Unite for nature

ISSUE 1
The official magazine for IUCN Members

Thinking big
How to scale up Nature-based Solutions for maximum impact

CONSERVATION TOOLS
Platforms to collaborate & measure progress

TECHNOLOGY
Can AI help us protect nature?

MEMBER PROFILES
Success stories from across the Union
UPFRONT
2 NEWS
IUCN awards and honours, plus a new virtual community for Members
6 A WORLD OF GOOD NEWS
Stories of positive change from around the globe
8 EXPERT ANALYSIS
Head of Ocean, Minna Epps, on the next steps for the new High Seas Treaty

REGULARS
10 MEMBER PROFILES
Conservation with Parks Victoria, Australia, and protecting Hoolock gibbons with Cloud Mountain Conservation in China
22 FURTHER MEMBER PROFILES
Protecting Earth’s geological diversity, and spearfishing with Parks Canada
24 SPOTLIGHT ON: CFN
A guide to the IUCN conservation tool Contributions for Nature
28 EVENTS LISTINGS
Global events for your diary in 2023

FEATURES
12 COMPUTER CONSERVATION
How conservationists are deploying AI and machine learning to protect nature
16 UNLEASHING NATURE’S POTENTIAL
Developing Nature-based Solutions big enough to have a global impact
20 INTERVIEW
Ugandan activist Vanessa Nakate on amplifying African climate stories
Welcome to Unite for Nature

We are thrilled to introduce you to a new magazine for IUCN Members. Its name is Unite for Nature in recognition of the need to work together to create a just world that values and conserves nature. Throughout the pages we will show you past successes, current activities and future possibilities for conservation, from across the diverse and enormous environmental network that makes up the Union of the IUCN.

We are launching the magazine to show how important IUCN Members are to the Union. By providing Members with a platform to share their conservation stories we will further spread good practices and achievements across the conservation sector. The magazine will also help nurture a common sense of purpose between Members, Commissions and Secretariat.

The magazine, which will be published twice a year in English, French and Spanish, will also provide benefits for our Members. It will inform you about IUCN conservation tools and the latest trends in conservation. It will help build your global influence by showing how you can shape the conservation agenda through IUCN, and inform you of opportunities to get involved in conservation projects on the ground.

As we look around the world, seeing the positive impact of the work of IUCN, its Members, its Commissions and its Regional and National Committees, we feel honoured to be part of the International Union for Conservation of Nature. We hope you enjoy reading about these accomplishments in this current and future issues!

Best wishes,

Razan Al Mubarak, President of IUCN; and
Grethel Aguilar, Acting Director General of IUCN

Mangroves as a Nature-based Solution, page 16
CONSERVATIONISTS RECOGNISED WITH AWARDS

Three outstanding conservationists were honoured by IUCN at the 5th International Marine Protected Area Congress (IMPACS).

Dr Eleanor Sterling, Director of the Hawaii Institute of Marine Biology, who spent more than two decades leading the American Museum of Natural History’s Centre for Biodiversity and Conservation, received the Fred Packard Award in recognition of more than 30 years’ work in conservation.

Lawyer Dr Kristina Gjerde, Senior High Seas Advisor to the IUCN Secretariat, also received the Fred Packard Award, for her efforts to secure legal protections for the ocean beyond national jurisdiction.

And Dr María del Carmen García Rivas, a researcher and ranger with 25 years’ experience working with communities to protect wildlife and restore ecosystems, received the Kenton R Miller Award. This recognised her leadership of the Hurricane Insurance Project in Puerto Morelos National Park, and being a role model for rangers and conservation professionals.

IUCN supports new work to address gender-based violence

IUCN is supporting five new projects to address gender-based violence related to climate change and environmental degradation.

Gender-based violence is used around the world to assert control over land and natural resources, and is often exacerbated in regions experiencing environmental degradation and biodiversity loss caused by climate change and extractive industries.


The RISE grants challenge is the first fund of its kind and is a direct response to research by IUCN that found that the potential for violence towards women and girls is heightened by natural resource scarcity, environmental stressors and threats.

A new call for proposals for RISE 2023 is open. Details can be found at genderandenvironment.org/RISE-challenge
Leaders Forum to put biodiversity framework in action

This October, the second IUCN Leaders Forum will be held in Geneva, Switzerland, with a focus on putting the Global Biodiversity Framework, agreed in Montreal last year, into action.

The annual Leaders Forum began last year as way to convene global leaders more frequently on key topics of relevance to the international agenda. The event provides an opportunity for IUCN Members to collaborate with leaders and changemakers from government, civil society, indigenous groups and the private sector to strengthen collective action for nature and climate.

Under the theme ‘Global Goals for Nature: Tracking Progress, Financing Success’, the Leaders Forum 2023 will provide a space for dialogue on the implementation of global biodiversity goals at local, national and regional levels. There will be discussions around measuring, monitoring and reporting, as well as on critical questions around the financing of global goals for nature.

IUCN offers discounted registration rates for youth and young professionals, IUCN Members and certain other organisations, as well as participants from low- and middle-income countries.

For more information, visit www.iucn.org/leadersforum

Virtual conservation community launched

IUCN has launched a new virtual community for its constituents to network and collaborate, access and share resources, and organise or participate in events.

IUCN Engage, launched in April, is a user-friendly platform that will allow Members, Secretariat and expert Commissions to come together, share ideas and work towards common goals. It is hoped the platform will play a key role in mobilising the Union to achieve the aspirational targets of Nature 2030.

Users will be able to join groups, participate in discussions, collaborate on documents, promote opportunities, and find the latest news and conservation tools from IUCN. Each Commission and Commission group has a dedicated community where members can share their latest work and organise events.

To access IUCN Engage, log in using your IUCN account credentials. Under the ‘About’ tab, there is a section to help users understand the platform’s features (‘Welcome to IUCN Engage’) and users are encouraged to add to their profile.

To join the conversation on IUCN Engage, visit engage.iucn.org

IUCN calls for continuation of deep-sea mining ban

Former IUCN Director General Bruno Oberle has urged members of the International Seabed Authority (ISA) to uphold the global moratorium on deep-sea mining. The second part of the 28th Session of the International Seabed Authority is due to take place in July, where it is anticipated that the organisation may authorise mining activities on the sea bed.

At the 2021 IUCN Congress in Marseille, IUCN Members voted to adopt Resolution 122, calling for a moratorium on deep-sea mining unless and until appropriate assessments, consultations and protections have been developed.

ISA may authorise deep-sea mining

PHOTO: SHUTTERSTOCK.COM/NA
Negotiations underway on global plastics treaty

IUCN has been supporting negotiations towards the first legally binding global plastics treaty. The second meeting of the Intergovernmental Negotiating Committee on Plastic Pollution (INC-2) took place in Paris from 29 May to 2 June. IUCN experts had provided parties with legal, scientific and technical advice.

Guided by IUCN Resolutions 019 and 069 from the 2021 Congress, the Union is calling on parties to agree objectives and actions to stop all plastic pollution by 2030, and end pollution from single-use plastics by 2025. Dr Karine Siegwart, IUCN Senior Policy Advisor, said an agreement to end all plastic pollution by 2030 will be a critical step towards achieving the global biodiversity and sustainable development goals, as well as the commitments of the High Seas Treaty.

IUCN LAUNCHES NEW GROUP TO SUPPORT CONSERVATION BIOBANKS

A new specialist group is aiming to establish a global network of biobanking for conservation. With abundances of wildlife populations declining rapidly, the preservation of genetic diversity through biobanking is increasingly necessary to understand, characterise and conserve biodiversity.

The newly formed Animal Biobanking for Conservation Specialist Group (ABC SG), part of the IUCN Species Survival Commission, is helping organise a worldwide effort to collect, bank and share genetic resources as a key tenet of current and future conservation efforts. The ABC SG is co-chaired by Oliver Ryder (San Diego Zoo Wildlife Alliance) and Boripat Siriaroonrat (Mahidol University, Thailand). Ryder said that the new group’s vision is to “create a global network for sharing information and expertise to establish facilities that cryopreserve viable cells and tissues of animals”.

One of its first steps will be to complete a ‘horizon scan’ to determine who is currently banking viable materials and which species have been banked so far. Surveying the biobanking landscape is also necessary to identify gaps in participant and stakeholder representation, and to therefore ensure that all ABC SG efforts are inclusive, just and equitable.

Former Director General honoured

Former IUCN Director General, Dr Bruno Oberle, has been awarded France’s highest order of merit in recognition of his commitment to nature conservation.

Dr Oberle, who stepped down at the end of June 2023, was appointed Chevalier de l’ordre national de la Legion d’Honneur, awarded by the President to honour those who have delivered exceptional service. Dr Oberle received the honour for more than 40 years’ work at the interface between environmental policy, economic development and social balance, and for overseeing IUCN’s efforts to mobilise and support the Union’s State Members.

IUCN names new Acting Director General

Dr Grethel Aguilar has been appointed IUCN Acting Director General and assumed the role as of 1 July, following the departure of Dr Bruno Oberle.

Previously, as IUCN Deputy Director General, she was responsible for regions and outposted offices. Dr Aguilar comes with over 20 years of conservation experience, and is particularly passionate about environmental law, water governance, and the rights of indigenous peoples and local communities.

It was earlier mutually agreed that Dr Oberle would step down as Director General at the end of June 2023. IUCN President Razan Al Mubarak thanked him for his vital contributions to IUCN since July 2020, such as executing a successful IUCN Congress in Marseille in 2021, and restructuring and modernising the Union’s Secretariat.

Dr Aguilar will lead IUCN during this transition process. The IUCN Council has set up a candidate search committee and expects to appoint a new Director General by the fourth quarter of 2023.
Celebrating 75 years of IUCN

1958
IUCN’s World Commission on Protected Areas is established.

1960
IUCN’s World Commission on Environmental Law is established.

1961
The World Wildlife Fund (WWF) is created as a complementary organisation.

1964
The IUCN Red List of Threatened Species™ is established as the leading source on extinction risk.

1966
The Expert Commission on Environmental, Economic and Social Policy is established.

1978
IUCN outlines the first Protected Area categories to enable comparative analysis of the world’s protected areas.

1991
Publication of Caring for the Earth guides creation of the Rio Conventions on biodiversity (CBD).

1993
IUCN’s first Regional Committee is founded in South America. IUCN now has over 60 National and Regional Committees globally.

1996
The first IUCN World Conservation Congress is held in Montreal.

1999
The UN General Assembly grants IUCN official observer status.

2003
The IUCN Business and Biodiversity Programme is launched to recognise the role of the private sector.

2008
Work begins on the development of the IUCN Green List of protected areas that meet global standards for nature conservation.

2011
IUCN and the German Ministry of the Environment launch the Bonn Challenge.

2014
IUCN’s Red List of Ecosystems becomes the global standard for assessing ecosystems.

2016
The Union creates a new membership category for indigenous peoples’ organisations.

2021
Nature 2030 is launched to contribute to the UN’s Sustainable Development Goals.

2022
IUCN launches the Leaders Forum, a series of events to convene global leaders on key topics.

2023
IUCN celebrates 75 years. The Union is the world’s largest and most diverse environmental network, with over 1,400 Member organisations, over 18,000 international experts, and offices in over 50 countries.

5 OCT, 1948
The International Union for the Protection of Nature (IUPN) is established in Fontainebleau, France.

Above: The meeting to establish IUPN in 1948
A world of good news

USA
Climate change
On 29 March 2023, the UN General Assembly adopted by consensus a resolution requesting an advisory opinion from the International Court of Justice on the obligations of States to combat climate change. Initiated by the Government of Vanuatu, the resolution was co-sponsored by more than 130 states.

COSTA RICA
Sharks
Thanks to an IUCN Save our Species project, Costa Rica has declared Cocos Island National Park a shark sanctuary and agreed to triple an existing shark sanctuary to 15,000 hectares.

GALÁPAGOS
Iguanas
Scientists have discovered pink iguana hatchlings and juveniles for the first time since the reptile was first identified in the Galápagos Islands in 2009. The search was part of Iniciativa Galápagos, a partnership between the Galápagos National Park Directorate and IUCN Member Galápagos Conservancy.

GREECE
Key Biodiversity Areas
Greece has become the first European country to recognise Key Biodiversity Areas (KBA) in its laws and policies. The Natural Environment and Climate Change Agency of Greece (NECCA) will be responsible for the collection and management of KBA data.
ALBANIA

Vjosa River
The Vjosa River in Albania has been made Europe’s first Wild River National Park. A total of 400km and almost 13,000 hectares in the region will be protected from development and artificial barriers. This project was a collaboration between the Albanian Government, NGOs from Save the Blue Heart of Europe campaign, individual experts, IUCN and outdoor clothing company Patagonia.

CENTRAL ASIA

Zoonotic diseases
Five Central Asian countries have joined an IUCN-led project to reduce the risk of zoonotic diseases by expanding and improving natural areas and landscapes. Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan confirmed their interest in coordinating efforts and applying a One Health approach.

JAPAN

Biodiversity loss
The Environment and Climate Ministers of the G7 countries agreed actions to reverse biodiversity loss. The agreement commits to the swift and effective implementation of the Kunming-Montreal Global Biodiversity Framework, agreed in 2022.

NEPAL

Tigers
Nepal has become the first country to double its number of tigers in the wild. “The joint effort of government, all conservation partners and local communities has resulted in this success,” said Dr Ram Chandra Kandel, Director General of the Nepalese Department of National Parks and Wildlife Conservation, a member of IUCN.

RWANDA

Landslides, floods and erosions
A land restoration project completed by IUCN this year has helped ensure that the people living in the Sebeya catchment, Rwanda, are no longer regularly impacted by landslides, floods and erosions.

MALDIVES

Coral reef health
A special closing ceremony was held in Malé, capital of the Maldives, to celebrate the successful conclusion of nine years of IUCN-backed work to improve coral reef health and resiliency to climate change in the region.

AUSTRALIA

Invasive special protections
The state of Victoria, Australia, is set to open its largest conservation sanctuary. IUCN member Parks Victoria is turning Wilsons Promontory National Park into a 50,000 hectare ‘climate change safe haven’, with ramped up conservation and invasive species protections.
A legally binding agreement – but what next?

Minna Epps, head of IUCN Ocean, takes us behind the scenes of the historic UN High Seas Treaty, and explains what needs to happen next for it to be put into action.

In March, the President of the Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ) announced that delegates had reached a legally-binding agreement to help protect the high seas. The text, officially the BBNJ Agreement, but known as the High Seas Treaty, is crucial for enforcing the pledge made by countries at last year’s COP15 to protect a third of the sea and land by 2030. Just 1% of these parts of the sea are currently protected, despite making up two-thirds of the world’s oceans, and those often lack effective management.

IUCN has been working to protect biodiversity in the high seas for over two decades. In recent years, the Union has been providing independent scientific, technical and legal advice to the state delegates of the BBNJ. We’ve been hosting expert workshops and presenting case studies on establishing marine protected areas (MPAs). During the pandemic we held remote events to keep the dialogue going between UN sessions, as well as other capacity-building activities targeting the Global South.

In March, I headed IUCN’s delegation to the BBNJ talks in New York. We were there for two weeks, listening and providing independent advice, and holding events for delegates to come together. The conference was due to finish on Friday at 6pm, but we all knew that these things can drag on into the early hours.

As delegates negotiated late into the night, it became utterly surreal, with people scattered everywhere, trying to get some rest. At one point I had a US Secretary of State sleeping on a chair next to me. A colleague from IUCN Oceania, from Fiji, bought in a cooler of Kava, a muddy-looking drink which is a sedative, and was serving that in the UN lobby.

The conference was presided over by René Lee, Singapore’s Ambassador for Oceans and Law of the Sea Issues. It was she that memorably announced that “the ship has reached the shore” when the Treaty was finally agreed late on Saturday evening. One thing I found interesting was that, as a woman, Lee brought a different, inclusive and very open style of leadership – and in fact had been criticised earlier in the conference for being too inclusive. Being inclusive is much harder, but she did it and she did it her way.

 PACKAGE DEAL

The BBNJ Agreement is a package deal, committing to the development of an area-based management tool which includes marine protected areas and environmental impact assessments, but also fair access and benefit sharing of marine genetic resources in the high seas, and capacity building to support these. Before the Treaty, management and governance of all this was fragmented.

There are other things the Treaty achieved that didn’t get widespread media attention. The text now includes mention...
of not just biodiversity but climate change, ocean acidification and plastic pollution. They also changed ‘mankind’ to ‘humankind’, which is important in terms of gender-neutral language.

The biggest win for IUCN is the fact you will now be able to establish marine protected areas without the need for consensus. One country or one vote can no longer block MPAs from going forward, which is what we’ve seen in the Southern Ocean. There may be potential loopholes, but for now we want to remain positive, to ride this wave, so countries support the ratification and rapid entry into force.

NEXT STEPS
Although previous agreements on the sea have taken years to formally adopt, our target should be to make the Treaty enter into force at the third UN Oceans Conference in Nice, France, in June 2025. It can be done; the Convention on Biological Diversity was adopted in 18 months; the Paris Agreement in under a year.

We need to keep the pressure on and the momentum up to ensure the Treaty is opened up for signature and then enters into force quickly. A lot of this comes down to equity. It’s about access to scientific data and assessments that are not skewed, and ensuring the burden for monitoring, control and surveillance does not fall unfairly on countries in the Global South.

We need to think how we can use big data and AI for high seas protection, and make sure everyone has the skills to do that.

It was agreed there would be mandatory contributions from states, and there is a multilateral fund available to support ratification. But it would be great to follow the Treaty with a donor summit or donor pledge for the high seas. IUCN has been working on the idea of a Global Ocean Bank, similar to the Global Climate Fund and Global Biodiversity Fund.

We want people in each IUCN region to become ambassadors for this Treaty, to help drive it forward. So whether you are an expert on environmental impact assessment, or work on a particular specialist taskforce or species, think about how to integrate and link your work to the high seas and build capacity in that area. For those Members who work in or closely with universities, it’s about educating the next cohort of conservation or environmental experts to be equipped to protect the high seas.

IUCN has an important role to play in the interim, after the agreement but before states have set up the institutional mechanisms to implement it. We can act as intermediaries for the various technical and funding structures and committees needed. Several people from the IUCN delegation co-authored a paper in *Nature* called *Getting Beyond Yes*, detailing the steps to fast-tracking implementation.

THE PATH AHEAD
There are many things to figure out. There will need to be various committees, scientific and financial, and we’ll need to assess and fill gaps in capacity. The Treaty also needs to strengthen, not undermine, other frameworks that protect the sea.

This all also needs to be futureproof, and it’s difficult to anticipate what the future looks like - there will possibly be novel activities in novel ecosystems.

The main risk is that the Treaty doesn’t enter into force quickly. There’s still a lot of work to be done, but the important thing is to stay positive. This is welcome news for our oceans, and a great example and model of how we work together.

Relevant IUCN Resolutions
1) WCC 2020 Res 128
2) WCC 2016 Res 047
3) WCC 2016 Res 050

“THE MAIN RISK IS THAT THE TREATY DOESN’T ENTER INTO FORCE QUICKLY”
From the Alps to the outback

Parks Victoria on its latest conservation work, including the creation of the Australian state’s largest conservation sanctuary

**GOVERNMENT AGENCY**

Parks Victoria is the national park management agency for the state of Victoria in Australia. Re-established under the Parks Victoria Act 2018 with clear objectives and functions, we now act as a strengthened park management agency for the community and the environment. We care for 18% of Victoria’s landmass (41 million hectares), managing this estate in partnership with Traditional Owners, government and non-government organisations, park neighbours, friends’ groups (volunteers) and the broader community.

**What habitats, ecosystems and biomes do you work with?**

We manage a diverse network of parks, home to over 4,300 native plant species and 948 native animal species. The parks include some of Victoria’s largest and most undisturbed ecosystems – landscapes like the Alps, the Mallee, grasslands, inland waters and wetlands. It covers Victoria’s marine national parks and sanctuaries that protect a wide array of marine life. Within this network, there are thousands of Aboriginal and post-European cultural and heritage sites, a range of historic gardens, several local ports and major rivers, many piers and around 70% of Victoria’s coastline. Parks Victoria is also the local port manager for Port Phillip Bay, Western Port and Port Campbell, and the waterway manager for the Yarra and Maribyrnong rivers.

**What are your most pressing conservation challenges?**

Climate change impacts are having huge ramifications for conservation management, particularly with regards to the changes to habitats of threatened species. Other conservation challenges for Parks Victoria include dealing with the frequency and intensity of wild fires and storms, eradicating invasive/introduced species (pest plant and animals), and management of illegal activities, such as the collection of firewood in conservation areas. The other challenge is people's connection with nature, and the need for more engagement with communities and advocacy of parks by the public.

**Tell us about some of your latest projects or conservation successes.**

In 2002, Victoria established one of the world’s first representative systems of fully protected national parks and sanctuaries, 13 large marine national parks and 11 smaller marine sanctuaries. Two decades on, with help from researchers at Deakin University, we’ve conducted a stocktake of marine protected areas and found that overall they are having a positive impact on biodiversity.

At the southernmost tip of the Australian mainland, Wilsons Promontory National Park is set to become a 50,000 hectare climate change safe haven, where Victoria’s rich wildlife and habitats are freed from the pressures of introduced predators and pests. Ramp-up conservation programmes, complemented by an exclusion fence designed to prevent introduced animals from entering the national park, will transform it into Victoria’s largest conservation sanctuary.

**Which of IUCN services, tools or knowledge products have been important to your work?**

Parks Victoria is a long-term member of IUCN and engages in many activities and processes as part of its membership, such as the IUCN Green List and IUCN’s Best Practice Guidelines to inform our management practices and approaches. We support staff membership of IUCN’s various Commissions; have representation on the Australian Committee for IUCN; attend events, including the World Protected Area Leaders Forum and World Conservation Congress; participate in the Members Assembly; provide content to the Panorama conservation tool; and submit nominations for the International Ranger Awards – with two honourable mentions for staff in 2021.

**Why is it important to be an IUCN Member?**

IUCN builds the capacity of our staff and informs our management approaches and practices. The convening power of IUCN is of immense value – including engagement across sectors, access to high-level events to profile our work and learn from others, a platform for discussion and debate, as well as access to a network of global experts.

Find out more at [www.parks.vic.gov.au](http://www.parks.vic.gov.au)
Cloud Mountain Conservation
Helping the Lisu ethnic community protect China’s Hoolock gibbons

Cloud Mountain Conservation was established in 2015 by a group of enthusiastic professional conservationists, scientists and photographers. It is committed to protecting the endangered flagship species and biodiversity of Southwest China through scientific research, public outreach and systematic surveys.

There are fewer than 150 Hoolock gibbons (Hoolock tianxing) left in the wild in China. Half of this small population is distributed around communities outside nature reserves in Sudan Lisu Ethnic Township and Zhina Township in Yingjiang County. These low-elevation habitats are significant for gibbon conservation. Therefore, it is imperative to promote the participation of the Lisu ethnic community in gibbon conservation.

Our programme integrates gender perspectives and cultural sensitivity into conservation action.
In Lisu ethnic communities, women’s participation in public affairs is lower than men’s. Their contribution to their families and communities is wildly underestimated. We try to understand women’s life experiences, remind women of their importance in gibbon conservation, and encourage them to join in the decision-making process.

A three-year action agreement for the restoration of gibbon habitats has been formulated.
During several years of cooperation, young women have become our core partners. They are more willing to participate in public affairs decision-making and take over much of the work, planting local pioneer tree species. We are building a community conserved area in Yingjiang, and our goal is to achieve a net increase in the Hoolock gibbon’s population size in the focal area by 2033. Our current programmes include habitat connectivity enhancement, innovative monitoring technique exploration, multimedia publicity for fundraising, and partner-bonding and science communication.

We support local communities to regenerate degraded lands by nursing and transplanting seedlings of local pioneer tree species.
We are assessing sites for artificial canopy bridges to connect forest gaps, created mainly by cultivation of the spice tsaoko. Last year, we launched an arboreal camera-trapping programme to collect more data on the diet, seasonal home ranges and population dynamics of unhabituated gibbons, as well as to conduct a baseline survey of other arboreal animals. Local Lisu people’s ecological knowledge (i.e. on phenology and arboreal animal tracing), and their tree-climbing skills, have contributed largely to this programme. Data collected will fill knowledge gaps and instruct conservation priorities in this region.

In terms of publicity, we amplify the voices of local Lisu communities – especially the women.
We record traditional culture and customs in the hope that they could value their self and cultural identities, and feel motivated to preserve their forest ‘backyard’ and gibbon neighbours. We also actively seek cross-disciplinary collaboration opportunities to get more audiences to care about Hoolock gibbons, and to participate in current and future conservation work.

“Our goal is to achieve a net increase in the Hoolock gibbon’s population size”
COMPUTER CONSERVATION

AI and machine learning is helping to advance conservation efforts in many amazing ways. Sam Perrin and Tom Ireland explore the possibilities and limitations of this fast-moving technology.
As anyone who has interacted with the chatbot ChatGPT will know, artificial intelligence (AI) is developing at a remarkable speed. In just a few months the program has gone from a curiously talkative search engine to a powerful tool that can research, translate, code, problem-solve and even start an online business for you, with just a few simple prompts.

With humanity facing an urgent need for effective and affordable action to protect the natural world, many organisations are now turning to AI (and related technologies such as machine and deep learning) to refine and advance their conservation efforts.

The technology has initially found use in what is essentially very fast pattern-recognition, helping to identify glimpses of rare species hidden within millions of images or hours of video, or helping to identify early signs of environmental problems over vast areas. In China, satellite imaging has been combined with AI technology to detect forest fires earlier and automatically alert local management, cutting serious fires down to a third of what they were previously. In Wisconsin, USA, AI-driven camera systems have been installed on windfarms to instantaneously recognise threatened species of birds flying towards them and slow the turbines. And Kafue National Park, Zambia, has installed a 39km surveillance line, fitted with infra-red cameras and powered by intelligent technology that can identify poachers and alert local rangers.

**CAPTAIN OF CONSERVATION**

More advanced applications of AI involve algorithms that can be trained to model large-scale conservation actions or suggest areas to prioritise. Several AI tools are now available, including Zonation, **CAPTAIN** and **MARXAN**, which can help conservationists identify regions most in need of biodiversity protection, or where action could have the most impact.

**CAPTAIN** (Conservation Area Prioritization Through Artificial Intelligence) feeds biodiversity data, conservation budgets, climate change models and human pressures into a neural network (a series of algorithms that aims to mimic the way the human brain operates). The program quantifies the trade-offs between the costs and benefits of area and biodiversity protection, exploring multiple biodiversity metrics.

**CAPTAIN** essentially plays a game in an artificial, simulated world, aiming to save as many species as possible from
extinction in various scenarios. Each time, the software learns how to best place protected areas in its simulated world.

Powerful platforms like Nature Metrics are helping organisations pull together information from things like environmental DNA to build a picture of the composition of an ecosystem and how it is changing. The Silicon Valley-backed start-up Basecamp Research is using a vast AI database of DNA sequences from around the world, to try to understand what the world’s unstudied proteins do. They hope this will help countries value the biodiversity within their biomes.

**PREDICTING THREATS**

Other applications can take data from existing or past conservation work and use it to make predictions about habitats or species that have not yet been studied or assessed. For example, scientists at London’s Kew Gardens are testing if machine learning can take existing data on species extinction risk (such as IUCN’s Red List of Threatened Species) to predict which of their plants are most threatened.

Dr Binbin Li, of Duke Kunshan University in North Carolina, USA, is currently using AI to track species throughout China, including charismatic and rare species such as takins, musk deer and giant pandas. “It’s so exciting,” she says. “We’re just scratching the surface at the moment, using AI to discern species from images. But in an ideal world we’ll be able to identify species from sound alone – even if they don’t show up on camera traps – and start to get an idea of population size.”

A key benefit of using these rapidly-advancing self-learning technologies for conservation is time. In a recent lecture on AI by the World Wide Fund for Nature, Professor Bistra Dilkina described sets of data that would previously have required well over 10 years of computing time to process. Yet with a machine-learning model that processed data and trained itself to recognise patterns on the go, her team was able to quickly produce predictions for bird migrations on a continental scale.

In the project from Kew Gardens mentioned above, Kew’s species risk software took just one day to model the threats faced by 47,659 plant species. Systems that can plough through data – and learn to do it more efficiently at the same time – should in theory free up more of conservationists’ time for fundraising, putting plans into action, and strategising. AI is also helping people outside the scientific community to contribute to ecological monitoring and conservation. Data collected by non-specialists has been criticised in the past as being inaccurate, but the incorporation of AI into apps such as Seek/1Naturalist and Merlin/eBird enables people without years of academic learning to provide useful photo data that can identify organisms to a species level. It means places beyond heavily surveyed areas don’t go completely unsampled, as long as they’re available to local groups, hikers and even holidaymakers.

“It allows community scientists to be more productive in what they gather, and have less of a taxonomic bias,” explains Dr Wouter Koch, one of the researchers behind Artsobservasjoner, a Norwegian reporting tool for community scientists produced by the organisation Artsdatabanken (The Species Database). “They can report more than what they already know, which is often mainly birds.” As well as adding valuable species observation data to global databases, tools like Artsobservasjoner are helping bring more ordinary people into the global mission to understand and protect nature.

IUCN recently partnered with Chinese tech giant Huawei to release a report titled *Tech4Nature: Solutions in Focus*, which featured numerous examples of AI aiding conservation efforts, from rebuilding coral reefs in Mauritius to boosting salga populations on the Eurasian steppes, or the use of an AI-powered trap to protect Atlantic salmon from invasive rivals off the northern coast of Norway. The report was part of the wider IUCN Tech4Nature initiative, a global partnership to scale up success in nature conservation through digital technology innovation.
**BETTER CONNECTED**

IUCN can also play a role in connecting experts in AI and machine learning to the conservation community, says Dr Milind Tambe, Director of the Harvard Center for Research on Computation and Society. “Many AI researchers around the globe have the skills and desire to work on issues important to IUCN,” he says. “But they have no idea how they could get started, who they could talk to, or where they could get the data.”

Tambe’s team was one of the first to apply AI models to global anti-poaching efforts, as part of the PAWS project – the Protection Assistant for Wildlife Security. The system takes basic information about a protected area, and information about previous patrolling and poaching activities, and generates the most effective patrol routes for rangers. As they execute the patrol routes, more poaching data is collected and fed back to PAWS.

For those thinking of exploring AI in their conservation work, many AI platforms are easy to find online and are open source, so are free to use and modify. But experts warn of the perils of attempting to use ‘off-the-shelf’ solutions or algorithms ‘trained’ in other areas of the world. The story of the wildlife monitoring tool that began to identify giraffes in the snowy Canadian city of Edmonton shows how AI can be particularly prone to making errors until it is given data that is fit for its purpose. If the data used to train the AI is poor, subsequent identifications of patterns will be poor too – or as computer scientists like to say, “garbage in, garbage out”.

The biases in existing studies may be amplified by an AI program, with potentially disastrous consequences. A poorly trained algorithm for recognition could result in false positives (potentially draining resources when looking for a rare species) or false negatives (which can be disastrous if you’re looking for an invasive species or a forest fire). The key to getting it all right is partnerships, says Tambe, and “for AI researchers to be partnering with conservation agencies, all the way from data to deployment”.

Dr Renee Sieber, an associate professor at McGill University and an expert in the use of IT by community groups, has identified six key points for the good and ethical use of AI in conservation. They are: avoiding ‘off-the-shelf’ solutions; ensuring that quality of data is fit for purpose and that the potential for harm (if it is not) is considered; that the technological process is fair, explainable and transparent; that issues around privacy and surveillance are addressed; that it balances the rights of individuals, communities and wildlife; and that users know when to draw red lines.

**UNINTENDED USES**

Wider concerns about AI’s impact on society will also need to be considered by conservationists as these tools become more widespread. For example, AI tech used to monitor locations or wildlife could quickly be repurposed for spying on people or in warfare, and cameras that can identify poachers faces could be used to identify park rangers, too.

There is also the worry that the technology becomes too powerful, and the influence of human beings and our values is undermined. With AI technology now moving at a lightning pace, it’s unclear what exactly will be possible for conservation in just a few years’ time, let alone as we head towards 2030 – the target for many global environmental goals.

The use of AI in many areas of society raises fundamental questions about our future as a species – but there are plenty of reasons for optimism that, for now, this technology will give a much-needed boost in the fight to protect other species.

For details of IUCN’s Tech4Nature initiative, visit tech4nature.iucngreenlist.org

---

1) The Map of Life: Interview with Basecamp Research. The Biologist 70(2) 2023
2) Can computers help protect plants from Extinction? Kew.org 23 Nov 2021
Anna Turns investigates how to deliver Nature-based Solutions on the global scale needed to help fight climate change

UNLEASHING NATURE’S POTENTIAL

Over the past two decades, researchers and volunteer snorkellers in Chesapeake Bay, USA, have spread more than 70 million tiny seagrass seeds over plots of sandy seabed. Now the world’s largest seagrass restoration project, the delicate work has led to more than 3,600 hectares of vibrant, biodiverse seagrass meadows being restored in the bay’s inshore lagoons. It’s also the first seagrass restoration project to put a figure on the amount of carbon being sequestered by the restored meadows: typically about 3,000 tonnes of carbon per year. It’s a great example of a Nature-based Solution (or NbS), a project that harnesses natural processes to deliver sustainable benefits on many fronts – ecologically, socially and environmentally.

In recent years, the world has begun to understand the potential for NbS to mitigate against, or help us adapt to, climate change. In 2022, the outcome text from the UN Climate Change Conference (COP27) included mention of NbS for the first time. Dr Bruno Oberle, former Director General of IUCN, recently stated that “investing in the conservation, restoration and sustainable management of the world’s ecosystems can provide around a third of the cost-effective climate mitigation that we need by 2030 to limit warming to below 2°C.”

However, the project at Chesapeake Bay is of a scale rarely seen in ecosystem restoration. Many current Nature-based Solutions are small scale and exist in isolation, and carbon sequestration is a side benefit, not the primary objective. If Nature-based Solutions are to make a major contribution to the prevention or
mitigation of climate impacts, more large-scale or global-scale projects are needed. With some degree of warming already inevitable, scaled-up NbS projects that help us adapt to climate change are urgently needed too.

FINDING FUNDS
First and foremost is the issue of investment. A recent assessment of the NbS funding landscape published by the World Resources Institute (WRI) showed that only a small percentage of international public climate finance has been flowing to natural solutions for adaptation to climate change: somewhere between 0.6% and 1.4% in 2018.

It’s not clear that policymakers fully appreciate the value of natural capital yet, and the services the natural world provides. Mangroves, for example, provide flood protection and are extremely cost-effective when compared to the building or maintenance of grey infrastructure (such as sea walls), while also storing carbon and helping to boost local biodiversity. One study found that, across 59 countries, mangroves alone can help save an estimated US$65bn annually in avoided losses in infrastructure and human systems, including health.

Initiatives like the Nature-based Infrastructure Global Resource Centre are helping conservation organisations demonstrate solid business cases for investment in NbS. The centre, set up by the International Institute for Sustainable Development, provides assessments of the potential economic value of nature-based infrastructure projects, and analyses how non-natural infrastructure projects could benefit from adding or completely replacing with a Nature-based Solution.

According to the WRI, more investment in NbS would enable a “critical mass of pilots and early-stage projects to take place around the world, in some of the most challenging conditions”. Once these grant-funded opportunities demonstrate NbS can work for different circumstances or objectives, programmes could eventually become self-sustaining, as they are in countries such as Costa Rica, where NbS are financed from within the government’s budget.

CONNECTING FOR NATURE
The urgency of the task at hand requires that organisations don’t keep reinventing the wheel. Investing in the expansion of existing initiatives, rather than creating new ones, may be one way to speed up the scaling of NbS for maximum impact, according to the WRI. Often, change occurs in silos, and to really tackle global societal issues such as climate change and food security at scale, a more cohesive approach is required – connecting regional partners to share expertise.

IUCN’s Panorama platform is helping to share qualitative information about thousands of tested and replicable solutions in biodiversity conservation and other sustainability projects. The Union’s Contributions for Nature platform (see page 24) is also helping to map and quantify exactly how much its Members’ various projects are contributing towards global goals such as ecosystem restoration and climate mitigation. And last year, the University of Oxford’s Nature-based Solutions Initiative launched a new version of its Global Map of NbS Best-Practice Case Studies, which now contains information on the governance, financing, trade-offs and monitoring for each case study.

Other ambitious initiatives are helping to connect projects with shared goals in different countries and across continents. The Bonn Challenge pledges to restore 350 million hectares of deforested landscapes globally by 2030, and 32 African countries have committed to restore more than 100 million hectares of degraded land and forests by 2030 through the African Forest Landscape Restoration Initiative. Initiative 20x20 is aiming to restore 50 million hectares of degraded land in 18 Latin American and Caribbean countries by 2030. This will improve livelihoods for lower-income and rural communities, enhance biodiversity, improve water and food security, and build greater climate resilience. The Global Mangrove Alliance is connecting an online community for organisers of mangrove projects to collaborate on campaigns, field work and policy initiatives; and alliances such as the Resilient Cities Network and Cities4Forests have helped almost 100 cities to develop green infrastructure or invest in Nature-based Solutions.

“THE URGENCY OF THE TASK AT HAND REQUIRES THAT ORGANISATIONS DON’T KEEP REINVENTING THE WHEEL”
However, Dr Richard Lilley, co-founder of Project Seagrass, warns that as NbS scale up, one-size-fits-all approaches become less likely to succeed. "There's a real nuance to Nature-based Solutions, where different habitats, or even the same habitat, will offer different ecosystem services in different locations," he says. "We need to be planting trees and putting in above-ground biomass across the planet for sure – but they need to be appropriate trees, the right species in the right places. Similarly, in the sea, we need that nuance – different solutions will be appropriate in different places or conditions."

Around the world, it is often indigenous peoples and local communities that are the stewards of local ecosystems – therefore Nature-based Solutions need to include and benefit them too.

**SCALING UP AT SPEED**

Adapting projects to individual communities and engaging people through citizen science is essential, says Lilley. "You need everyone on board with the journey that the local area is going to go through. Community is essential to this. Not including communities is the single biggest risk factor. When someone gets involved, they [develop] this sense of ownership."

Restoring complex ecosystems such as peatlands, forests, mangroves or seagrass meadows is no quick fix. But the need for Nature-based Solutions is urgent. So how do organisations move projects forward at pace with so many stakeholders, scientific evidence and intersecting factors to consider?

Lilley says there has to be an iterative approach to projects if we are to scale up at the speed required. When projects are developed on a grand scale, intricacies emerge that can't always be foreseen. "There's always going to be a tension between science, which can be risk averse, and people who want to get on with giving it a go," he says. "We don't have time to wait for perfect. It's about accepting things will fail because it is innovative, it's new and we're trying, so it makes more sense to assess success on a 20-year journey, rather than a two-year project basis."

Lilley says he is in constant conversation with international colleagues to discuss challenges, share findings, learn from mistakes and develop best practice as projects progress. "Trust and a collaborative approach make such a difference to moving things forward at the pace it needs to happen," he says.

To tackle global societal issues such as climate change and biodiversity loss together and at scale, a more cohesive approach is required that not only connects regional partners but also enables decision-makers at national and international levels to incorporate NbS into policy and law. According to the UNEP report *Nature-based Solutions: Opportunities and Challenges for Scaling Up*, successful scale-up will depend on the adoption of concrete targets and identification of the specific actions needed to meet those targets. Robust monitoring and constant evaluation is necessary to ensure projects remain on track or adapt to changing conditions.

Ultimately, all efforts to restore nature will remain at risk if the world continues to produce CO₂ and other greenhouse gases at the levels it does now.

**FUTURE-PROOFING NATURE**

With unpredictable change ahead, NbS need to be more dynamic, adaptable and forward-looking than traditional conservation programmes. The parameters of the project may not remain constant and the project should aim to tackle longer-term challenges.
Planting seagrass

Finally, and perhaps most obviously, we need to be clear about what an NbS actually is. If Nature-based Solutions are to contribute a third of climate mitigation efforts by 2030, a precise definition is required to ensure that the most effective, impactful and rigorously monitored projects are prioritised.

First defined by IUCN in 2016, the definition of NbS has since evolved slightly to incorporate the diversity of ecosystems and complexities of global societal challenges being tackled. In 2022, the United Nations Environment Assembly (UNEA) delivered this multilaterally-agreed definition: “Nature-based Solutions are actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human wellbeing, ecosystem services, resilience and biodiversity benefits.”

With advice from hundreds of experts and practitioners from over 100 countries, IUCN has also developed a global standard with eight criteria that ensure NbS are suitably evidence-based, robust and replicable.

As IUCN’s Global Director for the Nature-based Solutions Group, Stewart Maginnis, explains, “For Nature-based Solutions to fulfil their potential, we must ensure that the actions put in place today bring about the desired benefits for society and biodiversity. The global standard offers a rigorous, consistent and accountable framework that will help avoid any misuse and take Nature-based Solutions from the local to global scale.”

“NATURE-BASED SOLUTIONS NEED TO BE MORE DYNAMIC AND FORWARD-LOOKING”

NATURE-BASED SOLUTIONS WORLDWIDE

URBAN
Sponge cities, China
Rainwater is retained by grass-covered roofs that ensure gradual drainage. Stormwater parks reduce flooding in 16 cities.

Rooftop farming, Egypt
A hundred green Cairo rooftops reduce the urban heat island effect and have hydroponic water beds for growing produce.

Eco districts, Malaysia
City districts in Penang Island have tree-lined streets and living-building facades to reduce stormwater runoff.

RURAL
Prehistoric plumbing, Peru
A crucial water pipeline was repaired in the High Andes using indigenous knowledge and modern tech to prevent drought.

Living weirs, Thailand
Roots of waterside banyan trees grow within a bamboo, sand and coir construction across rivers to create living weirs that stabilise sediments.

Planting edible oils, Pakistan
Farmers in Swat are growing drought-resistant olive trees to produce previously-imported oils.

MARINE
Coral gardening, Vanuatu
Indigenous communities on the islands of Nguna and Pele have planted 3,000 fragments of climate-resilient coral as a storm buffer.

Mangrove restoration, Ecuador
Seed nurseries in the Rio Esmeraldas estuary help to regenerate mangroves that build coastal resilience against sea level rise.

Oyster breakwaters, Bangladesh
On Kutubdia Island, oysters grown on concrete reefs stabilise tidal mudflats to expand the salt marsh.

Relevant IUCN Resolutions
1) WCC 2020 Res 007
2) WCC 2020 Res 031
3) WCC 2020 Res 060
4) WCC 2016 Res 069
5) WCC 2016 Rec 107

PHOTOS: LEWIS M JEFFERIES; AQUAPIX/SHUTTERSTOCK
PHOTO © SHANE GROSS / ILCP

“NATURE-BASED SOLUTIONS NEED TO BE MORE DYNAMIC AND FORWARD-LOOKING”

Threats, like desertification and sea level rise.

Finally, and perhaps most obviously, we need to be clear about what an NbS actually is. If Nature-based Solutions are to contribute a third of climate mitigation efforts by 2030, a precise definition is required to ensure that the most effective, impactful and rigorously monitored projects are prioritised.

First defined by IUCN in 2016, the definition of NbS has since evolved slightly to incorporate the diversity of ecosystems and complexities of global societal challenges being tackled. In 2022, the United Nations Environment Assembly (UNEA) delivered this multilaterally-agreed definition: “Nature-based Solutions are actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human wellbeing, ecosystem services, resilience and biodiversity benefits.”

With advice from hundreds of experts and practitioners from over 100 countries, IUCN has also developed a global standard with eight criteria that ensure NbS are suitably evidence-based, robust and replicable.

As IUCN’s Global Director for the Nature-based Solutions Group, Stewart Maginnis, explains, “For Nature-based Solutions to fulfil their potential, we must ensure that the actions put in place today bring about the desired benefits for society and biodiversity. The global standard offers a rigorous, consistent and accountable framework that will help avoid any misuse and take Nature-based Solutions from the local to global scale.”

Relevant IUCN Resolutions
1) WCC 2020 Res 007
2) WCC 2020 Res 031
3) WCC 2020 Res 060
4) WCC 2016 Res 069
5) WCC 2016 Rec 107

Threats, like desertification and sea level rise.

Finally, and perhaps most obviously, we need to be clear about what an NbS actually is. If Nature-based Solutions are to contribute a third of climate mitigation efforts by 2030, a precise definition is required to ensure that the most effective, impactful and rigorously monitored projects are prioritised.

First defined by IUCN in 2016, the definition of NbS has since evolved slightly to incorporate the diversity of ecosystems and complexities of global societal challenges being tackled. In 2022, the United Nations Environment Assembly (UNEA) delivered this multilaterally-agreed definition: “Nature-based Solutions are actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human wellbeing, ecosystem services, resilience and biodiversity benefits.”

With advice from hundreds of experts and practitioners from over 100 countries, IUCN has also developed a global standard with eight criteria that ensure NbS are suitably evidence-based, robust and replicable.

As IUCN’s Global Director for the Nature-based Solutions Group, Stewart Maginnis, explains, “For Nature-based Solutions to fulfil their potential, we must ensure that the actions put in place today bring about the desired benefits for society and biodiversity. The global standard offers a rigorous, consistent and accountable framework that will help avoid any misuse and take Nature-based Solutions from the local to global scale.”

Relevant IUCN Resolutions
1) WCC 2020 Res 007
2) WCC 2020 Res 031
3) WCC 2020 Res 060
4) WCC 2016 Res 069
5) WCC 2016 Rec 107
“No voice is too small”

Activist Vanessa Nakate talks to Tom Ireland about her fight to ensure people on the front line of climate change are heard around the world.
Vanessa Nakate is a Ugandan climate justice activist. Her work highlights the fact that climate change is not just a concern for the future, but is already causing death and destruction in her home country and in communities across Africa.

Her activism began with a small protest on the streets of Kampala to draw attention to the climate emergency and destruction of the Congo Rainforest. As her message spread across Uganda and beyond, she founded the Rise Up Movement, to amplify the voices of activists from across Africa. At just 26, she has spoken at the UN Climate Change Conference, been appointed as a UNICEF Goodwill Ambassador, and has written a book on activism, A Bigger Picture.

In 2020, Vanessa was cropped out of a major news photo in which she appeared alongside Greta Thunberg and other white climate activists, causing her to comment that the news agency “erased an entire continent” from its coverage. She regularly speaks about the importance of listening to African voices, especially children and those in marginalised communities.

Can you tell us what you are working on at the moment?
I’m working on the Vash Green Schools Project, which I started in 2019, to install solar panels and clean cooking stoves in Ugandan schools. So far, we’ve done 39 installations, impacting about 13,000 children. Tomorrow we start another phase of installation in six schools in Kayunga. And I’m working on various online campaigns with other activists.

When did you start to realise the impact climate change was having on where you grew up in Kampala?
In 2018 I had been researching some of the challenges that people in Uganda were facing, and learnt a lot about climate change and how its impacts were already unfolding. In some parts of Uganda, for example in the east, there has been disastrous flooding and landslides linked to climate change, causing destruction and the loss of lives for many people. These disasters affect the basic necessities of life – food, access to water, access to health facilities and shelter.

Uganda also relies heavily on agriculture. Climate change is bringing unpredictable weather patterns for farmers in the rural areas. Food insecurity pushes more people into extreme poverty, leading children to drop out of school. Learning this made me decide to join the climate movement.

For others who want to make their voices heard, tell us about your journey from that small protest to becoming an activist with global reach. I was a terribly shy person. I only found the strength and courage to make a sign and stand on the street in 2019. My siblings and cousins joined me. I held my ground, and every Friday I went back and continued to do it and do it. It’s about doing whatever you can, realising that no voice is too small to make a difference, and no actions are too small to transform the world.

It’s hard to put into words what it has been like, standing in front of so many people. There is a certain strength and a certain confidence I get when I’m talking about the realities of the climate crisis and what needs to be done. I won’t say that it’s been easy, but I built confidence with every audience I spoke to.

What are some of the actions you would like to see to help mitigate against the problems caused by a warming climate in Uganda and the wider region?
The conclusions of the most recent IPCC report were nothing new, it told us we need to reduce emissions, now. Every fraction of a degree matters to people on the front lines and they need help already.

We need the wealthier countries, that are mostly responsible for the rise in emissions, to become more serious. They need to stop new fossil fuel projects and invest in clean energy, and they need to help the Global South to do the same.

We saw the establishment of a loss and damage fund at COP27, but this is still an empty bucket. We need countries to put money in the fund to help people that are suffering right now.

Tell us a bit about the Congo Rainforest and your message to IUCN Members about its importance.
I was once asked a question at a meeting about why the world focuses on the Amazon and other rainforests, but not the Congo Rainforest. I didn’t know it’s the second largest rainforest in the world and the largest in Africa. As well as the thousands of species of animals and plants within it, over 70 million people depend on the existence of this forest.

It’s possible it could be lost completely by 2100. Learning that triggered me to start raising awareness about the Congo Rainforest and why we need to talk about it.

How do you stay positive and energised to keep doing what you do and fight for the environment?
Activism can be challenging, especially when you’re not seeing the actions we need, and when disasters continue to impact the lives of so many people. But you are not just working alone. You’re with millions of different people across the world who also believe in the world you envision. Being part of a movement, and that sense of friendship, community and working together – that gives me hope.

I recently spent a few days in Turkana County, northern Kenya, meeting people and communities suffering from the historic drought there. Those experiences are hard, but seeing how climate change is threatening people’s present and their survival, pushes me a lot.

Many people know I’m a Born Again Christian. Faith is the substance of things hoped for and the evidence of things not seen. My faith gives me the strength and the hope to know that another world is not only necessary for all of us, but is actually possible.

“THERE IS A CERTAIN STRENGTH I GET WHEN TALKING ABOUT THE CLIMATE CRISIS”
“Geology underpins biodiversity”

Dr Manuel Monge-Ganuzas tells Unite for Nature how protecting the planet’s geological heritage – often overlooked in nature conservation – is crucial to preserving the natural world.

Dr Monge-Ganuzas works with three IUCN Member organisations dedicated to geoconservation: ProGEO (the International Association for the Conservation of Geological Heritage); the Spanish Geological Society, and the Spanish Society for the Defense of Geological and Mining Heritage (SEDGPY). He is also a Member of the Geoheritage Specialist Group of IUCN’s World Commission on Protected Areas.

**What is geoconservation?**

We define geoconservation as the variety of natural elements – minerals, rocks, fossils, landforms, sediments, soils – and the geological processes that alter them. Together with biodiversity, this constitutes the entire natural diversity of the planet.

In many ways, geoconservation underpins biodiversity and provides society with benefits, both ecological and cultural. The fluctuations of a stream in the mountains can impact species living in a river downstream, for example, or rocks in a lake can influence the pH, which determines what can live there. An effective conservation strategy helps raise awareness of the geological component of ecosystem services. We need rocks, we need soils, we need geological processes, and we need minerals for the development of all life.

Geoheritage compiles the elements of geology that together represent the history of the Earth, both non-living, such as layers of rock, and living, such as fossils. Understanding geoheritage allows us to know, study and interpret the evolution of the Earth.

**What does geoconservation involve?**

There is a growing group of geoscientists who are focused on geoconservation and management of geoheritage worldwide. We have to characterise and assess the geoheritage and choose the most representative elements that should be considered part of the world’s geoheritage. This means it has value and is worthy of saving for future generations. This can be in situ heritage, i.e. geosites, or ex situ – such as museum collections of minerals, rocks, fossils or meteorites.

We face challenges from human development, and an absence of proper international legal protections or agreements on things like the trafficking of geological specimens or geosite protection. Moreover, there is a tremendous lack of knowledge about geoheritage in protected areas, not only in management plans but also on the interpretation offered to visitors.

There is also an important cultural heritage related to the geological and mining heritage which must also be preserved. In this respect, IUCN resolution 88 was adopted at the World Conservation Congress (WCC) in 2020.

**What is your favourite geological site?**

That’s like asking which parent I prefer! I am from the Basque Country, and geosites there are the best of the best in my view. But everywhere there is beautiful geoheritage, we just have to see it and understand it. Our key initiative is to identify the geological heritage of the world. The idea to identify important areas for geoheritage, like Key Biodiversity Areas, is under discussion, thanks to the recent IUCN resolution 74 at WCC in 2020.

**How can we find out more?**

IUCN’s Geoheritage Specialist Group has published Guidelines for Geoconservation in Protected and Conserved Areas, and other resources in this area. The most relevant articles about this topic are published in an international scientific journal, Geoheritage.

In 2007, we managed to get geoconservation introduced into the Spanish natural conservation law, so Spain has a solid framework for how to do geoconservation, in case IUCN members in other countries are interested to learn from this experience.

“ Everywhere there is beautiful geoheritage, we just have to see it and understand it”

---


*Guidelines for Geoconservation in Protected and Conserved Areas [portals.iucn.org/library/node/49132]*

Spearfishing for invasive fish with Parks Canada

A new technique to protect freshwater ecosystems in Riding Mountain National Park

**IUCN STATE MEMBER**

As the proud steward of a vast network of special places, Parks Canada is responsible for protecting and presenting significant examples of Canada’s natural and cultural heritage. Informed by the best available science, it leads a programme of work to monitor and restore ecosystems, protect and recover species at risk at landscape level, and conducts important research that contributes to our understanding of climate change.

**A new technique**

Aquatic ecologist Michele Nicholson tells *Unite for Nature* about one Parks Canada project that is helping manage the impact of invasive fish in beautiful Clear Lake, located in Riding Mountain National Park, Manitoba.

“We’re partnering with local First Nations to try out a new technique for protecting Clear Lake. A couple of years ago we got reports from anglers that they were starting to see and catch smallmouth bass in Clear Lake, and that’s a real concern for us here because they are not native to Manitoba, let alone this lake. They are a really aggressive top predator that eats a lot of other fish.

“Local First Nations have fishing rights here, so that’s something we want to protect, and we want to protect the ecosystem in general. Spearfishing has been used in the ocean for controlling invasive fish, but it hasn’t really been explored in freshwater systems, so it’s a really cool project. Our spearfishing targets bass that are protecting nests, allowing predators in the lake to target the bass fry naturally.

“So what happens when this research is done? After we finish the fieldwork, we will do identification of the stomach contents of these fish to determine what they’ve been eating. We’ll send samples away to the lab to tell us how old the fish are, and we’ll be crunching all the numbers and using the information to figure out where we go from here.

“Our spearfishing targets bass that are protecting nests”

“All the decisions will be made collectively with local First Nations. We want to work together to determine the future direction when protecting the health of Clear Lake.”

A video of this project and of other Parks Canada experts in action can be found at Parks Canada’s YouTube channel, [youtube.com/@parkscanada](https://youtube.com/@parkscanada)
The IUCN Contributions for Nature platform

Last year, IUCN launched a new data visualisation tool that allows its Members to log and quantify how their projects could contribute to global conservation goals. Unite for Nature explores the benefits of using it, and how to get started.

The global conservation community has been working tirelessly towards a range of international environmental goals for many decades. However, until recently, there have been few ways of collectively documenting and understanding all this work where and when environmental projects are being implemented, by whom, and how much they are contributing towards global goals, such as the Post-2020 Global Biodiversity Framework.

Last year, IUCN launched its Contributions for Nature platform, providing a simple way for IUCN Members and constituents to document where they are undertaking (or planning to undertake) conservation and restoration actions. The platform collates information on projects both large and small, and calculates how specific actions in specific places will contribute towards a range of global biodiversity and climate goals.

Since launching in October, almost 10,000 contributions from more than 130 organisations have been added to Contributions for Nature, represented as an ever-growing number of bright blue patches on the platform’s map of the world. IUCN targets having at least 70% of its Members adding at least one input to the Contributions for Nature platform by October 2023, helping to create a powerful tool to quantify, understand and showcase the totality of conservation efforts being conducted by the Union’s Members.

The quantitative nature of the platform will complement IUCN’s Panorama platform, which documents success stories in conservation and Nature-based Solutions in a qualitative format. The next phase of its development will be to extend the Contributions for Nature platform’s focus to cover other programme areas, such as aquatic environments, in addition to the current ones of land and climate.

**HOW IT WORKS**

The Contributions for Nature portal (www.iucncontributionsfornature.org) has been developed to be as simple as possible to use, and requires only eight pieces of information from organisations, some of which are optional or can be added later. Users start by logging in and selecting the area in which they are working. Users can draw a shape directly onto the map, select existing protected areas or key biodiversity areas, upload geographic information files or select a single point with a km² radius.

The platform automatically uses the STAR metric (Species Threat Abatement and Restoration, based on IUCN Red List information) to quantify the potential for species extinction risk reduction through threat mitigation and habitat restoration in the area selected. The metric also provides a breakdown of the relative risk of different threats, including deforestation, mining, habitat alteration or hunting.

Data from the Restoration Barometer (also known as the Bonn Challenge Barometer) gives a value for the potential for habitat restoration to mitigate against climate change in the area. This allows users to see how their work contributes...
DEVELOPING THE DIGITAL PLATFORM

In February 2021, the IUCN Membership approved the IUCN programme Nature 2030, setting out the Union’s ambitions for the next 10 years. One section of the programme mandated the development of a digital platform where all parts of the Union could share their contributions to the programme and to other global targets for the protection of nature.

Discussions for this idea go back decades – and, in fact, IUCN’s very first set of statutes stated that the Union should be able to show the work it is doing as a whole. Almost 75 years later, the power of the internet allows us to easily collect and visualise the entire diversity of work being undertaken by the Union and its constituents.
“The platform provides a way to showcase organisations’ work and explore the potential for collaboration”

to the total possible conservation or restoration of biodiversity in their area and to the nature-based mitigation of climate change.

The platform not only shows the potential contribution of individual conservation and restoration actions, but also the metrics for entire countries and regions. For example, the platform shows how one project in Honduras (see case studies) could potentially deliver 5% of the extinction risk reduction possible for the entire nation, that the nation in turn could deliver 2% of the total contribution from across the Americas, and, in turn, the Americas in total represents 44% of the world’s potential contribution towards safeguarding species.

Users are asked to input the conservation, restoration or climate mitigation actions they are undertaking, and the data of their actions (which must be starting or ending in this decade, 2020-30). Other optional data to input includes a budget (either the budget secured or estimated budget required), information on staff numbers and gender balance working on the project, and the estimated number of people that would be beneficiaries of the project – which may have a far wider reach than the geographic location. Users can also add images and other background documents on their projects, and tag other partners helping to deliver the potential contribution.

The information is then submitted for validation by IUCN Regional office staff. Once this is done, the contribution is made visible to anyone visiting the platform. IUCN National and Regional offices can also help provide support and training where necessary.

WHY CONTRIBUTE?
IUCN Members, Commissions and Secretariat can document their actions, quantify how their work contributes to global targets, and visualise how their work intersects with that of other organisations in the area. The platform provides a way to showcase organisations’ work and explore the potential for collaborations with other groups working nearby.

The quantification of contributions towards global goals can also help organisations communicate their work, and can help inform resource allocation and calls for funding. For government agencies or state members, the platform can help to understand what organisations are doing in their territories, and where gaps exist at regional or national levels.

Ultimately, the platforms are helping all types of Members and the entire Union understand and monitor the delivery of conservation efforts as we approach the crucial year of 2030 and beyond.

Visit www.iucncontributionsfornature.org to add your organisation’s contributions to global goals.
CASE STUDIES

Ministry of Environment
Republic of Korea
One of the first additions to the Contributions for Nature platform was from the Republic of Korea’s National Institute of Ecology, part of the country’s Ministry of Environment, an IUCN State Member. The Ministry has now logged nine contributions, including efforts to conserve the Chinese crested tern and restore the natural Yongneup wetlands on Mount Daem.

IUCN
Democratic Republic of Congo
According to the Contributions for Nature platform, the conservation of Grauer’s gorillas and eastern chimpanzees at the Itombwe Nature Reserve, in the Democratic Republic of Congo, represents 17% of the country’s total potential contribution towards biodiversity conservation.

Foundation for Rural Business Development and IUCN’s Office for Mexico Central America and the Caribbean (ORMACC)
Honduras
Honduras’s largest protected area, the Rio Plátano Biosphere Reserve, is home to thousands of indigenous people, and includes 350,000 hectares of tropical rainforest, from mountain headlands to the Caribbean coast. Actions to manage the reserve, logged on the Contributions for Nature platform, are calculated to represent 15% of the country’s total possible contribution to nature-based climate change mitigation.

Defenders of Nature Foundation
Guatemala
The Sierra de las Minas Biosphere Reserve, Guatemala, contains some of Central America’s largest and most spectacular cloud forests. According to the Contributions for Nature platform, ongoing work to protect the reserve represents 7% of the country’s total possible contribution towards species extinction risk reduction through conservation.

Above: Screenshot from the Contributions for Nature portal, focused on Guatemala
Global events 2023

28th Session of the International Seabed Authority (II)  
10-28 July  
Kingston, Jamaica  
The second session of the ISA continues negotiations from session one (held in March) to finalise and adopt regulations for deep seabed mining. IUCN is calling for the current moratorium on deep seabed mining to be upheld.  
www.isa.org.jm

UN Food Systems Stocktaking Moment  
24-26 July  
Rome, Italy  
The 2023 Stocktaking Moment aims to create a space for countries to review commitments made during the 2021 Food Systems Summit, and share stories of progress and transformation.  
www.unfoodsystemshub.org

G20 Environment Ministers’ Meeting  
28 July  
Chennai, India  
Environment ministers from the world’s 20 largest economies meet in Chennai ahead of the G20 meeting in New Delhi in September.  
www.g20.org

Seventh Assembly of the Global Environment Facility (GEF)  
22-26 August  
Vancouver, Canada  
GEF is a multilateral fund providing grants and finance for projects related to environmental issues. It gathers representatives from all 183 member countries, as well as those from civil society organisations, business leaders, academia, indigenous peoples, NGOs and IUCN.  
www.thegef.org

10th Session of the Plenary of the Intergovernmental Science-policy Platform on Biodiversity and Ecosystem Services (IPBES 10)  
28 August – 2 September  
Bonn, Germany  
IPBES is an intergovernmental body established by states to strengthen the science-policy interface for biodiversity and ecosystem services. One of the plenary themes of IPBES 10 will be invasive species. The meeting is preceded by regional consultations and a Stakeholder Day on 27 August 2023.  
www.ipbes.net

2023 World Resources Forum Conference  
4-6 September  
Geneva, Switzerland  
The World Resources Forum welcomes international policymakers, businesses, scientists and civil society leaders to its 2023 conference on ‘Rethinking Value – Resources for Planetary Wellbeing’.  
www.wrf2023.org

G20 Heads of State and Government Summit  
9-10 September  
New Delhi, India  
Leaders of the world’s 20 largest economies meet to address major issues related to the global economy, including climate change mitigation and sustainable development. In 2023, the theme of India’s G20 presidency will be ‘One Earth, One Family, One Future’, underscoring the value and interconnectedness of all life.  
www.g20.org

UNESCO World Heritage Committee  
10-25 September  
Riyadh, Saudi Arabia  
UNESCO’s World Heritage Committee meets to discuss the identification, protection and preservation of cultural and natural heritage around the world. This is an extension of the postponed 45th meeting due to be held in Russia in June last year.  
www.unesco.org

78th Session of the UN General Assembly (UNGA 78)  
12-30 September  
New York City, USA  
Heads of state and government present their annual addresses to the Assembly and the world, on the morning of 25 September, featuring addresses from the presidents of Brazil and the USA. This year, there will also be several high-level meetings and summits taking place the week prior.  
www.un.org

UN Sustainable Development Goals Summit 2023  
19-20 September  
New York City, USA  
Midway towards the UN’s...
2030 Agenda for sustainable development goals (SDG), heads of state and governments will gather to review the SDGs and progress towards them. The summit will also bring together leaders from international organisations, the private sector, civil society, women, youth and other stakeholders in a series of high-level meetings with the heads of state and government.
www.un.org

UN Climate Ambition Summit 2023
18 September
New York City, USA
Last year UN secretary-general António Guterres announced his plans to convene a Climate Ambition Summit this September, urging leaders from governments, business, cities and regions, civil society and finance to come with new, tangible and credible climate action to accelerate the pace of change. The summit will convene alongside the second SDG summit (above).
www.un.org

UNCCD Committee for the Review of the Convention (CRI21)
9-13 October
Samarkand, Uzbekistan
A meeting of the committee tasked with reviewing the implementation of the UN Convention to Combat Desertification (UNCCD).
www.unccd.int

11-13 October
Geneva, Switzerland
The IUCN Leaders Forum is a new series of high-level events to convene global leaders more frequently on key topics of relevance to the international agenda. The 2023 Leaders Forum will provide a neutral space for discussions around progress towards implementation of the Global Biodiversity Framework and to advance important discussions around measuring, monitoring and reporting, as well as financing the global goals for nature.
www.iucn.org

CBD SBSTTA25
16-19 October 2023
Nairobi, Kenya
www.cbd.int

CMS-COP14: The Fourteenth Meeting of the Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals
23-28 October
Samarkand, Uzbekistan
CMS-COP14 will convene to review implementation of the Convention on the Conservation of Migratory Species of Wild Animals, also known as the Bonn Convention. IUCN will be providing technical advice, advocating for a scaling-up of species conservation at all levels, and will organise a range of events.
www.cms.int

77th Meeting of the Standing Committee of CITES
6-10 November
Geneva, Switzerland
CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is the international agreement between governments that aims to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species. The Standing Committee, among other roles, drafts resolutions for consideration by the Conference of the Parties.
www.cites.org

GEO Week 2023, including GEO-19 Plenary, and 2023 Cape Town Ministerial Summit
6-10 November
Cape Town, South Africa
The International Group on Earth Observations is a partnership of more than 100 national governments and over 100 participating organisations that envisions a future where decisions and actions for the benefit of humankind are informed by coordinated, comprehensive and sustained Earth observations. The week will include community events, the GEO-19 Plenary (8-9 November) and the GEO Ministerial Summit (10 November).
www.earthobservations.org

Tenth Session of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)
20-25 November
Rome, Italy
ITPGRFA aims to promote the conservation and sustainable use of plant genetic resources for food and agriculture, and the equitable sharing of the benefits arising from their use, with the Convention on Biological Diversity (CBD). The 10th session of the Governing Body (GB 10) of the ITPGRFA will address items on general policy and implementation of the Treaty and MLS, and administrative and budgetary matters.
www.fao.org

2023 UN Climate Change Conference (UNFCCC COP28)
30 November – 12 December
United Arab Emirates
The 28th session of the Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC COP28) will be held in Dubai, UAE. Parties will jointly assess the collective progress made towards achieving the goals of the treaty on mitigation, adaptation and means of implementation, and identify opportunities for enhancing future ambition.
unfccc.int/cop28

Plastic Pollution /NC-3
11-15 December
Nairobi, Kenya
The third meeting of the Intergovernmental Negotiating Committee (INC) to develop an international legally binding instrument on plastic pollution, including in the marine environment.
www.unep.org
Be part of the global conversation
IUCN Leaders Forum 2023

11-13 October 2023
International Conference Centre (CICG)
Geneva, Switzerland

- Join global leaders and changemakers to discuss the implementation of goals and targets.
- Showcase your leadership by making measurable commitments to implement the global goals.
- Build collaborations to strengthen collective action for nature and climate.
- Explore financing options for climate and biodiversity targets.
- Network with government, civil society and private sector leaders and changemakers.

The IUCN Leaders Forum is an annual event, gathering government, civil society and private sector leaders and changemakers from around the world, in-person, to discuss innovative solutions to address the biodiversity and climate crises, make bold commitments, build partnerships and catalyse action for impactful change in nature conservation and sustainability.

www.iucn.org/IUCNLeadersForum