in developing site-based climate resilience strategies and support international initiatives such as UNESCO's Sustainable Tourism Programme. There is also huge potential to tell climate stories at World Heritage sites and

World Heritage in the face of COVID-19

To understand the impact of COVID-19 on World Heritage one year after the start of the pandemic, UNESCO launched a far-reaching survey of site managers and national authorities and in June 2021 published the results in the report 'World Heritage in the face of COVID-19'.

The survey found that many respondents expect the effects of the crisis on World Heritage properties to continue in the months and years, to come. At the height of the crisis, it was reported that 90% of countries with World Heritage properties had closed or partially closed them and respondents to this survey still reported an average figure of 71% closure of sites in February 2021. Visitors to World Heritage sites dropped by 66% in 2020 according to respondents and at sites where staff redundancies were reported (13% of sites in the survey), an average of 40% of permanent staff and 53% of temporary staff were made redundant at those sites.

Respondents overwhelmingly reported large impacts on local communities, especially from the loss of revenue due to huge reductions in visitors to World Heritage sites and grave concerns about the future. Some World Heritage properties also reported cases of illegal logging and mining, poaching and vandalism due to the reduction of monitoring and a decrease in managed visitation.

Some respondents recommended a recovery process that includes measures to support the tourism sector and communities and to safeguard livelihoods in the transition towards more versatile and resilient World Heritage site management. The uncertainty surrounding the current crisis has suggested a policy of re-alignment of properties towards domestic tourism for many stakeholders in the short-term, providing, however, the equally important opportunity to "Build Back Better".

The report is one of a series published by the UNESCO Culture Sector on the impact of COVID-19 across various industries related to culture.

UNESCO would like to thank Member States, their delegations, ministries and institutions for their detailed responses which constitute the basis of the data used in the preparation of this report. We are especially grateful to World Heritage site managers for participating in the online survey and through individual interviews, taking the time to provide information and insights into the challenges and opportunities facing their properties and prospects for recovery.

national parks, as demonstrated by the University of Maryland's Climate Footprints of Heritage Tourism project, which collates short case studies of impacts online, or by the interpretive archaeological displays set into the ice at the Norwegian Glacier Museum in Jostedalsgreen National Park. As the world continues to respond to COVID-19, it is more important than ever that World Heritage play its part, both in drawing attention to climate change and in developing ways to respond and adapt to it. 🌱



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Impacts of climate change on the OUV criteria

Criterion viii (geological processes): "It is the largest tidal flat system in the world, where natural processes proceed largely undisturbed."

Broadly speaking, the submergence and reduction of tidal flats is a direct response of the increase in accommodation space due to sea level rise (and locally subsidence) which is no longer compensated by the import of sufficient volumes of sediment.

On a shorter time-scale, changes in wind strength and direction can also influence local sea level at a similar or even stronger pace. Other (cumulative) impacts on natural dynamics of geological processes include bottom subsidence, dredging and large infrastructures such as dams and artificial saltmarshes.

Drowning of mudflats would decrease the surface and height of the tidal flats and increase the surface and depth of the permanently submerged sand banks.

Criterion ix (ecological processes): "It encompasses a multitude of transitional zones between the land and the sea and freshwater environment and it is rich in species specially adapted to the demanding environmental conditions."

Although apparently devoid of life, the top layer of intertidal flats is inhabited by a suite of bivalves, worms and small crustaceans. These animals perform various functions, including the provisioning of food to fish, birds and humans. The collected composition of this macrozoobenthic community is strongly related to sediment composition, benthic microalgae and exposure time. The drowning of mudflats will affect these environmental conditions and subsequently change the densities and biomass of the benthic community, including "typical species" such as lugworms, mussels and cockles.

Coinciding warming of the Wadden Sea will further shift the community composition, as will the ongoing introduction of invasive species and the increasing supply of freshwater in winter and a reduced input in summer. Other (cumulative) impacts on benthic communities include those due to harvesting and bottom disturbance.

Criterion x (biodiversity): "It is one of the most important areas for migratory birds and is connected to other key sites for these migratory birds on the Northern and Southern hemisphere."

Climate change impacts on biodiversity include expansions of species to the poles and/or deeper waters following temperatures as climate warms, together with observations of phenological change. More recently, a number of studies have reported shrinking of body size as an effect of climate warming. Earlier snow melt in the Arctic breeding grounds, for example, resulted in a smaller body size in migratory birds resulting in higher mortality in their tropical wintering areas.

The impacts of climate change on the three criteria strongly interact. Changes in geomorphology (*riterion viii*) such as drowning of mudflats due to sea/level rise or wind-induced increase of the sea level, for example, will affect the food availability for fish and birds (*riterion x*) directly via a respective increase and reduction in feeding time and indirectly via an accompanying change in benthic communities of plants and animals (*riterion ix*).

Setting up a scientifically sound and more process-orientated monitoring programme, including strict protocols for regular evaluation of the results, is required to follow the rates of change, to quantify the impact of human (restoration) efforts and to enable fast response to unexpected changes in environmental conditions.



unesco
World Heritage site



WADDEN SEA
WORLD HERITAGE

Authors: Catharina J.M. Philippart, Kees Bastmeijer
& Piet Hoekstra

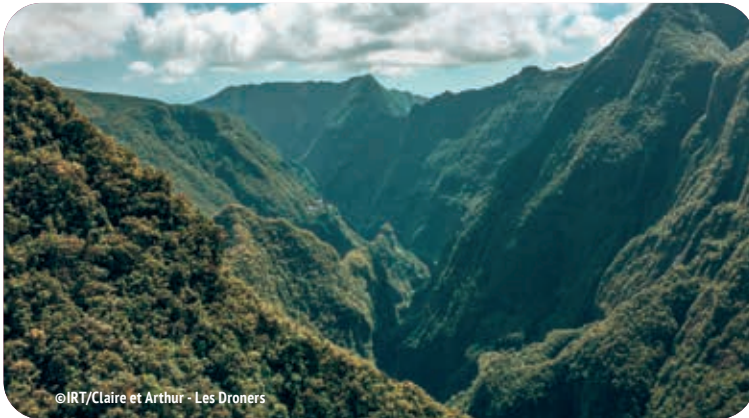
Contact: info@waddensea-secretariat.org
www.waddensea-worldheritage.org/

LA RÉUNION BOUNDLESS NATURE

SPONSORED STATEMENT



Rugged hills, primary forests, nature reserves, idyllic beaches, a volcano full of life... The landscapes of the *île intense* are enchanting!



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Réunion is regularly ranked amongst the most beautiful islands in the world. Its remarkable biodiversity is world-renowned, it is home to a volcano considered one of the most active on the planet and, as proof of its exceptional character, it houses a splendid National Park.

10 YEARS OF WORLD HERITAGE LISTINGS

On 1 August 2020, Réunion celebrated the 10th anniversary of the inscription of its pitons, cirques, and ramparts on the UNESCO World Heritage List.

Beyond the prestige it confers, the addition of the island's 'pitons, cirques and ramparts' on the UNESCO World Heritage List is also, and above all, a pledge to protect Réunion's unique animal, plant, and mineral heritage.

France now has more than 40 properties listed as UNESCO World Heritage sites. Only 5 of these are nature sites, and the Pitons, cirques, and ramparts of the island are among them.

Nearly 40 years of scientific research was analysed in order to attest to the unique and remarkable character of Réunion's territory.

It is thanks to its volcanism, biodiversity, abundant micro-climates, local species, and the beauty of its landscapes that the vibrant island can justify its classification among the most brilliant jewels on the planet

Here is a brief overview of the five emblematic places listed within the World Heritage site in Réunion:

- Piton de la Fournaise
- Trou de Fer
- Piton Maïdo
- Cirque de Mafate
- Piton des Neiges

www.reunion.fr



unesco

World Heritage site

Forum

A series of training workshops on disaster risk management for South-East Asian cultural heritage has been proposed for implementation. The training workshops aim to build the capacity of heritage professionals in South-East Asia on disaster risk management planning for heritage sites, in response to conservation issues in regional and global contexts.

The first training workshop was held in March 2018 on the theme of Post-disaster Recovery for the Living Urban Archaeological Complex at Bagan, Myanmar, a site which was hit by an earthquake in August 2016.

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Bagan (Myanmar).

© Image par Gero Birkenhäger de Pixabay

Prof. Lee White, Minister of Water, Forests and Environment, Gabon

World Heritage:

A recent study published by the UNESCO World Heritage Centre, the World Resource Institute and IUCN shows that World Heritage forests play a major role in sequestering and storing carbon. The study also points out, alarmingly, that some World Heritage forests have been carbon sources, emitting more carbon than sequestering it, because of increased land-use pressures and climate-related events such as wildfires. More than 85 per cent of Gabon is forested and it also harbours two forest World Heritage sites, Ecosystem and Relict Cultural Landscape of Lopé-Okanda and the newly inscribed Ivindo National Park. Can you tell us more about the situation in your country?

Lee White (LW): Gabon is 88 per cent covered in tropical rain forests, which remain relatively intact and continue to absorb CO₂. Thanks to strong leadership at the highest level over two decades, deforestation has been contained below 0.1 per cent, making Gabon one of the most 'High Forest Low Deforestation' (HFLD) countries alongside Suriname and Guyana. Indeed, as a result, Gabon is one of the most carbon positive countries on earth, net absorbing just over 100 million tons of CO₂ every year – about a third of the total emissions of France.

The Lopé and Ivindo World Heritage sites contain some of the most rich and pristine forests in Central Africa. Lopé in particular has been shaped by climate change in the past, with its northern savanna-forest mosaic resembling what much of Central Africa looked like during the last ice age. It was designed to contain both relict savannas in the north and Pleistocene refuge forests in the mountainous south, making it naturally resilient to climate change.

As anchors for sound land management, these two parks are integral components of two vast landscapes containing sustainable forestry concessions and community forests, making them key elements of Gabon's strategy to keep its forests standing, thereby maintaining their carbon stocks and the key ecosystem services they provide.

WH: Another UNESCO study shows that many marine World Heritage sites will lose their coral reefs if the global average temperature continues to rise. This would impoverish our ocean biodiversity, with significant economic and social consequences. The interlinkages between the most pressing issues of our time, climate change and biodiversity loss, were also highlighted in the recent joint report by the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES). Are we making progress in bringing together the climate change and biodiversity loss agendas?

LW: 'Nature-based Solutions' are more and more generally recognized as one of our key tools in fighting climate change. Intact, biodiverse natural forests not only harbour more carbon than other ecosystems, but they are also more resilient to the fires and insect plagues that are the result of the impacts of climate change on terrestrial ecosystems. It is clear to us all that intact ecosystems



Prof. Lee White.

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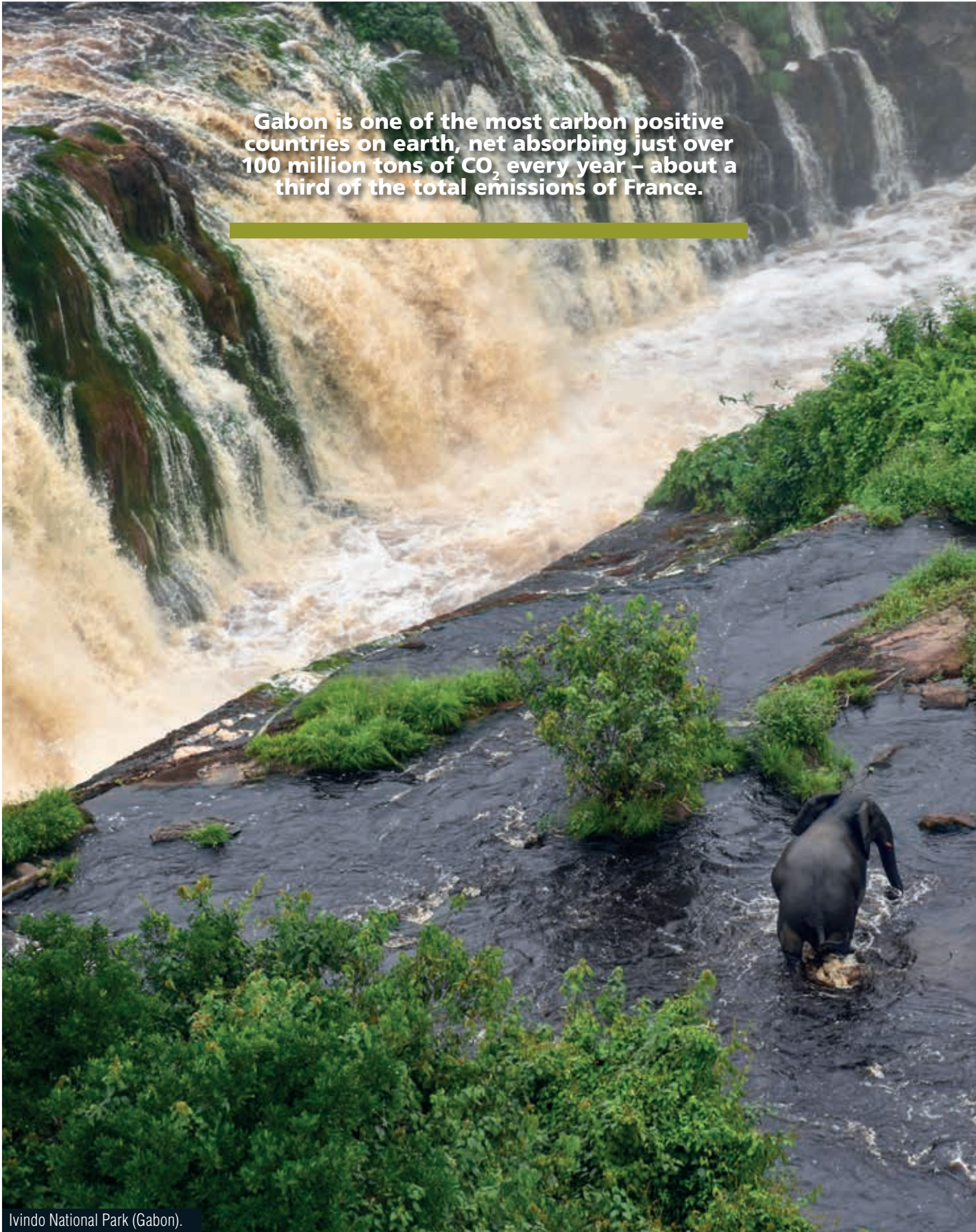
protect us from climate change and even from the threats of emergent diseases, and it is critical that we bring the UNFCCC [United Nations Framework Convention on Climate Change] and the CBD [Convention on Biological Diversity] together during COP 26 in Glasgow and COP 15 in Kunming.

WH: The updated climate change policy on World Heritage requests that by 2030 countries establish robust climate change adaptation frameworks to reduce climate risks and build climate resilience for all World Heritage properties. The need for countries to create effective national adaptation plans for climate change is also stressed by the UNFCCC. What opportunities do you see for aligning these processes at the national level?

LW: The adaptation plans we will develop for our World Heritage sites will include monitoring of the impacts of climate change on tropical forest plants and animals at the renowned Lopé Research Centre, with its unique 40-year data set; fire management policies; and strategies to fight climate-driven human-animal conflict, such as the observed increase in crop raiding by elephants around Lopé in response to a drop in fruit production by rain forest trees linked to climate change. These will serve as a model for national level adaptation plans under the UNFCCC process.

WH: For you, what is the most important message that needs to be communicated about climate change and World Heritage forests?

LW: Intact ecosystems are one of the best tools we have both to fight and to adapt to the impacts of climate change. They tend to be more resilient than other ecosystems so act as a critical life support system, or insurance policy, against the impacts of climate change. That said, we are going to have to be extremely vigilant and ready to adapt our management regimes as we observe how climate change impacts even the most resilient ecosystems. 🌱



Gabon is one of the most carbon positive countries on earth, net absorbing just over 100 million tons of CO₂ every year – about a third of the total emissions of France.

Ivindo National Park (Gabon).

© Lee White

A journey through the UNESCO sites in Veneto



To visit the nine sites in Veneto that are inscribed on the World Heritage List is to undergo a voyage of discovery that provokes extraordinary emotions at each stage. It is a journey to discover the historical and artistic treasures that can be found in the cities, towns and villages of the region where signs of the historical stratification that has occurred over the centuries are clear. An itinerary that alternates urban and rural landscapes that have been immortalised by artists and writers throughout the ages with pauses that are accompanied by the tasting of the many gastronomic delights and fine wines that Veneto has to offer, will make the travel experience sublime.

Have you ever experienced the excitement of following the route that connects these nine locations in Veneto? The sites, both cultural and natural, are recognized and protected as examples of excellence owing to their values of uniqueness, universality and integrity, and will amaze you with their beauty and the individuality of the territories that surround them.

Starting at Peschiera del Garda, which boasts a double inscription on the UNESCO World Heritage List with its prehistoric pile-dwelling site and its Venetian defense site, you can admire the imposing

pentagonal fortification with a bastion on each vertex which is located in the middle of the waters of the Mincio River, the main outlet of Lake Garda, and which can be visited on foot or by boat.

From here you can head towards the city of Verona where you will be welcome to discover its historic and artistic treasures which, interpreted in a modern context, will allow you to experience the thrill of seeing a concert in one of the best-preserved Roman amphitheatres in the world.

The next stop will be Vicenza, the city of Andrea Palladio, which will amaze you with its architectural landscape, formed by buildings and villas bearing the signature of the famous Venetian architect. The city of Vicenza, with its historic center, the 23 Palladian monuments and the three suburban villas - Villa Capra, known as "La Rotonda", Villa Trissino in Cricoli and Villa Gazzotti in Bertolina - was inscribed on the UNESCO World Heritage list in 1994. Later, in 1996, the site was expanded by including another 21 Palladian villas from around the Veneto region and was redefined as the City of Vicenza and the Palladian Villas of the Veneto.

1. City of Verona (2010)
2. Le Colline del Prosecco di Conegliano e Valdobbiadene (2019)
3. Botanical Garden (Orto Botanico), Padua (1997)
4. City of Vicenza and the Palladian Villas of the Veneto (1994)
5. Venetian Works of Defence between the 16th and 17th Centuries: Stato da Terra – Western Stato da Mar (2017)

6. The Dolomites (2009)
7. Prehistoric Pile Dwellings around the Alps (2011)
8. Venice and its Lagoon (1987)
9. Padua's fourteenth-century fresco cycles (2021)



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8



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The road then continues towards the picturesque city of Padua, famous for its historical university (from where Elena Cornaro Piscopia, the first woman ever to obtain a university degree, graduated) and for the oldest botanical garden in the world, the latter being the first Paduan site to be included in the World Heritage List. The city of Padua recently received its second UNESCO designation for its fourteenth-century fresco cycles, which include Giotto's painting of the Scrovegni Chapel along with seven other sites of equal beauty.

The journey of discovery through the UNESCO sites of the Veneto region will now continue to Venice and its Lagoon, inscribed as a UNESCO World Heritage site since 1987 not only for the uniqueness of its urban planning and its historical and artistic treasures, but also for the inestimable environmental and scenic value of its lagoon. In 2020, the city of Venice was inscribed on the list of the Intangible Cultural Heritage of Humanity for the precious art of glass beads still practiced today by refined glass craftsmen.

The last two stages of the route will lead you to experience the wonders of a green and unhurried Veneto, where the beauty of the landscape combines perfectly with the excellent foods and wines of the area.

The first of these final stops will be made in the Prosecco Hills of Conegliano and Valdobbiadene, a site which was inscribed on the Unesco World Heritage List in 2019 and which includes a part of the wine-growing landscape of the Prosecco production area. This landscape is characterized by hills, narrow grassy terraces, forests, small villages and countryside.

The journey ends in the Dolomites, a natural landscape, unique in the world, where the mountains, on clear summer days, turn pink at dusk, providing the spectator with a range of breathtaking sounds, images, scents and emotions that have become icons of our Great Beauty.



www.veneto.eu

Building back better: capacity-building on disaster risk management for South-East Asian cultural heritage

Hatthaya Siriphatthanakun
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SEAMEO Regional Centre for Archaeology and Fine Arts (SPAFA)

In recent years, South-East Asia – a region home to 42 World Heritage properties within nine of eleven countries and containing numerous invaluable natural and cultural heritage assets – has been suffering increasingly from unprecedented natural hazards, accelerated by climate turbulence and human activity.

In addition to the region's precariousness stemming from geological characteristics, certain parts of it are located on the Ring of Fire, which is a path around the Pacific Ocean along which active volcanoes erupt, and earthquakes and related hazards are frequent. In 2004 the devastating and unprecedented tsunami attacked most of the region's coastal areas. As for the Borobudur and Prambanan Temple Compounds of Indonesia, they are vulnerable to earthquakes, which most recently occurred in 2006.

The Pacific Ocean is also the area where various water-related natural hazards are happening more frequently and becoming more severe. In 2008, Cyclone Storm Nargis hit Myanmar, followed by the 2009 Ketsana typhoon, which had a huge impact on the Lao PDR's World Heritage property Vat Phou and Associated Ancient Settlements. Then, in 2011, the Historic City of Ayutthaya located in the Chao Phraya Delta of Thailand suffered massive damage from one of the most destructive floods in its history, presumably caused by climate-related phenomena. Similarly, several heritage buildings and churches in Bohol, the Philippines, were damaged extensively by Typhoon Haiyan, one of the most powerful tropical cyclones ever recorded, followed soon after by an earthquake. At the time of writing, the restoration of these affected heritage buildings in Bohol is still ongoing.

Lack of mitigation measures and planning

While heritage in South-East Asia has been continuously exposed to and affected by natural hazards, it is becoming obvious that the lack of mitigation measures and planning, especially during the disaster and post-disaster periods, make heritage even more vulnerable. On several occasions, heritage hit by a disaster was left for a long interval before the start of any measures, including first-aid actions and damage assessment, a delay which allowed for further and more extensive damage. It is clear that disaster risk management plans for cultural heritage, comprising preparedness, emergency response and recovery measures, should be put in place.

Since the 2015 Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted, most South-East Asian countries have developed their own national disaster risk management strategy or plan. But more effort is required to increase and promote awareness of the impact of disasters on heritage, as well as of the role of heritage in helping reduce damage from disasters, as explained in the Framework. In addition, knowledge and experience in the development of disaster risk management plans for South-East Asian heritage must be disseminated and consolidated.

In response to these issues, a consultative meeting among potential partners and experts working in South-East Asia was organized in 2016, with the goal of identifying regional challenges and needs related to disaster risks to South-East Asian cultural heritage. The meeting was hosted by the South-East Asian Ministers of Education Organization Regional Centre for Archaeology and Fine Arts (SEAMEO SPAFA), in collaboration with the Institute of Disaster Risk Mitigation for Urban Cultural Heritage, Ritsumeikan University

(R-DMUCH) and the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM).

At the meeting, it was decided to plan a series of training workshops on disaster risk management for South-East Asian cultural heritage, proposed for implementation within the framework of SEAMEO SPAFA's seventh Five-Year Development Plan (2017/2018 – 2021/2022). This serial activity would consist of three site-based training workshops, aiming to build the capacity of heritage professionals in South-East Asia on disaster risk management planning for heritage sites, in response to conservation issues in regional and global contexts. Each training workshop was to be held at heritage sites selected according to heritage typology, and the main training theme devised according to the cultural diversity of the region and as a response to its current circumstances.

A series of workshops

The first training workshop was held in March 2018 on the theme of Post-disaster Recovery for the Living Urban Archaeological Complex at Bagan, Myanmar, a site which had been hit by an earthquake in August 2016. In addition to the three main partners mentioned above, the training was co-hosted by Myanmar's Department of Archaeology, Ministry of Religious Affairs and Culture. The workshop delivered information on disaster risk management focusing on post-disaster measures, so that experience from Myanmar could be shared and its lessons learned. Additionally, value-based conservation, adopting a living heritage approach, and archaeological heritage management in urban areas were included in the curriculum. In total, twenty participants from South-East Asian countries participated in the training, while



Field work at Bagan (Myanmar) during the first training workshop.

© SEAMEO SPAFA's archive

nine international and six local experts were invited as resource persons.

In 2020, the second training workshop was scheduled to be held at Bandar Seri Begawan, Brunei Darussalam for ten days, co-hosted by the Brunei Museum Department and supported by the ICCROM-IUCN World Heritage Leadership Programme. This training workshop extended the range of its beneficiaries beyond South-East Asia to include participants from South Asia, the Middle East and Africa. In line with the workshop's theme, Understanding People, Nature and Culture: Heritage Management for Building Resilience of Living Settlements, the three organizing partners, SEAMEO SPAFA, ICCROM and R-DMUCH, decided

to use Kampong Ayer, a traditional settlement located on the Brunei River, its landscape and community as a case study for adopting a place-based approach to heritage management. Kampong Ayer has lasted for several centuries as an example of a resilient settlement that interacts with its natural surroundings.

For the course content, disaster risk management planning for cultural heritage and climate change adaptation were established as key components, along with integrated conservation, management, and presentation of nature and culture within heritage sites to build their resilience. Sustainable development, cooperation between diverse partners and networking were also included in the training activities.

Notably, in response to the need for climate change adaptation, participants were to be brought to understand the links between climate and heritage, and the relationship between climate change and disasters. They would also be introduced to practical tools to infer future climate change and to disaster scenarios that could be used in their own respective heritage sites. In addition, traditional knowledge systems were to be discussed in several instances, to understand how to adapt this knowledge to climate change and disaster mitigation measures.

However, due to the COVID-19 pandemic that broke out in early 2020, the training workshop was rescheduled to 2021 and redesigned to fit a virtual platform. From 4

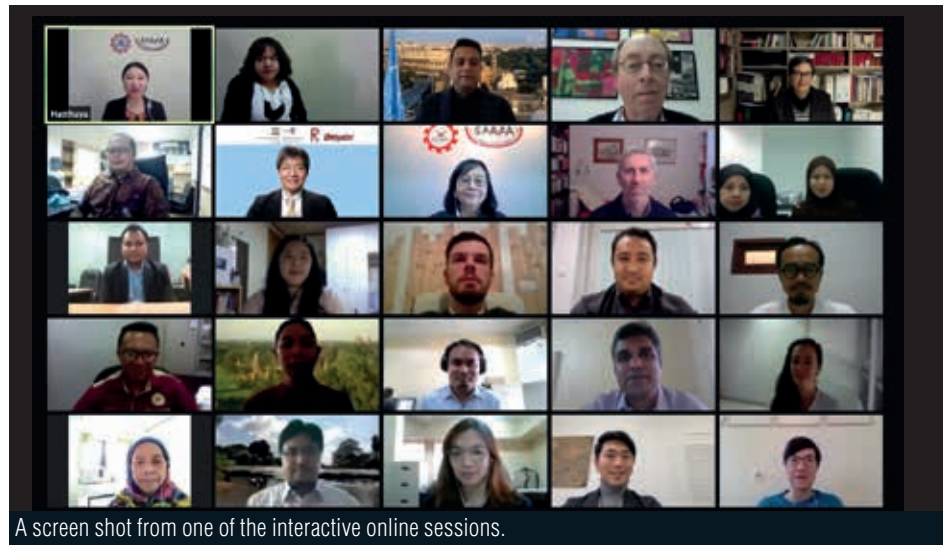


Kampong Ayer, Brunei Darussalam.

© Author's collection

February to 3 June 2021, fifteen interactive online sessions lasting two hours each were delivered on Thursdays, with pre-session lessons and post-session assignments. It is noteworthy that the training programme received the generous support of the National Cultural Heritage Administration of China (NCHA), which provided seed grants to two selected action plan projects proposed by participants as part of their final presentations. Finally, the programme greatly benefited from its nineteen resource persons from around the world, whose expertise in various disciplines range from heritage conservation, management and disaster risk to cultural heritage, climate change science and adaptation. Their contribution helped to build the training's content and to enrich the teaching platform as they delivered their knowledge and experience during each interactive session.

Continuing such efforts will ensure that South-East Asia will soon be ready to be 'built back better' to protect and retain its invaluable heritage.



A screen shot from one of the interactive online sessions.

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SEAMEO-SPAFA

The SEAMEO Regional Centre for Archaeology and Fine Arts (SEAMEO SPAFA) is an autonomous and specialized centre of the Southeast Asian Ministers of Education Organization (SEAMEO), an international organization dedicated to promoting co-operation in education, science and culture in South-East Asia. This Bangkok-based centre is hosted by the Government of Thailand to promote professional competence, awareness and preservation of cultural heritage, in the fields of archaeology and fine arts.

For further information: <https://www.seameo-spafa.org/>

INDONESIA: MOTHER OF SPICES



The situation surroundings of the port of Banda Naira, the spice center of Indonesia
© Directorate General of Culture, Ministry of Education, Culture, Research and Technology

The Indonesian archipelago has been the world's spices producer since before the Common Era. There is evidence of this from the records of early world travelers from various regions such as China, the Middle East and Europe. In the modern era, national and international scholars have also conducted research on spices in the Indonesian archipelago. In the early days, nutmeg grew only in the Banda Islands, cloves originated from the islands of Ternate and Tidore while pepper was produced in Banten. Camphor resin was harvested since centuries ago in Sumatra island and sandalwood from Timor were used to produce fragrant oil. For centuries, the spices of the archipelago have become important commodities that have affected economic, political, and sociocultural conditions on a global scale. The path to globalization of the archipelago was formed due to the interaction and heavy sea traffic from the archipelago to East Asia, the Middle East, Africa, Europe and vice versa. The Spice Route is not just a mere trade of commodities, but also a commercial process that allows the exchange of values, culture and scientific networks that help shape the identity of the nations along the spice trade routes. It provides for a transnational network as well as intercultural exchange and understanding, transcending the context of space and time. However, due to global competition and colonialism, spices experienced a setback in the competition for trading commodities.



Indonesian spices, rich in functions for wellness
© Directorate General of Culture Ministry of Education, Culture, Research and Technology

The trade of spices and other commodities has established centres of civilization along the rivers and inland areas and across oceans and continents. Considering the historical importance of spices, the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia places the Spice Route as its priority programme. Many initiatives and activities have been developed to revitalize the Spice Route at the forefront of cultural space through cooperation and mutual collaboration involving cultural professionals, communities, local authorities, and academics. These activities include art performances, culinary arts, traditional knowledge and medicine, workshops, exhibitions, spice-themed competitions, film screenings, cultural residencies, and research.

The spice route that contributed to the shaping of world civilization will undoubtedly also contribute to strengthen the vision of Indonesia as a global maritime axis and a maritime nation. In this regard, efforts have been made to develop the Spice Route as a Cultural Route and we hope to receive support and positive response from various stakeholders and partner countries so that the spice route could further contribute to improving community welfare, identity formation and strengthening cross-sectoral cooperation.

The Performing Arts of Cakalele Dance of Banda
© Banda Heritage Society



[HTTPS://JALURREMPAH.KEMDIKBUD.GO.ID/](https://jalurrempah.kemdikbud.go.id/)

Sítio Roberto Burle Marx

A 'landscape laboratory' inscribed on the World Heritage List

'Sítio Roberto Burle Marx is a remarkable survival as a landscape laboratory that illuminates the way one of the great landscape designers of the 20th century [Roberto Burle Marx (1909-1994)] evolved his influential designs. That led to the development of what became known as the Modern Tropical Garden, an important expression of the Modern Movement in the field of landscape design and one that has largely influenced the shaping of parks and gardens since the mid-20th century in Brazil and throughout the world'.

The description above, from the final Evaluation Report produced by the International Council of Monuments and Sites (ICOMOS), is a precise appraisal of Sítio Roberto Burle Marx, inscribed as a cultural landscape on the UNESCO's World Heritage List on 27 July 2021.

The property covers 40.53 ha between mangroves and the native Atlantic Forest in the mountainous area of the district of Barra de Guaratiba, in the west zone of Rio de Janeiro. This exceptional ensemble of broad landscapes, gardens and buildings became a 'landscape laboratory' for Roberto Burle Marx, the artist who, over more than forty years, experimented fusing Modernist concepts with native tropical specimens to transform natural gardens into living works of art. As result of this experimentation, the Sítio physically displays Burle Marx's approaches, his principles and the botanical collections that constituted his palette, thereby allowing a thorough understanding of the key aspects of his work.

Housing approximately 3.500 tropical and subtropical plant species cultivated in gardens and nurseries, Sítio Roberto Burle Marx comprises garden areas permeated by lakes, plant beds, rocky outcrops and paved paths; an extensive native forest area; spring and water courses, as well as seven buildings, including: the 18th century Chapel of Santo Antônio da Bica (which gave the site its original name: 'Sítio Santo Antônio da Bica'); 'Roberto's House', the Landscape architect's

residence; the 'Loggia', a studio for large scale paintings; the reception hall known as 'Stone Kitchen'; the 'Atelier', a contemporary building with a neoclassical stonework façade; the Administration Building; and the 'Stone House'. The property also includes a museological collection with over 3.000 items and a library with approximately 4.000 titles.

In this unparalleled site, it is possible to stroll amid Burle Marx's artistic compositions, presented as living paintings in terms of colour, shape, volume and statuesque form. The Sítio's landscapes convey the permanent dialogue between key features of his work, such as sinuous forms, exuberant gardening, architectural layouts, dramatic contrasts in colour, emphasis on tropical plants and the incorporation of traditional elements of Portuguese-Brazilian folk culture.

The art collections enrich the understanding of these attributes and of the artist's creative processes, especially the artworks produced by Burle Marx himself: paintings, sculptures, drawings, engravings, tapestries, decorative objects, tile and ceramic panels, exhibiting the interaction between art, architecture and landscape – a central concept of the Modernist Movement.

Acquired by Roberto and his brother Guilherme Siegfried in 1949, the property was donated to the State in 1985, as the artist's legacy for humanity. The donation fostered research and the dissemination of acquired knowledge, and allowed the general public to gain access to this unique space. Since Burle Marx's death in 1994, the Sítio has been managed by Brazil's National Historic and Artistic Heritage Institute (IPHAN). It is listed as cultural heritage on city, state and federal levels. Now it is also listed as World Heritage.

Contribution of the Ministry of Foreign Affairs of Brazil and the National Historic and Artistic Heritage Institute (IPHAN)



Landscape Composition: view of the lakes and gardens © Iphan/SRBM/ Diego Rodriguez Crescêncio

Visits from Tuesday to Saturday, scheduled
by e-mail: visitas.srbm@iphan.gov.br
<https://sitioburlemarx.org/>



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Towards a new policy document on climate action

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We are living at a time when we need to act decisively to produce global agreements on sustainability, social inclusion and poverty reduction, climate resilience and the conservation and sustainable management of biodiversity. From a global perspective, the prevailing trajectories of economic growth have put at risk the survival of at least two of the systems that sustain human well-being on the planet: climate and biological diversity. There is a clear scientific consensus (IPCC 2021, 2018; IPBES 2019) that indicates an alarming planetary risk due to the deterioration of these two systems and points to human activity as the main factor responsible.

This situation is of vital importance to the World Heritage Convention since the combined effects of climate and biodiversity crises are certain to have negative impact on the Outstanding Universal Values of the World Heritage properties.

Already in 2007, recognizing the threat to World Heritage sites from climate change, the General Assembly of States Parties to the 1972 Convention concerning the protection of the World Cultural and Natural Heritage (hereinafter called the World Heritage Convention) adopted the Policy Document on the Impacts of Climate Change on World Heritage Properties (hereinafter the 2007 Policy Document).

Since the adoption of the 2007 Policy Document, science has made even clearer the magnitude of this threat, its causes and its consequences. Global warming has produced and continues to produce long-term alterations in the climate system with resulting changes in the dynamics of rain patterns, sea level risk, ocean warming and acidification; it has also increased the risk

of extreme events such as storms, bushfires, floods and droughts. Recent floods in Belgium and Germany, and forest fires in the Amazon Biome, Greece and Italy are grim reminders of the global challenge we are confronting.

The likelihood of increased weather extremes – heavy downpours, heatwaves, strong hurricanes and cyclones – therefore gives great concern that the number and/or scale of weather-related disasters will also rise, putting heritage at greater risk than ever before. Moreover, greater variability in temperature and precipitation due to climate change is also posing challenges for protecting and managing World Heritage properties. On the other hand, World Heritage properties have enormous potential to address climate change. For example, they serve as natural buffers against climate impacts and other disasters. They also demonstrate how people have adapted to their changing environmental context by developing mechanisms that are manifested in cultural heritage through energy-efficient built form and sustainable use of local resources.

Updating the 2007 policy

Keeping in mind the growing threat, and the target set up by the Paris Agreement to limit global warming to well below 2°C and to pursue efforts to limit it to 1.5°C to mitigate risk, the World Heritage Committee decided to update the 2007 policy to synchronize with the current situation. The process began with an online consultation with key stakeholders from 30 December 2019 to 31 January 2020; 366 respondents from 97 countries participated in this exchange. They included States Parties, World Heritage advisory bodies and managers, NGOs, civil society, academic and research institutions and last but not the least, indigenous

peoples. The consultation helped identify key impacts of climate change and the site management challenges involved in implementing effective measures to address them. In addition, respondents suggested certain aspects such as climate mitigation and adaptation that should be prioritized in the updated policy document. Finally, the gaps in the 2007 policy document were outlined and key recommendations made for the updated policy. The consultation's results formed the basis of the updated draft document, prepared by two experts, one from the natural sector and the other from the cultural heritage sector.

Following the draft's preparation, four technical advisory group meetings were held from February to September 2020. Revised according to their recommendations, the policy draft was presented to the World Heritage Committee during its 44th Session in July 2021 and put on the agenda of the upcoming General Assembly in November 2021.

From the outset, the new policy document was conceived as action-oriented. It aims to galvanize urgent and transformative action by States Parties to the Convention and all stakeholders, including indigenous peoples and local communities, civil society and the private sector, to achieve the outcomes the document sets out in its vision, goals and components. They will thereby contribute to the objectives of the WHC and other climate and heritage-related multilateral agreements, processes and instruments. The document also recognizes the need for implementation primarily through activities at the national, local and heritage property levels, with supporting actions at regional and global levels.

The document intends to provide high-level guidance for enhancing the protection

and conservation of World Heritage properties through comprehensive adoption of climate action measures, including climate adaptation, mitigation, resilience building, innovation and research. It further aims to create synergies between multilateral agreements, processes and instruments such as the 2030 Agenda for Sustainable Development, the Sendai Framework for Disaster Risk Reduction 2015-2030, the 2016 New Urban Agenda and the Post 2020 Global Biodiversity Framework.

The policy, embedded in the existing processes of the WHC, sets forth several guiding principles calling for a precautionary approach aimed at minimizing the risks associated with climate change and protecting OUVs. It also calls for using the best available knowledge from diverse sources, ranging from scientists to indigenous peoples and local communities. Integration of a sustainable development perspective and promotion of global partnership, inclusion and solidarity are other essential principles the policy advocates.

Four goals

The policy's vision calls for each State Party to understand the current and future potential impacts of climate change on the OUV of the World Heritage properties situated on their territory, and to undertake climate action in an effective, ambitious, cooperative and active way.

The policy articulates four goals for the States Parties to achieve by 2030, in line with the objectives set up by the agreement. These comprise climate risk assessment for understanding and anticipating negative impacts and potential loss of OUV associated with current and projected climate hazards; climate adaptation for avoiding and minimizing climate impacts on OUV by addressing all components of climate risks (hazards, exposure, vulnerability) as well as other risk factors; climate mitigation for cultural sites and safeguarding of natural ecosystems that are carbon risks, while encouraging the reduction of greenhouse gas emissions associated with properties; and finally, knowledge sharing, capacity-building and awareness for decision-makers, stakeholders, local communities, site managers and other specialists to upgrade their skills and knowledge related to climate change impact and ways to deal with it.



Cape Floral Region Protected Areas (South Africa).

© Steve Crane

Implementation

During the online consultation, the respondents expressed unanimous interest in receiving guidance on implementing the policy document. The document therefore contains an entire section of recommendations for implementation at various levels – World Heritage Committee, States Parties and World Heritage property.

Five key considerations for the policy document's implementation are listed. These are: integrating measures to identify and manage climate related risks to the OUV at the property level and in Committee processes; integrating World Heritage in climate change planning and design at all levels; developing and sharing tools and methodologies to assess and manage climate change's current and future impacts with various stakeholders and rights holders at the property, national and international levels; enabling World Heritage sites to contribute to the transformative change that is necessary for low carbon resilient development; and using a place-based approach to contextualize climate action responses, integrating nature and culture in the management of all properties in response to climate change and respecting the rights and interests of indigenous peoples and local communities.

The policy also emphasizes the enabling conditions that are necessary for successful implementation, namely finance, technological innovation, institutional capacity, multilevel governance and changes in human behaviour and lifestyles.

The policy document is supported by several annexures. These include a glossary of concepts used in the policy document drawn from various scientific reports. Areas to be further developed are indicated, including adaptation, mitigation, knowledge sharing, capacity-building and awareness.

Climate change is no longer an assumption for a distant future; it is real and right now. The updated policy is only a starting point for actions to be taken at multiple levels, demanding collective commitment and solidarity among nations. It is urgently needed to protect our past for the future.

We hope the policy will galvanize urgent action in support of transformative change by States Parties. May it help them to make bold decisions in national policies for a transition to a carbon-neutral and resilient world that can sustain World Heritage for future generations, and at the same time to consider radical changes in conservation and management practices to adapt to a changing environment.

THE LANDSCAPE OF GRAND PRÉ

An exceptional agricultural and memorial landscape; a shared legacy

The Landscape of Grand Pré (Canada) is an exceptional, living agricultural landscape, claimed from the sea in the 17th century by the Acadians. The tides of this intertidal area exceed 11 metres and are among the highest in the world. Since the 1760s, the dykelands have been maintained and expanded by farmers, primarily of New England Planter descent, and by other immigrants – including the English and the Scottish in the 19th and 20th centuries and the Dutch after the Second World War – using the original technology and community-based management system.

Grand Pré is the iconic place of remembrance of the Acadian diaspora, the result of the Expulsion in the 18th century. Its landscape of dykelands and archaeological remains serve as a testament to the values of a culture

of pioneers who created their own territory while living in harmony with the Mi'kmaq. Its memorial buildings and monuments are at the heart of the ancestral land of the Acadians, who have symbolically re-appropriated it in the 20th century, in a spirit of peace and cultural sharing with the local community. Grand-Pré National Historic Site commemorates the Acadian Expulsion story and welcomes visitors to the World Heritage Site.

The 13-square-kilometre site is on the Bay of Fundy's Minas Basin in Nova Scotia's Annapolis Valley, which is part of the Mi'kmaq people's unceded homeland of Mi'kma'ki. The vast expanse of dykelands is framed by the dramatic Cape Blomidon, which according to legend, is where the Mi'kmaq spiritual leader *Kluscap* (Glooscap) guided his people.



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World Heritage site



www.landscapeofgrandpre.ca
www.parkscanada.gc.ca/grandpre

News

During its extended 44th session, held online and chaired by China from Fuzhou from 16 to 31 July 2021, the World Heritage Committee examined nominations submitted in 2020, when the session had to be postponed because of the COVID-19 pandemic, and in 2021.

A total of 34 properties were inscribed during the session and three properties were extended. The new properties include 29 cultural and five natural sites.

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South line, Lorestan; Karun-Dorud route, Freight Train (GM Locomotive), Trans-Iranian Railway (Islamic Republic of Iran).

© Hassan Davadi

Thirty-four sites added to the UNESCO World Heritage List

During its extended 44th session, held online and chaired by China from Fuzhou from 16 to 31 July 2021, the World Heritage Committee examined nominations submitted in 2020, when the session had to be postponed because of the COVID-19 pandemic, and in 2021.

A total of 34 properties were inscribed during the session and three properties were extended. The new properties include 29 cultural and five natural sites.

Additionally, the World Heritage Committee recognized sufficient improvement in the state of conservation of the World Heritage site of Salonga National Park (Democratic Republic of the Congo) to warrant its removal from the List of World Heritage in Danger.

The site of Roşia Montană Mining Landscape (Romania) was inscribed simultaneously on the World Heritage List and on the List of World Heritage in Danger pending the removal of threats to its integrity posed by possible mining activities.

The World Heritage Committee also took the exceptional and rare decision to delete Liverpool – Maritime Mercantile City (UK) from the World Heritage List, due to the irreversible loss of the attributes for which it had been inscribed.

Newly inscribed cultural sites, 2020 nominations:

- The Great Spa Towns of Europe (Austria, Belgium, Czechia, France, Germany, Italy, United Kingdom)
- Frontiers of the Roman Empire – The Danube Limes (Western Segment) (Austria, Germany, Slovakia)
- Colonies of Benevolence (Belgium, Netherlands)
- Sítio Roberto Burle Marx (Brazil)
- Quanzhou: Emporium of the World in Song-Yuan China (China)
- Cordouan Lighthouse (France)
- Mathildenhöhe Darmstadt (Germany)
- Kakatiya Rudreshwara Temple, Telangana (India)



Aerial view of the Fortified Temple, Chankillo Archaeoastronomical Complex (Peru).

© IDARQ

- Trans-Iranian Railway, Islamic Republic of Iran
- Padua's fourteenth-century fresco cycles (Italy)
- Dutch Water Defence Lines, inscribed as an extension to the World Heritage site of Defence Line of Amsterdam (Netherlands)
- Chankillo Archaeoastronomical Complex (Peru)
- Roşia Montană Mining Landscape (Romania)
- Himā Cultural Area (Saudi Arabia)
- Paseo del Prado and Buen Retiro, a landscape of Arts and Sciences (Spain)
- Arslantepe Mound (Turkey)
- The work of engineer Eladio Dieste: Church of Atlántida (Uruguay)

Newly inscribed natural sites, 2020 nominations:

- Colchic Rainforests and Wetlands (Georgia)
- Amami-Oshima Island, Tokunoshima Island, Northern part of Okinawa Island, and Iriomote Island (Japan)
- Getbol, Korean Tidal Flats (Republic of Korea)

- Kaeng Krachan Forest Complex (Thailand)

Newly inscribed cultural sites, 2021 nominations:

- Settlement and Artificial Mummification of the Chinchorro Culture in the Arica and Parinacota Region (Chile)
- Sudanese style mosques in northern Côte d'Ivoire (Côte d'Ivoire)
- Nice, Winter Resort Town of the Riviera (France)
- ShUM Sites of Speyer, Worms and Mainz (Germany)
- Frontiers of the Roman Empire – The Lower German Limes (Germany, Netherlands)
- Dholavira: a Harappan City (India)
- Cultural Landscape of Hawraman/ Uramanat (Islamic Republic of Iran)
- The Porticoes of Bologna (Italy)
- Jomon Prehistoric Sites in Northern Japan (Japan)
- As-Salt - The Place of Tolerance and Urban Hospitality (Jordan)
- The Franciscan Ensemble of the Monastery and Cathedral of Our Lady of the Assumption of Tlaxcala was inscribed as an



International Advisory Committee on World Heritage created in Uzbekistan

The International Advisory Committee (IAC) on World Heritage sites in Uzbekistan was officially launched in Khiva and online on 15 September 2021, within the framework of the International Cultural Forum ‘Central Asia at the Crossroads of World Civilizations’.

The initiative to establish this committee with UNESCO was put forward by the President of the Republic of Uzbekistan H.E. Mr Shavkat Mirziyoyev when he met with UNESCO Director-General Audrey Azoulay in Uzbekistan in August 2019.

During this first session of the IAC, participants discussed the Committee’s objectives, aimed at providing guidance on

the safeguarding of four World Heritage properties in the country – Samarkand – Crossroads of Cultures, Historical Centre of Bukhara, Historical Centre of Shakhrisabz and Ichan-Kala. Experts also discussed establishing effective activities and further plans to work jointly with WHC, ICCROM, ICOMOS and members of the committee to support the World Heritage Convention’s implementation in Uzbekistan.

Members of the IAC, with diverse and multidisciplinary backgrounds in conservation, restoration, archaeology, architecture, urban planning, legal issues and community outreach, expressed their full commitment to contributing to this platform. Within the framework of the IAC, among other issues, increased attention will be paid to promoting multilateral cooperation by sharing expertise and technical skills. This will increase the potential of national experts and specialized agencies to cope with complex heritage preservation challenges and to reach developmental objectives.

The next IAC meeting will take place before the end of 2021 in Uzbekistan.

extension of the World Heritage property of Earliest 16th-Century Monasteries on the Slopes of Popocatepetl (Mexico)

- Petroglyphs of Lake Onega and the White Sea (Russian Federation)
- The works of Jože Plečnik in Ljubljana – Human Centred Urban Design (Slovenia)
- The Slate Landscape of Northwest Wales (United Kingdom of Great Britain and Northern Ireland)

Inscribed natural property and extension, 2021 nominations:

- Ivindo National Park (Gabon)
- Extension to Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe (in Bosnia Herzegovina, Czechia, France, Italy, North Macedonia, Poland, Slovakia, Switzerland)

The session’s inscriptions bring the total number of sites on UNESCO’s World Heritage to 1154. Descriptions of each site will be presented in issue 101 of the World Heritage Review.

The 45th session of the World Heritage Committee will take place in Kazan (Russian Federation) from 19 to 30 June 2022, chaired by Alexander Kuznetsov.



Samarkand – Crossroad of Cultures (Uzbekistan).

© OUR PLACE The World Heritage/Amos Chapple

International Hydropower Association announces new commitment to World Heritage sites and protected areas

Eddie Rich, CEO of the International Hydropower Association (IHA), announced a new commitment to World Heritage sites and protected areas during a workshop on 'No-Go in World Heritage and other protected areas: success stories in leveraging the private sector and remaining challenges' at the IUCN World Conservation Congress held from 3 to 11 September 2021 in Marseille, France.

The commitment stipulates that no new hydropower projects should be developed

in World Heritage sites. It also proposes a 'Duty of care commitment', to implement high standards of performance and transparency when affecting protected areas, as well as candidate protected areas and corridors between protected areas, through a systematic application of the Hydropower Sustainability Tools or certification against the Hydropower Sustainability Standard. The Duty of care commitment also applies to hydropower projects that are planned outside World Heritage sites but could potentially have a negative impact on their values.

'The new IHA commitment is a significant step forward in addressing the increasing number of threats related to the impacts of hydropower projects on World Heritage sites,' said Mechthild Rössler, then Director of the UNESCO World Heritage Centre. 'The new commitment is in line with the established position of the World Heritage Committee, which in its Decision 40 COM 7 considered that the construction of dams with large reservoirs within the boundaries of properties is incompatible with their

World Heritage status. We also look forward to continuing our dialogue with IHA in order to ensure that through the implementation of the "Duty of care commitment", impacts of hydropower projects outside World Heritage sites, but situated within the watershed, can also be avoided.'

The commitment follows two years of discussion within a working group on hydropower and protected areas, in which the UNESCO World Heritage Centre, IUCN, WWF, the Nature Conservancy and various IHA members and experts were involved. The new commitment will engage all members of IHA, including the world's leading hydropower developers, operators and manufacturers, as well as organizations involved in research, policy, planning and financing. The commitment was presented at the International Hydropower Congress, which took place from 7 to 24 September 2021. The work to promote no-go commitments on World Heritage sites with the private sector is supported by the Government of Flanders (Belgium).



Lake Turkana National Parks was included on the World Heritage List in Danger in 2018 as a result of the potential impacts on its values by hydropower developments on the Omo river in neighboring Ethiopia.

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The ShUM Sites of Speyer, Worms and Mainz

Architecture and scholarship – Innovation and Commemoration

SPONSORED STATEMENT



Speyer, mikveh, shaft and immersion pool
© GDKE/Jürgen Ernst



Worms' synagogue, Interior
© GDKE/Jürgen Ernst



Mainz, Old Jewish cemetery "Judensand"
© Carsten Costard

ShUM: a term created from the initial letters of the Hebrew city names.

| | | | |
|--------|----------|------|-------------|
| Speyer | Shpira | Shin | (Sh) |
| Worms | Warmaisa | Waw | (U) |
| Mainz | Magenza | Mem | (M) |

The Jewish communities in the cities of Speyer, Worms and Mainz dating back to the 10th century, formed in the Middle Ages the unique association "ShUM". Located in the former imperial cathedral cities in the Upper Rhine Valley of Germany, the serial UNESCO-World Heritage Site of Speyer, Worms and Mainz enclose the Speyer Jewry-Court, the Worms Synagogue Compound, the Old Jewish Cemetery 'Heiliger Sand' in Worms and the Old Jewish Cemetery 'Judensand' in Mainz. These monuments and cemeteries were erected since the 10th century. ShUM is known as the cradle of Ashkenazic (central, northern and eastern European) Jewry.

ShUM is a place where one can explore this unprecedented Jewish Diaspora in today's Germany. There, Jews settled and developed deep roots. The Jewish communities interacted also with the Christian majority, i.e. when it came to build their synagogues and mikva'ot (ritual baths) or regarding professional exchange. Here, the architecture of synagogues and ritual baths reflects debates on ritual purity and mirrors the innovation of these three communities. The architecture of the synagogues were prototypes and the burial culture in ShUM shaped the Jewish world for centuries. The earliest known Jewish community centers in Ashkenaz are still today iconographic.

The Synagogue compounds in Speyer and Worms make Jewish life visible – with the synagogues and women's shuln (prayer rooms for Jewish women), yeshivot (religious schools), the mikva'ot and courtyards where the community met, discussed and celebrated. The medieval Jewish Cemeteries in Worms and Mainz are not only places and spaces of commemoration but also where great Rabbis, wise women and philanthropists are honored and where Ashkenazic

Burial Culture started. The Rashi-House in Worms, named after a great Rabbi who studied in the 11th century in Mainz and Worms, was built on the cellars of the community house dating back to the 12th and 13th century. A new exhibition in the Jewish Museum in this building tells about ShUM.

Not to forget: it was in these monuments where scholars developed religious laws and where liturgic poetry was written that is sung today. The ShUM Sites are a living testimony of Jewish life throughout ca. 1,000 years.

The Worms' Synagogue, destroyed and rebuilt repeatedly, is the most intense witness of ShUM. Recovered after the Shoah, it tells of willing destruction and the possibility to reconcile. The ShUM Sites are witnesses of centuries of the brightest and darkest periods of Jewish history and of Jewish life today.

The Jewish Community of Mainz, owner of most of the monuments in Worms and Mainz and both cemeteries, has grown since the 1990s by immigration from Eastern Europe and filled the Worms Synagogue with vivid Jewish life again. The New Mainz Synagogue – although not UNESCO World Heritage – takes up the idea of ShUM in its architecture. ShUM is living heritage!

<https://schumstaedte.de/en/>



unesco
World Heritage site

The Areni-1 Cave: Layers of history waiting to be unearthed

The Areni-1 Cave, also known as the Bird's Cave, is the archeological gift that just keeps on giving. Nestled in the heart of Armenia, in the Vayots Dzor province, situated at an altitude of 1080 m above sea level, this Chalcolithic–Early Bronze Age settlement and ritual site is a gem for history aficionados, where different artifacts belonging to various historical periods, from the late Chalcolithic to the Medieval, have been discovered.

The excavation journey of this three-chambered karstic cave, conducted by an Armenian-Irish team, first began in 2007, when burial sites dating back to between 5000 and 4000 BCE were first discovered. This was followed by the discovery of a well-preserved brain tissue, making it, to date, the oldest example of a Neolithic brain to have ever been found. At the entrance to the cave, a 24.5 cm long item of footwear was unearthed. This was the oldest shoe made of only one piece of leather to have ever been discovered in the world. The moccasin is 5500 years old and was found in very good condition, given that it was stuffed with loose grass which had helped it maintain its shape.

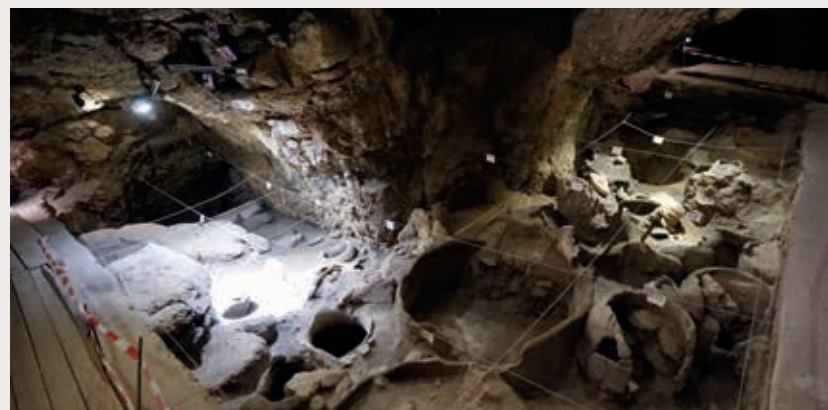
Another mesmerizing discovery that was uncovered inside this perfectly-preserved cave is the world's oldest-known winery, which dates back to 4100 BC. Archeologists unearthed a wine press for stomping grapes, fermentation and

storage vessels, withered grape vines, and seeds as well as drinking cups. Surrounding the wine press, the team has located a handful of grape seeds, grape must and dozens of desiccated vines. After chemically analyzing the pottery shards in order to find out whether the vat and jars had once contained wine, the obtained results showed traces of malvidin, the plant pigment that gives wine its red color. According to archeologist Gregory Areshian of the University of California, Los Angeles, this discovery is the earliest and most reliable evidence of wine production and provides, for the first time ever, a complete archaeological picture of wine production dating back 6,100 years.

It is believed that the discovery of yet more historical artifacts inside the Areni-1 may still be possible. A new series of excavations are planned in the near future, and hopefully many more archeological treasures will be unearthed in the coming few years, giving us more insight on the history of humanity, and how we have evolved and survived throughout time.



TOURISM COMMITTEE
MINISTRY OF ECONOMY
REPUBLIC OF ARMENIA



Salonga National Park (Democratic Republic of the Congo) removed from List of World Heritage in Danger

The World Heritage Committee, during its 44th session from 16 to 31 July 2021, decided to remove Salonga National Park (Democratic Republic of the Congo) from the List of World Heritage in Danger because of improvements in its state of conservation.

The Committee welcomed the clarification provided by national authorities that the oil concessions overlapping with the property are null and void and that these blocs will be excluded from future auctioning. It also observed great improvement in park management, notably regarding stronger anti-poaching measures.

Regular monitoring of wildlife shows bonobo populations remain stable in the



Aubry's Flapshell Turtle (*Cycloderma aubryi*). Salonga National Park (Democratic Republic of the Congo).

© John Hart

property despite past pressures and the forest elephant population has slowly begun recovering.

The Committee recognized the efforts made for these many years by the national authorities, UNESCO's World Heritage Centre and IUCN to reach this important achievement.

Inscribed in 1984 on the World Heritage List and in 1999 on the List of World Heritage

in Danger, Salonga National Park is Africa's largest tropical rainforest reserve. Situated at the heart of the central basin of the Congo river, the park is very isolated and accessible only by water. It is the habitat of many endemic endangered species, such as the bonobo, the Congo peacock, the forest elephant and the African slender-snouted or 'false' crocodile.



Salonga National Park.

© USAID Democratic Republic of Congo



unesco



UNESCO Art Collection

Selected works



UNESCO has established, since its creation in Paris, a notable and diverse collection of artworks. The works currently exhibited in the UNESCO buildings bear witness to the richness of artistic diversity in the world over the last 6000 years.

The UNESCO Art Collection joins in the UNESCO's 75th anniversary: 75 key concepts in UNESCO's work have been chosen to enter in dialogue with 75 works selected from the collection. The testimonies of art historians, archaeologists, curators, artists, gallery owner, landscape architects, etc., make this work a truly unique product.

UNESCO Publishing

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Visitors Count! for tourism

A new publication *Visitors Count!* has been launched to help assess the value of tourism in protected areas. This set of guidelines, published by UNESCO and the German Federal Agency for Nature Conservation (BfN), puts forward a standard methodology for evaluating the impact of protected areas on the local economy.

The guidelines are designed to enable national stakeholders, managers of protected areas and researchers to count visitors and measure economic impacts consistently by using a standardized approach. Developed by a team of international experts from the International

Union for Conservation of Nature (IUCN), World Commission on Protected Areas (WCPA) and Tourism and Protected Areas Specialist Group (TAPAS Group), the guidelines will assist management authorities in fulfilling the reporting requirements of global conventions.

The guidelines stress that demonstrating the positive impact of protected areas encourages greater buy-in and ownership of conservation practices, leads to less poaching and land encroachment, and can help offset human-wildlife conflict where it occurs. Once managers know the number of visitors they host, understand their behaviour and can calculate the revenues and costs they generate, informed decisions on management plans and tourism strategies can be made.

The publication provides practical information on measuring the economic effects of tourism in protected areas, including visitor counting and economic evaluation of tourism. It shows how to conduct surveys effectively and consistently, and how best to report and communicate findings. It also explains how to use the data to develop sustainable tourism management strategies.

The publication's methodological approaches were developed and tested in different protected areas around the world, including national parks, UNESCO World Heritage properties and UNESCO Biosphere reserves.

Visitors Count! was developed with support from the Joint Research Centre of the European Commission.



Trang An Landscape Complex (Viet Nam).

© Trang An

Comoros trains young tour guides

The Comoros National Center of Documentation and Scientific Research (CNDRS), with the support of UNESCO, organized a capacity-building workshop entitled 'Training of Tour Guides for the Heritage of Comoros' on 1 and 2 September 2021.

The hybrid workshop was held online, with 25 young people (over a third of them women) attending physically. Participants represented six historical sites and different institutions on the three main islands of Comoros (Anjouan, Moheli and Grande Comore), including the Directorate General of Arts and Culture and Directorate of

Tourism. Site managers, students at the University of Comoros and civil society agents also took part.

The workshop was designed to raise awareness among local tour guides of the heritage values of the Historic Sultanates of Comoros and to share UNESCO guidance on sustainable tourism practices to better preserve and protect this heritage, including managing the flow of visitors to the islands. (The workshop followed training sessions carried out on 13 and 14 July 2021 to finalize the Sustainable Tourism Management Plan for Comoros.)

Through presentations by national experts, participants learned about the role of tour guides in Comoros, national legislation for the protection of culture, and the history of cultural sites in the country, among other topics. The potential Outstanding Universal Value of the Historic

Sultanates of Comoros, which is the focus of a World Heritage nomination file currently in preparation, was discussed. Youth participants made valuable contributions to the group debate, including a suggestion that national authorities develop criteria and a comprehensive curriculum for young people to become certified heritage tour guides in Comoros.

This workshop was one of the final activities of the project 'Capacity Building in Sustainable Tourism Development and Management for World Heritage in Comoros' funded by the Netherlands Fund-In-Trust to UNESCO.

For more information on the UNESCO World Heritage Sustainable Tourism Programme: <https://whc.unesco.org/en/tourism/>



Participants in the youth tour guide training workshop.

© CNDRS Comores

Youth Forum on sustainability

For the first time since the initiative's launch in 1995, the 2021 edition of the World Heritage Young Professionals' Forum was held virtually, in conjunction with the 44th session of the World Heritage Committee. Thirty-one young professionals from 29 countries across the globe participated in the Forum from 5 to 9 July 2021.

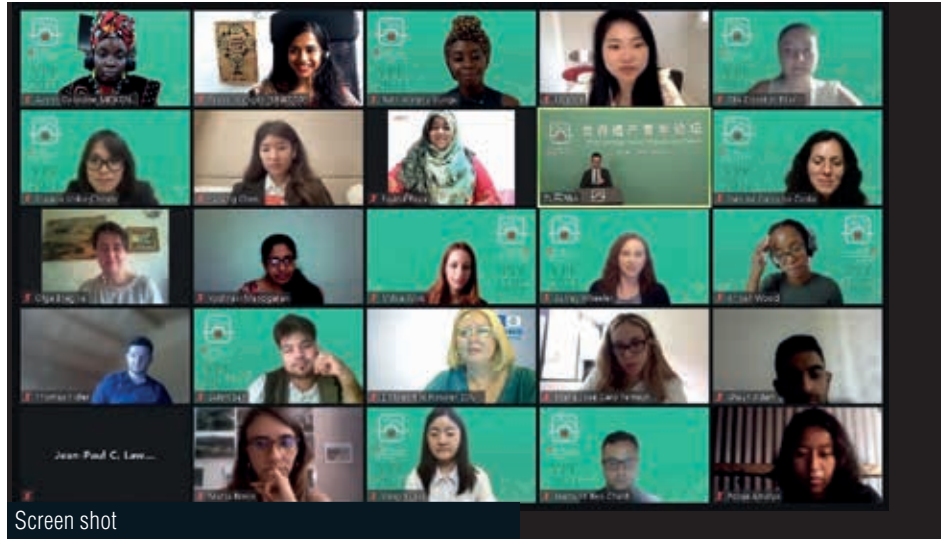
The young professionals brought diverse perspectives on heritage conservation, with local insights and on-the-ground experiences from their own countries. Over the course of five days, they explored the concepts of World Heritage governance, sustainable tourism and community empowerment through multiple discussions, lectures, workshops and virtual site visits led by experts.

The Forum was launched on a note of hope and optimism, with the young professionals sharing their messages for the 50th anniversary of the World Heritage Convention, which will be celebrated in 2022. Intense discussions on the Convention's mechanisms and strategic objectives followed, with a spotlight on initiatives and opportunities for youth. The young professionals also familiarized themselves with the 2030 Agenda and the contribution of heritage, and of culture in general, to the Sustainable Development Goals.

As tourism remains the biggest boon and bane for World Heritage, participants and experts eagerly discussed their ideas on the future of heritage tourism, particularly in the post COVID-19 context, underlining the need for sustainable solutions including digital tourism, eco-tourism and local/community-based tourism.

Recognizing the devastating effects of climate change on UNESCO World Heritage sites around the globe and across topographies, they also discussed resiliency and relief measures, and ways to raise awareness on what is clearly the need of the hour.

For more information on the Young Professionals Forum:
<https://whc.unesco.org/en/whypf2021/>



Screen shot

Tinomuda Daphne GORA
Zimbabwe

“ Democratic participation, appreciation of cultural rights and meaningful access to World Heritage Sites by local communities will foster the protection of World Heritage sites. This may culminate in the transformation of communities, peace building and sustainable development. ”

“ We the youth are the strings to our culture, and it's our responsibility to weave it towards the change we want to see! ”

Sukrit SEN
India

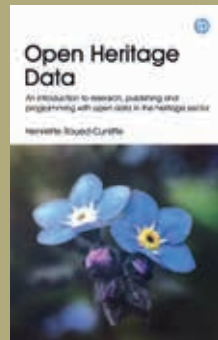


2020 ICOMOS 6 ISCs Joint Meeting Proceedings: Advancing Risk Management for the Shared Future. Conference Volume.
Bureau of Cultural Heritage,
Ministry of Culture, China
English only
<http://www.icomos.org>

These papers were presented by six ICOMOS International Scientific Committees – ICORP, ISCARSAH, ISCEAH, ICTC, ISCES+CC and CIPA – on 17 October 2020. At ICOMOS, cross-disciplinary collaborations between ICSSs have long been encouraged to promote the exchange of information and knowledge on cultural heritage conservation. This event aimed to develop clear transdisciplinary recommendations by addressing risk management in cultural heritage through this collaboration. The meeting focused on developing potential tools for further implementation of risk management in cultural heritage. The topics addressed in the papers include climate change and cultural heritage, disaster risk management and resilience, and post-disaster reconstruction and authenticity.

Open Heritage Data: An introduction to research, publishing and programming with open data in the heritage sector
Published by Facet Publishing
English only
<http://www.facetpublishing.co.uk/title.php?id=303595#.X3wmU8Iza70>

This book combines current research on open data practices in the heritage sector with technical step-by-step guides on how to work with heritage data for visualization, mapping and mining. The book begins with an overview of the extent of open heritage data, a thorough review of the current literature, and original case studies from practitioners and researchers working in the GLAM (Galleries, Libraries, Archives and Museums) sector. The second part of the book puts theory into practice with a series of guides that take the reader through creating, publishing and using and reusing open heritage data.



Trafficking Culture: New Directions in Researching the Global Market in Illicit Antiquities
Published by Routledge
English only
<https://www.routledge.com/Trafficking-Culture-New-Directions-in-Researching-the-Global-Market-in-Mackenzie-Brodie-Yates-Tsirogiannis/p/book/9781138692497>

Trafficking Culture outlines current research and thinking on the illicit market in antiquities. It moves along the global trafficking chain from 'source' to 'market', identifying the main roles and routines involved. Using original research, the authors explore the dynamics of this 'grey' market, where legal and illegal goods are mixed and conflated. Innovative forms of regulation are the most productive way to advance crime control in this field, and this book provides a series of propositions about practical crime reduction measures for the future. It will be invaluable to academics working in the fields of archaeology, criminology, art history, museum studies and heritage.

Châteaux et cités fortifiées. Colloque international Les apports des nouvelles connaissances à la notion d'authenticité
Loubatières éditions
French only
<https://www.loubatieres.fr/>

What does the notion of authenticity mean in different countries? What is the function of ancient military fortresses? Should monuments be restored? Taking examples from around the world, from Lebanon, Algeria and Greece to Japan and Korea, this publication examines the complex notion of authenticity, applied here to the field of architectural heritage, fortification and castellology. Organized in connection with the proposal of the 'Cité de Carcassonne and its mountain sentinel castles' to the UNESCO World Heritage List, the colloquium presented the preservation models implemented at other cultural properties. The text offers a comparative reading of the choices and practices made regarding exceptional heritage sites, notably through the prism of international rules of authenticity.



Governance for ecosystem-based adaptation
Alejandro Iza
IUCN Environmental Policy and Law Paper
Available in English and Spanish
<https://www.iucn.org/>

Not only must we define the measures needed to achieve ecosystem-based adaptation (EbA), we must imperatively introduce solid governance to make it effective. Such governance must be flexible, participatory and multidimensional and should include ecosystem-based approaches. The aim of this book is to examine and assess enabling and indispensable conditions for EbA governance and scaling, particularly in the Mesoamerican region, with recommendations for implementation in this region and others with similar characteristics.

Solutions for development challenges: insights from protected and conserved areas
Marie Fischborn, Trevor Sandwith
IUCN, Global Protected and Conserved Areas Programme (GPCAP)
English only
<https://www.iucn.org/>

Besides contributing to biodiversity conservation, protected areas are recognized as important sources of a wide range of benefits that humans gain from intact, natural ecosystems. Well-governed and well-managed protected areas are among the most effective tools for maintaining ecosystems and their associated ecosystem services. This report explores how protected areas contribute to achieving the SDGs by analysing case studies from PANORAMA – Solutions for a Healthy Planet, an initiative of IUCN and several partners that aims to provide knowledge and facilitate exchange on successful approaches in conservation and sustainable development.



Emotional Heritage: Visitor Engagement at Museums and Heritage Sites
Laurajane Smith
Routledge
English only
<https://www.routledge.com/>

Emotional Heritage brings to the fore the issues of affect and power in the theorization of heritage, while highlighting the affective and political consequences of heritage-making. Drawing on interviews with visitors to museums and heritage sites in the United States, Australia and England, Smith argues that gaining insight into how visitors use such sites enables us to understand the impact and consequences of professional heritage and museological practices. Academics, students and practitioners interested in theories of power and affect in museums and heritage sites will find this book to be an invaluable resource.

Culture in Crisis: Policy guide for a resilient creative sector
UNESCO Publishing
Available for download in English, French, Spanish and Chinese
<https://en.unesco.org/creativity/publications/culture-crisis-policy-guide-resilient-creative>

The COVID-19 pandemic and the crisis it created have had a devastating effect on the cultural and creative industries, revealing and magnifying their pre-existing volatility. Drawing on policies and measures adopted during the crisis, this practical guide highlights emergency measures that have been deemed effective and beneficial; assesses emerging trends; identifies new and existing gaps; and offers practical advice to help policy-makers position the cultural and creative industries in social and economic recovery plans. *Culture in Crisis* offers advice on how to respond to the most pressing needs, how to induce the structural changes needed to strengthen the resilience of the cultural and creative industries; and how to prepare for the 'new normal'.

9 to 24 November

41st Session of the General Conference

UNESCO Headquarters, Paris, France

Information: <https://en.unesco.org/generalconference/41>

11 to 22 November.

Award Ceremony of the UNESCO-Greece Melina Mercouri International Prize for the Safeguarding and Management of Cultural Landscapes

UNESCO Headquarters, Paris, France

Information: <https://whc.unesco.org/en/culturallandscapesprize/>

25 to 26 November

23rd Session of the General Assembly of States Parties to the World Heritage Convention

UNESCO Headquarters, Paris, France

Information: <http://whc.unesco.org>

29 November

14th Meeting of the High Contracting Parties to The Hague Convention

UNESCO Headquarters, Paris, France

Information: <https://events.unesco.org/event?id=1797882452&lang=1033>

30 November to 1 December

9th Meeting of the Parties to the Second Protocol of 1999 to the Hague Convention

UNESCO Headquarters, Paris, France

Information: <https://events.unesco.org/event?id=3119511530&lang=1033>

2 to 3 December

16th Meeting of the Committee for Protection of Cultural Property in the Event of Armed Conflict

UNESCO Headquarters, Paris, France

Information: <https://events.unesco.org/event?id=1033577996&lang=1033>

13 to 18 December

16th Session of the Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage

UNESCO Headquarters, Paris, France

Information: <https://ich.unesco.org/en/16com>

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Mathildenhöhe Darmstadt

Inscribed on the World Heritage List in 2021

The building ensemble on the Mathildenhöhe Darmstadt (Germany) (illustration 1) embodies, like no other, the development of modern architecture and landscape design, from the Arts-and-Crafts movement and Art Nouveau of the 19th century to the International Style of the 20th century. The Mathildenhöhe's unique ensemble of progressive architecture and imaginative landscape design was created by members of the Darmstadt Artists' Colony. This innovative group of artists, architects, and designers was founded by Grand Duke Ernst Ludwig of Hesse and by Rhine in 1899. Inspired by numerous life reform movements, the artists shared a wish to provide high quality living and work environments to all classes. In four ground breaking building exhibitions on the Mathildenhöhe Darmstadt in 1901, 1904, 1908, and 1914, featuring architecture as well as fine and applied arts, the Mathildenhöhe was shaped as it can be seen today. In contrast to earlier world fairs, the members of the artists' colony built living environments not only for the exhibition, but also to be lived in permanently.

In the center of the first exhibition, in the year 1901, stood the Ernst Ludwig House built by Joseph Maria Olbrich (illustration 2). This wide two-story building, today home to the Artists' Colony Museum, features a bold juxtaposition of a highly ornamented omega portal, alluding to the 19th century, with a surprisingly modernistic white exterior introducing the 20th century. Here, the first seven members of the Darmstadt Artists' Colony worked, from 1901 on, side by side in open studios, painting, sculpting, and designing applied arts products. All these works were then on display during the exhibition of 1901 in newly constructed and fully furnished houses grouped around the Ernst Ludwig House.

In the first exhibition, the only building not designed by Olbrich was the house of Peter Behrens. His artistic success and experience in Darmstadt formed the foundation for his later work giving birth to our understanding of corporate design and his teaching of such exceptional talents as Walter Gropius, Ludwig Mies van der Rohe, Adolf Meyer, and Le Corbusier.

In the following exhibitions, central landmarks of Darmstadt were constructed: the architecturally innovative and influential Wedding Tower from 1908, as well as the Plane Tree Grove featuring ancient Egyptian texts as well as verses from the Bhagavad Gita. Overall, with its succession of fully furnished buildings in a designed landscape, featuring global influences, the Mathildenhöhe Darmstadt exemplifies the development in modernism from solitary structures to forms of social housing as well as aesthetically designed apartments.

Today, the Mathildenhöhe Darmstadt stands as a focal point of early modernist movements and stands as the prototype of modern building exhibitions. Situated at the city's highest point as an 'acropolis', as it was described in 1908, the ensemble of the Mathildenhöhe Darmstadt, until today, fulfils its role as vibrant international cultural site and centre of the city's urban identity.



1. Mathildenhöhe Darmstadt (Photo: Nikolaus Heiss, Darmstadt)



2. Ernst Ludwig House, Artists' Colony Museum, view from the South, Architect: Joseph Maria Olbrich, 1900/1901 (Photo: Bildarchiv Foto Marburg / Institut Mathildenhöhe Darmstadt / Norbert Latocha)

www.mathildenhoehe-darmstadt.de
www.mathildenhoehe.eu
www.darmstadt.de



Wissenschaftsstadt
Darmstadt





Cordouan Lighthouse (France).

© DRAC Nouvelle-Aquitaine

In Focus: New World Heritage sites 2020-2021

Our next issue is dedicated to the latest additions to the World Heritage List, spectacular properties ranging from Gabon's Ivindo National Park and Iran's Trans-Iranian Railway to Thailand's Kaeng Krachan Forest Complex and France's Cordouan Lighthouse.

Because of Covid-19, the 2021 selection process required some innovation. For its 44th extended session from 16 to 31 July, the World Heritage Committee met for the first time in hybrid format. Hosted by Fuzhou, China, the event was held online, with 138 countries registered and some 1,400 participants connecting from around the world.

During the meeting, the Committee examined not only World Heritage site nominations submitted in 2021, but also those from 2020 – when the pandemic caused the session to be postponed. Finally, 34 new sites, 29 cultural and five natural, were inscribed; three previously listed properties were extended. This brings the total number of sites now on UNESCO's World Heritage List to 1,154.

Presiding as Chairperson of this novel 44th session was H.E. Mr Tian Xuejun, Vice Minister of Education and Chairperson



Amami-Oshima Island, Tokunoshima Island, Northern part of Okinawa Island, and Iriomote Island (Japan).

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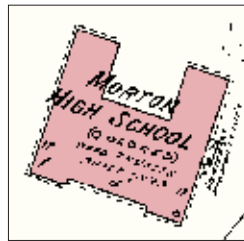
of the National Commission of the People's Republic of China for UNESCO.

The 45th session of the World Heritage Committee is already scheduled to take place in Kazan, Russian Federation from 19 to 30 June 2022, chaired by H.E. Mr Alexander Kuznetsov, Permanent Delegate of the Russian Federation to UNESCO. 🌐

TOPOGRAPHIES OF RACE

Challenging the Color Line in the U.S. South

When Barbara Johns led the student walkout at Robert Russa Moton High School in 1951, it wasn't just to protest an inferior education at the dawn of the space age. It wasn't just because "Colored" Moton had no library, science lab, cafeteria or gymnasium like the "whites-only" high school. Nor was it simply rural Farmville, Virginia's solution to postwar overcrowding, whereby authorities hastily constructed tar paper classrooms for the 477 Black youths packed in a space designed for 180 while white students matriculated in a new brick building. No. It was the whole landscape of racial segregation that these African Americans rejected. Their lawsuit — *Brown v. Board of Education* — led the U.S. Supreme



Court to declare the "separate but equal" legal foundation of white supremacy unconstitutional. In 1903, W.E.B. Du Bois anticipated "the problem of the 20th century is the problem of the color line — the relation of the darker to the lighter races of men in Asia and Africa, in America and the islands of the sea." He witnessed the erection of racial barriers by European and American powers and understood the oppressed would rebel against the topographies of race, be they colonialism, segregation or apartheid. "It felt like reaching for the moon," Johns said, remembering the protest that shook a nation and moved the world by striking down the color line across the built environment.

Details are available at CivilRightsTrail.com.

