

SPOTLIGHT ON SPECIES ASSESSMENTS

Artificial intelligence speeds up orchid assessments

There are c. 29,000 orchid species in the world, and many are threatened by land conversion and illegal harvesting. However, only c. 1,400 are included in the IUCN Red List, because assessments require a lot of time, resources and expertise. An international team, led by researchers from Germany, applied a new automated assessment approach that uses machine learning algorithms, also known as deep learning, to address this issue. Deep neural networks are widely used in other fields such as image recognition, but they can also help with conservation assessments. The researchers assessed the extinction risk of almost 14,000 orchid species, and found that > 4,300 are possibly threatened with extinction. The places where conservation efforts are most urgently needed include Madagascar, East Africa, South-east Asia, and several oceanic islands.

Source: *Phys.org* (2020) phys.org/news/2020-09-artificial-intelligence-orchids-species.html

Maple tree species face extinction

The latest Red List for maple trees *Acer* spp., published by Botanic Gardens Conservation International, showed that 36 out of the 158 species (23%) are at high risk of extinction in the near future in the wild. The report, part of the IUCN Red List, contributed to a global tree assessment that aimed to analyse the status of all tree species by 2020. It revealed seven species are Critically Endangered, 14 are Endangered and 15 are Vulnerable to extinction. Two close relatives of the North American sugar maple are listed as Critically Endangered, including one species from Mexico that was only discovered as a new species in the last few years. It is at risk from climate change in its cloud forest home, and threatened by grazing, logging and forest fires. However, 71.5% of *Acer* species are not currently at risk. China is home to the largest proportion of maple species, with 92 species. Some 14 of the 23 species that are at risk of extinction in China are endemic to the country, with limited geographical ranges.

Source: *The Ecologist* (2020) theecologist.org/2020/sep/23/maple-tree-species-face-extinction

Koala may be given Endangered listing as numbers plummet

The koala is being considered for official listing as Endangered after the 2019–2020 bushfire disaster and ongoing habitat destruction on Australia's east coast forced the government to reconsider its threat status. The iconic species, which is currently listed as Vulnerable under national environment laws, is among 28 animal species that could have their threat status increased. The 28 species included on the finalized priority list for formal assessment in the 2020 period included two reptiles, four frogs, seven fish, six mammals and 12 birds, bringing the total number of species currently being assessed to 108. After a species makes the priority list, it is assessed by the scientific committee, which then makes a recommendation to the minister regarding its threat status. The koala assessment will apply to the combined populations of New South Wales, Queensland and the Australian Capital Territory, where more than 10% of the population was affected by the bushfires.

Source: *The Guardian* (2020) theguardian.com/environment/2020/sep/25/sliding-towards-extinction-koala-may-be-given-endangered-listing-as-numbers-plummet

Biggest ever Scottish beaver survey

NatureScot has begun the most comprehensive survey of beaver numbers and their range ever conducted in Scotland. Work started in October 2020 to gather detailed and up-to-date information on the locations of active beaver territories, as well as assessing the health and spread of the overall population, which will help inform future conservation work. The first beaver assessment in Scotland was in 2012, and the animals may since have spread from where they originally established on the Tay, as far as the Forth and the Clyde. The nature agency is asking the public to help by reporting their beaver sightings. This is the first survey conducted since beavers gained the status of a European Protected Species in Scotland. The survey covers Tayside and the surrounding river catchments, including the Forth and river systems in the Loch Lomond and Trossachs National Park. NatureScot is working with experts at the University of Essex to conduct the survey.

Source: *The Argyllshire Advertiser* (2020) argyllshireadvertiser.co.uk/2020/10/01/biggest-ever-scottish-beaver-survey-begins

Population assessment for Jamaica's West Indian whistling duck

The Negril Great Morass, a freshwater wetland in Jamaica, is one of the largest natural coastland ecosystems in the Caribbean region. It supports internationally significant and endemic species and provides refuge, breeding, feeding and nesting grounds for a number of shore and wading birds, including the Near Threatened West Indian whistling duck *Dendrocygna arborea*. Once abundant and widespread, the species has declined throughout most of its range in the past, with destruction of its wetland habitats and predation being the main threats. Jamaica's population is the second largest throughout the duck's limited Caribbean range, after Cuba. The National Environmental Planning Agency is undertaking a population assessment of the West Indian whistling duck. The work will pinpoint the critical breeding and foraging sites as well as the threats to the population in the area. Following the assessment, a management plan to restore the habitat of the species will be created.

Source: *The Gleaner, Jamaica* (2020) jamaica-gleaner.com/article/news/20201008/earth-today-saving-jamaicas-west-indian-whistling-duck

Rare hellbender salamanders released in Missouri

The hellbender salamander *Cryptobranchus alleganiensis* is the largest aquatic salamanders in North America, endemic to the eastern and central USA. A population assessment showed all hellbender populations have a > 96% risk of extinction over the next 75 years unless the population increases. According to the U.S. Fish & Wildlife Service, both the Ozark and eastern hellbender populations in Missouri have declined more than 70% over the past 40 years. Based on the assessments illustrating the decline of the species, a number of projects have been launched to combat the trend. These include egg searches to aid captive breeding and head-starting, disease sampling and behavioural studies. In 2020 more than 1,000 of the salamanders, hatched and raised in St Louis Zoo, were released into streams and rivers in southern Missouri. Since 2008 more than 8,600 hellbenders have been released.

Source: *The Examiner* (2020) eu.examiner.net/story/news/2020/10/05/hellbender-missouri-department-conservation-saint-louis-zoo/3625744001

INTERNATIONAL

Celebrating the life of Georgina Mace (1953–2020)

Georgina Mace shaped two cornerstones of modern ecology and conservation: the IUCN Red List and the UN Millennium Ecosystem Assessment. One of the sharpest minds of her generation, she strove to document and stem biodiversity loss with analytical rigour and multidisciplinary approaches. She died on 19 September 2020, aged 67. Throughout her career, Mace developed tools for evidence-based policymaking. She devised criteria to standardize Red List assessments, which had previously been based on expert nominations rather than data. Mace was director of the Zoological Society of London, director of the NERC Centre for Population Biology at Imperial College London, and founding director of the Centre for Biodiversity and Environment Research at University College London. She bridged the gaps between genetics, population ecology and macro-ecology, and demonstrated the importance of conservationists engaging with researchers in other disciplines. Mace was the first president of the international Society for Conservation Biology from outside North America, and the first female president of the British Ecological Society. Her many awards and honours included a fellowship of the Royal Society and, in 2016, she was made a dame. Georgina was a role model: firm but fair, collaborative, reliable, unassuming, approachable—the kind of critical friend we all need. She will be sorely missed.

Source: *Nature* (2020) [nature.com/articles/d41586-020-02931-z](https://www.nature.com/articles/d41586-020-02931-z)

New radical BBC documentary

We have learned much about nature from David Attenborough's documentaries over the past 7 decades. In a new BBC film he lays bare just how perilous the state of that nature really is, why this matters, and what needs to change. The film is surprisingly radical. In the past, such documentaries tended to depict nature as untouched by humans, which may contribute to unhelpful complacency. *Extinction: The Facts* is a significant departure. The film makes clear that we need to pay the true cost of the environmental damage we do. It is explicitly calling for major changes in the way our economies work, with a greater focus on both planetary boundaries and global inequality.

Source: *The Conversation* (2020) theconversation.com/extinction-the-facts-attenboroughs-new-documentary-is-surprisingly-radical-146127

World falls behind on UN wildlife targets

All the world's governments have fallen short on pledges made a decade ago to protect wildlife, according to a UN report published in September 2020. The report outlined recommendations for far-reaching changes in sectors from farming to urban planning, and a rapid phase-out of the fossil fuels driving climate change, to help save a million species scientists say are at risk of extinction. The report underlines the need not just for stronger commitments to stemming a precipitous decline in wildlife, but also to seeing those commitments through. The UN is pushing for governments to collectively set aside 30% of the planet's land and sea areas for conservation when they meet next year in China to negotiate a new wildlife pact. Currently, c. 17% of the world's land falls into areas under some form of protection. Scientists have said the world may need more than 30% to survive, if not thrive. Source: *Reuters* (2020) [reuters.com/article/us-global-environment-biodiversity/as-world-falls-behind-on-u-n-wildlife-targets-bright-spots-offer-hope-idUSKBN26624H](https://www.reuters.com/article/us-global-environment-biodiversity/as-world-falls-behind-on-u-n-wildlife-targets-bright-spots-offer-hope-idUSKBN26624H)

Study examines how civil wars affect wildlife populations

A new study comprehensively reveals how civil wars impact wildlife in countries affected by conflict. Researchers found that the main impacts of civil wars on native mammals are often indirect, ultimately arising from institutional and socio-economic changes, rather than from direct military tactics. Increased access to automatic weapons and suspension of anti-poaching patrols were leading causes of wildlife population collapse. Installation of military bases within core conservation areas, overhunting of large mammals, and new settlements of displaced refugees also strongly affected wildlife. The study suggests that civil wars in low-governance countries can have both positive and negative impacts on native wildlife populations, depending on space and time scales, but the overall trend is negative. The authors found that even after wars end, wild mammal populations fail to recover as long as rural people living in war-torn countries remain armed and wildlife management regulations cannot be enforced. They call for robust international policies that can prevent the consequences of warfare, warning that restoring depleted wildlife populations may take many decades and require active interventions.

Sources: *Scientific Reports* (2020) doi.org/10.1038/s41598-020-71501-0 & *Phys.org* (2020) [phys.org/news/2020-09-civil-wars-affect-wildlife-populations.html](https://www.phys.org/news/2020-09-civil-wars-affect-wildlife-populations.html)

Polar bears' dropped GPS collars reveal how ice drifts

Scientists have found a way to use signals from dropped GPS collars used to track wild polar bears. Researchers identified 20 collars that transmitted movement data consistent with ice drift rather than polar bear motion during 2005–2015. The resulting records of how melting ice typically drifts in Hudson Bay are unique; there are no easily accessible on-the-ground sensors, and satellite observations often cannot accurately capture the motion of small ice sheets. The team compared the collars' movements to widely used ice-drift modelling data from the U.S. National Snow and Ice Data Center (NSIDC). Collar data indicated that the NSIDC model underestimates the speed at which ice moves around in Hudson Bay, and the overall extent of drift. Over the course of several months the model could diverge from an ice sheet's location by a few hundred kilometres. This means the bears may be working harder, when moving against the direction of the ice, than previously assumed. The research reveals timely insight into how highly mobile ice moves.

Sources: *The Cryosphere* (2020) doi.org/10.5194/tc-14-1937-2020 & *Scientific American* (2020) [scientificamerican.com/article/polar-bears-dropped-gps-collars-reveal-how-ice-drifts](https://www.scientificamerican.com/article/polar-bears-dropped-gps-collars-reveal-how-ice-drifts)

One-fifth of countries at risk of ecosystem collapse

One-fifth of the world's countries are at risk of their ecosystems collapsing because human activities decimate wildlife populations and destroy their habitats, according to an analysis by the insurance firm Swiss Re. Ecosystem services such as the provision of food, clean water and air, and flood protection have already been damaged. More than half of global GDP depends on high-functioning biodiversity, according to the report, but the risk of tipping points is growing. Countries including Australia, Israel and South Africa rank near the top of Swiss Re's index of risk to biodiversity and ecosystem services, with India, Spain and Belgium also highlighted. The index is built on 10 key ecosystem services and uses scientific data to map the state of these services at a resolution of 1 km². Countries with more than 30% of their area covered by fragile ecosystems were deemed to be at risk of those ecosystems collapsing. Just one in seven countries had intact ecosystems covering more than 30% of their area.

Source: *The Guardian* (2020) [theguardian.com/environment/2020/oct/12/fifth-of-nations-at-risk-of-ecosystem-collapse-analysis-finds](https://www.theguardian.com/environment/2020/oct/12/fifth-of-nations-at-risk-of-ecosystem-collapse-analysis-finds)

EUROPE

Eight European countries are calling for Brazil to act on Amazon deforestation

Eight European countries have urged Brazil to combat deforestation in the Amazon Rainforest. In an open letter to Vice President Hamilton Mourão, the group, which is led by Germany, said that backwards moves in environmental protection were threatening Europe's desire to source its food sustainably. The letter was sent by the Amsterdam Declarations Partnership which includes Germany, France, Denmark, Italy, Norway, the UK and the Netherlands. Belgium also signed the letter but is not a part of the partnership. The Amsterdam Declarations were launched and signed in 2015 after the Paris Climate Agreement because 24% of climate change was found to be caused by changes in land use. The group's aim is to provide Europe with products that are sustainable and the production of which does not contribute to deforestation. The letter praised previous efforts but demanded 'real action' and 'firm political commitment' from the Brazilian government to protect the Amazon and the Indigenous communities that live there. It says that concerns from European consumers, businesses and investors over ongoing deforestation in Brazil have been growing.

Source: *EuroNews* (2020) [euronews.com/living/2020/09/17/european-nations-ask-brazil-for-real-action-on-deforestation](https://www.euronews.com/living/2020/09/17/european-nations-ask-brazil-for-real-action-on-deforestation)

Charity collaboration will make a difference to Manx biodiversity

Manx National Heritage (MNH) and the Manx Wildlife Trust (MWT) have signed a memorandum of understanding, which will lead to joint-working in the future. As well as being responsible for historic attractions, MNH owns large parts of the Manx countryside, such as the Calf of Man nature reserve, and MWT is the Isle of Man's largest conservation charity. The new agreement will ensure the organizations do not compete with each other, but instead will coordinate their efforts to deliver biodiversity conservation. The charities have already agreed to work together with the Department for Environment, Food and Agriculture on a wildlife conservation project, which is due to begin in 2021. The aim of this project will be to rebuild the island's biodiversity through the restoration of wildlife habitats. The next step for the charities is to develop plans for concrete conservation actions.

Source: *BBC* (2020) [bbc.co.uk/news/world-europe-isle-of-man-54423005](https://www.bbc.co.uk/news/world-europe-isle-of-man-54423005)

All English rivers fail pollution tests

All English rivers have failed to meet quality tests for pollution. Data published in September 2020 by the Environment Agency revealed that only 14% of English rivers are of good ecological standard, meaning close to their natural state. And for the first time no river achieved good chemical status, suggesting pollution from sewage discharge, chemicals and agriculture are affecting river quality. There has been no improvement in the state of English rivers since 2016 when the last data was published, despite government promises that by 2027 75% of English rivers would be rated good. The data shows only 16% of tested waterways, including rivers, lakes and streams, are classed as in ecological good health, the same as 2016. Pollution from raw sewage discharges by water companies directly into rivers, chemical discharges from industry, and agricultural runoff are key sources of pollution, according to the data. English river quality is said to be the worst in Europe.

Source: *The Guardian* (2020) [theguardian.com/environment/2020/sep/17/rivers-in-england-fail-pollution-tests-due-to-sewage-and-chemicals](https://www.theguardian.com/environment/2020/sep/17/rivers-in-england-fail-pollution-tests-due-to-sewage-and-chemicals)

Europe's largest marine protected area announced

Europe's largest Marine Protected Area has been announced by Natural Environment Minister Mairi Gougeon. The new protected area, off the west of Scotland, will give additional protection to some of the deepest parts of Scotland's seas, protecting the country's unique deep sea ecosystems. The addition of the site means that more than 30% of Scotland's seas are now covered by Marine Protected Areas, taking Scotland past the proposed new global target for 2030 currently being negotiated by the UN Convention on Biological Diversity. The designation of this site is part of a project that aimed to reach the international target of 10% global Marine Protected Area coverage by the end of 2020. The new West of Scotland Marine Protected Area covers over 100,000 km², making it the largest located in national waters in the entire North-east Atlantic. Featuring the deepest parts of Scotland's seas at over 2,500 m, the site will safeguard some of the most vulnerable habitats and species on the planet, including deep sea sharks, coral gardens and a diversity of other fauna. It is also seen as clear evidence of Scotland's commitment to lead by example on environmental protection.

Source: *Communities for Seas* (2020) [communitiesforseas.scot/new-deep-sea-marine-protected-area](https://www.communitiesforseas.scot/new-deep-sea-marine-protected-area)

France's flamingo population booms after COVID lockdown...

Flamingos in the Camargue region of France experienced a baby boom year in 2020. Some areas were seeing 10 times as many birds as usual because of the lack of human activity during lockdown and good conservation work. The most spectacular rise has been in the salt pans, which have become a favoured breeding place for the birds over the past 6 years. Since 2014, Groupe Salins, a producer of table salt, created islands in old salt pans and worked to manage the water levels in them to provide ideal breeding conditions for the flamingos. According to the group's management, 12,000 birds have been counted in the area in 2020, compared with 1,200 in previous years. In 2020, there was also no disturbance by aeroplanes, microlights and helicopters, which usually often fly over the Camargue delta to take photographs, because of the lockdown. A third factor has been the lack of dramatic climate events, such as storms and floods, and a humid spring which boosted the flamingos' food sources. During the 1970s, numbers fell so much that in some years birdwatchers spotted no breeding couples in the Camargue.

Source: *The Connexion* (2020) [connexion-france.com/Mag/Nature/France-s-flamingo-population-booms-post-COVID-lockdown](https://www.connexion-france.com/Mag/Nature/France-s-flamingo-population-booms-post-COVID-lockdown)

... and corncrake returns to Clare Island for first time in 30 years

The Endangered corncrake *Crex crex* has returned to Clare Island, Ireland, for the first time in 30 years. That is according to the draft 2020 census of the rare bird, which shows that the number of calling males around Ireland now totals 145. During the 1970s, there were an estimated 4,000 calling males around Ireland, but numbers have plummeted since. In the efforts to save the corncrake from extinction, the planting of nettles has emerged as an important conservation tool. Planting started in 2016/2017, to provide vegetation cover for the shy, ground-nesting birds. Nettles grow early in the year and therefore provide the perfect habitat for corncrakes. The population's current strongholds are in north Mayo, Connemara and the Donegal islands. The numbers recorded this year are a morale boost for everyone involved in the project, which includes farmers, field workers and local rural communities.

Source: *Independent.ie* (2020) [independent.ie/irish-news/corncrake-returns-to-clare-island-for-first-time-in-30-years-in-exceptional-year-for-the-endangered-bird-39523464.html](https://www.independent.ie/irish-news/corncrake-returns-to-clare-island-for-first-time-in-30-years-in-exceptional-year-for-the-endangered-bird-39523464.html)

AFRICA

Cause of mystery of mass elephant die-off identified in Botswana

The mysterious death of 350 elephants in the Okavango delta during May–June 2020 baffled conservationists, with leading theories suggesting they were killed by a rodent virus causing a condition known as encephalomyocarditis, or toxins from algal blooms in water holes. Latest tests have identified cyanobacterial neurotoxins as the cause of the deaths. Local sources reported 70% of the elephants died near water holes containing algal blooms. Toxins were initially ruled out because no other species died, except for one horse, but scientists now think elephants could be particularly susceptible because they spend a lot of time bathing and drinking large quantities of water. Government officials say they will be testing waterholes for algal blooms in the next rainy season to reduce the risk of another mass die-off.

Source: *The Guardian* (2020) [theguardian.com/environment/2020/sep/21/botswana-says-it-has-solved-mystery-of-mass-elfphant-die-off-age-of-extinction-aoe](https://www.theguardian.com/environment/2020/sep/21/botswana-says-it-has-solved-mystery-of-mass-elfphant-die-off-age-of-extinction-aoe)

A radio programme is helping save Cross River gorillas in Nigeria...

The Cross River gorilla is a subspecies of the Critically Endangered western gorilla *Gorilla gorilla*, found only in the remote highland forests of the Nigeria–Cameroon border. Estimates suggest there are only c. 300 individual Cross River gorillas remaining in the wild. There are both federal and state laws in Nigeria that aim to protect great apes, but enforcement is lacking. Cross River gorillas have come under increasing pressure from the activities of a growing human population, such as forest conversion to farmland, commercial logging, bushmeat trade and the building of new roads. Hillary Chukwuemeka is the host of a radio programme called ‘My Gorilla My Community’ that is broadcast to communities in areas important for gorilla conservation in Nigeria. The programme encourages communities to become active participants in the protection of the Cross River gorilla. In a podcast available on the Mongabay website, Chukwuemeka talks about why this is an effective means of community engagement and the impacts he has seen from time spent in local communities.

Source: *Mongabay* (2020) news.mongabay.com/2020/10/podcast-a-radio-program-is-helping-save-critically-endangered-gorillas-in-nigeria

... and mountain gorillas in Uganda have baby boom

Five baby mountain gorillas were born in 6 weeks in Bwindi National Park, leading the Ugandan Wildlife Service (UWS) to declare a baby boom. Seven babies were born during January–August 2020, compared to three for the whole of 2019. Mountain gorillas are categorized as Endangered on the IUCN Red List, with just over 1,000 individuals left. The UWS told the BBC that this year was unprecedented for gorilla births but it is not clear why there has been this uptick. The five recent births were to different families, not to the same family, as initially reported. BBC Africa correspondents say the baby boom comes as the parks are testing out visits to primate locations, which were stopped because of coronavirus. In March 2020, most of Uganda’s tourism sector was shut down, but by September the industry was slowly opening up again. Primates are of particular concern as they share so much of our DNA. Small groups of visitors are now allowed into protected areas as new safety procedures, such as wearing face masks and social distancing, are tried out.

Source: *BBC* (2020) [bbc.co.uk/news/world-africa-53997900](https://www.bbc.co.uk/news/world-africa-53997900)

Discovery of new bat species at Gorongosa National Park, Mozambique

A new bat species has been discovered in southern Africa. Named *Miniopterus wilsoni*, after the famous biologist and ardent supporter of biodiversity conservation Edward O. Wilson, this new species occurs on Mount Gorongosa in Mozambique, in the mountains of central and northern Mozambique and in southern Malawi. The new species was collected as part of the E.O. Wilson Lab’s ongoing biodiversity exploration, which seeks to document all macroscopic flora and fauna in the Greater Gorongosa Ecosystem. The bats were found to roost in rocky formations that surround Gorongosa’s shade-grown coffee plantations. They forage on insects in and around the coffee plants, possibly helping control potential pest species. The reforestation effect of the shade-grown coffee in turn ensures the safety of the species’ roosting and feeding sites. All profits from Gorongosa Coffee’s specialty blends support conservation and human development activities in Gorongosa National Park.

Sources: *Acta Chiropterologica* (2020) doi.org/10.3161/15081109ACC2020.22.1.001 & *Club of Mozambique* (2020) clubofmozambique.com/news/discovery-of-new-bat-species-at-gorongosa-national-park-mozambique-169044

Efforts to save species from extinction following Mauritius oil spill

In July 2020 the large Japanese bulk carrier *Wakashio* hit a barrier coral reef in the coral lagoon of Île aux Aigrettes south of Mauritius, in the Indian Ocean. There were hundreds of unique species on Île aux Aigrettes, including many species of sea birds, reptiles, plants, and marine invertebrates, with new discoveries being made regularly. When the 300 m long *Wakashio* ran aground, it was just 2,000 m away from Île aux Aigrettes. The grounded ship started leaking oil on 6 August, and the blue ocean around Île aux Aigrettes immediately turned black on the first day of the oil spill. Staff from the Mauritian Wildlife Foundation and many partners have worked incredibly hard to rescue some of the island’s unique biodiversity. They transported rare plants from their nursery off the island for continuous specialist care. Threatened birds were also caught to be kept safe in aviaries, and captive-bred reptiles were released ahead of schedule in the hopes that they would survive in the wild while the team had to evacuate the island. This oil spill was by far the most significant ecological disaster Mauritius has ever faced.

Source: *Forbes* (2020) [forbes.com/sites/nishandegnarain/2020/10/02/the-battle-to-save-worlds-rarest-species-from-mauritius-oil-spill](https://www.forbes.com/sites/nishandegnarain/2020/10/02/the-battle-to-save-worlds-rarest-species-from-mauritius-oil-spill)

Madagascar introduces stoves that burn rice husks instead of forests

Madagascar’s dependence on fuelwood and charcoal is contributing significantly to the island’s deforestation. A programme aimed at changing wood consumption habits, to alleviate pressure on both forests and household budgets, is distributing new stoves that burn rice husks instead of charcoal. Rice is the staple food in Madagascar, and rice farming plays a major role in the national economy. Rice production generates c. 1 million tons of rice husks per year. A small amount is used for animal husbandry and the manufacture of potting soil, but the majority goes unused. The programme aims to turn this waste into a bio-fuel that is cheaper and more sustainable than wood. The new stoves have several advantages over charcoal stoves. It is estimated that 17 stoves will save 1 ha of forest per year. In terms of performance, they boil water in 7 minutes, whereas charcoal stoves take 10 minutes. Rice husk ashes can be used as a natural fertilizer in agricultural regions, and the new stoves are cheaper, too.

Source: *Mongabay* (2020) [mongabay.com/2020/09/madagascar-introduces-stoves-that-burn-rice-husks-instead-of-forests](https://www.mongabay.com/2020/09/madagascar-introduces-stoves-that-burn-rice-husks-instead-of-forests)

AMERICAS

Lost frogs rediscovered, using environmental DNA

Using an innovative technique, scientists have detected signs of a frog categorized as Extinct and not seen since 1968, in two regions of Brazil. *Megaelasia bocainensis* was among seven species—including four other declining species, and two that had not been recorded locally for many years—that were detected. The researchers collected and screened environmental DNA (eDNA) in samples of stream or pond water from the biodiverse Atlantic Coastal Forest and Cerrado grasslands of Brazil. The eDNA technique offers a way to survey that can confirm the presence of species undetected by traditional methods, especially those with low population densities and those not seen in years. After careful research to identify species at various levels of threat in these regions of Brazil, the researchers used the eDNA method to search for 30 target amphibian species in six localities where the frogs were known to have lived previously.

Sources: *Molecular Ecology* (2020) doi.org/10.1111/mec.15594 & *Cornell Chronicle* (2020) news.cornell.edu/stories/2020/09/lost-frogs-rediscovered-environmental-dna

Hummingbird's temperature can plummet at night to preserve energy

Hummingbirds are among a number of small creatures, including certain bats, that can enter a state known as daily torpor, whereby they turn down their metabolism and body temperature to save energy. Unlike hibernation, this is not a prolonged state: after a night in torpor, the hummingbirds' metabolic rate rises again, and their body temperature reaches c. 40 °C. In 2020 a study was published on six species of the bright birds in the Andes. The team had captured 26 hummingbirds of six different species and placed them in tents without food for at least one night, tracking changes in body temperature and mass. Air temperatures fell to as low as 2.4 °C. The team found that 24 of the 26 birds, across all six species, entered torpor; however their lowest body temperature varied between individuals and between species. The lowest temperature was measured in the black metal-tail hummingbird, with a minimum of 3.3 °C.

Sources: *Biology Letters* (2020) doi.org/10.1098/rsbl.2020.0428 & *The Guardian* (2020) theguardian.com/environment/2020/sep/09/hummingbirds-temperature-can-fall-to-33c-at-night-to-preserve-energy

Loss of sea otters accelerating the effects of climate change

The impacts of predator loss and climate change are combining to devastate living reefs that have defined Alaskan kelp forests for centuries. The coral-like reefs, built by the red alga *Clathromorphum nereostratum*, are being ground down by sea urchins. Sea urchin numbers exploded after their predator, the Aleutian sea otter, became functionally extinct in the 1990s. Without the natural predator to keep them in check, urchins have transformed the seascape. Firstly they mowed down the dense kelp forests, before now turning their attention to the coralline algae that form the reef. By examining polished samples of the algae's calcified skeleton under a microscope, the research team found that they suddenly had a way to look back into the ecosystem's past. This insight allowed them to determine that urchin grazing had waned and waxed over time with the past recovery and recent collapse of sea otter populations. Alarming, it also revealed that urchin grazing rates have accelerated in recent time in association with rising seawater temperatures.

Sources: *Science* (2020) [dx.doi.org/10.1126/science.aav7515](https://doi.org/10.1126/science.aav7515) & *Science Daily* (2020) sciencedaily.com/releases/2020/09/20200910150318.htm

Airport project in Mexico cancelled and turned into a giant nature park

Bright green stalks of weeds are sprouting from the ground where planes were supposed to take off at a new Mexico City airport as officials let nature take over in their bid to transform the marshy swath of an ancient lake into a giant park. The ghostly skeletons of a partly built control tower and flight terminal are recognizably in the style of Norman Foster, the British architect commissioned by Mexico's last president to build a futuristic international airport at a cost of c. USD 13 billion just east of the capital. Upon taking office in December 2018, President Lopez Obrador axed the project, citing the results of an informal referendum, after arguing it would be costly to prevent the airport sinking on the waterlogged soil. Lopez Obrador instead opted to expand an existing military airport. The abandoned construction zone is now part of a project to conserve 12,200 ha of marsh on what was once the massive Lake Texcoco, before Spanish colonizers in the 1600s began draining the water to prevent flooding in their burgeoning settlement.

Source: *Merco Press* (2020) en.mercopress.com/2020/09/08/mega-project-in-mexico-cancelled-and-turned-into-a-giant-nature-park-next-to-an-ancient-lake

Fake eggs with GPS trackers could help to save sea turtles

Conservation scientist Kim Williams-Guillén was trying to come up with a way to save threatened sea turtles from egg poachers when she had an 'aha' moment: if she placed a fake egg containing a GPS tracker in the reptiles' nests, she might be able to track the thieves. The idea won her the 2015 Wildlife Crime Tech Challenge, and a USD 10,000 prize. Now, a multinational team have made the device—dubbed the InvestEGGator—and published the results of their first field test. They found a pliable plastic material that mimics the exterior of turtle eggs, used a 3D printer to fabricate the fakes, and embedded small GPS tracking devices inside each egg. The decoy eggs are close to a green sea turtle egg in size, weight and texture. Of 101 decoy eggs, five tracked the routes of poachers over long distances. Sea turtle eggs are a culinary delicacy in Central America, and believed to improve sexual performance. All seven sea turtle species are listed as threatened, with some Critically Endangered. The innovative approach could help identify and stop high-level traffickers in the trade chain.

Sources: *Current Biology* (2020) doi.org/10.1016/j.cub.2020.08.065 & *Science* (2020) sciencemag.org/news/2020/10/endangered-baby-sea-turtles-may-have-new-savior-gps-eggs

Remaining 'alalā to be removed from Hawaiian forest

The 'Alalā Project in Hawaii announced in October 2020 that after reintroducing the Hawaiian crow, known locally as 'alalā, back into the wild 3 years ago, it will be bringing the rare birds back into the conservation breeding programme at the Keauhou Bird Conservation Center. The project is a partnership between the Hawaii Department of Land and Natural Resources Division of Forestry and Wildlife, the U.S. Fish & Wildlife Service and San Diego Zoo Global. It is working to establish a self-sustaining population of 'alalā in the wild, where the crow has been extinct for decades. The decision to remove the birds from the wild was made in response to recent mortalities, including predation, mostly by 'io, the Hawaiian hawk. Having successfully lived in the wild for 2–3 years, the returning birds have knowledge about foraging, predator avoidance and other behaviours that could be passed on to birds within the breeding programme, and aid with future recovery efforts.

Source: *Big Island Video News* (2020) bigislandvideonews.com/2020/10/05/remaining-alala-removed-from-hawaiian-forest

ASIA & OCEANIA

Hong Kong's dolphins return to territory's waters during pandemic...

Large numbers of Indo-Pacific humpback dolphins *Sousa chinensis*, also known as Chinese white dolphins, returned to Hong Kong waters within weeks of the COVID-19 crisis shutting down the high-speed ferries that regularly carry passengers to nearby Macau and mainland China. Although this locally iconic species is native to the Pearl River Estuary, multiple anthropogenic pressures such as land reclamation, harassment from tourist boats, construction projects and marine traffic have led the dolphins to largely avoid the waters between Hong Kong and Macau in recent decades. Researchers found that with the drastically reduced water traffic during the pandemic, including the suspension of ferries, dolphin numbers in the area have risen by 30% since March 2020. Scientists and local NGOs are now calling for protections before the ferries resume, and plan to compare dolphin numbers in the area before and after high-speed boat traffic returns to better understand its impacts.

Source: *The Guardian* (2020) [theguardian.com/world/2020/sep/15/dolphins-return-hong-kong-covid-crisis-halts-ferries](https://www.theguardian.com/world/2020/sep/15/dolphins-return-hong-kong-covid-crisis-halts-ferries)

... and national parks in Thailand benefit from COVID-19 closures

The closure of Thailand's national parks during the pandemic has allowed natural habitats to recover from the tourist crowds and brought a return of wildlife, such as whales and turtles, to the country's beaches. Encouraged by this recovery, authorities now want to close the parks annually for 2–4 months at a time, starting from 2021. The park closures will be staggered across the country, allowing habitats to rehabilitate, and the park rangers to improve the parks. Tourism is a key part of Thailand's economy, contributing c. 20% to GDP before the pandemic disrupted international travel. Some of the tropical beaches, islands and other natural attractions struggled to cope with the number of foreign visitors, which reached nearly 40 million in 2019. Thailand has more than 100 national parks, which cover the mountain regions in the north to tropical islands in the south, containing popular attractions such as the Phi Phi Islands and Phang Nga Bay. Source: *Hindustan Times* (2020) [hindustanimes.com/travel/thailand-travel-national-parks-in-thailand-to-be-shut-every-year-to-help-environment/story-03ekvrEq3KpAyOPGTkvbLL.html](https://www.hindustantimes.com/travel/thailand-travel-national-parks-in-thailand-to-be-shut-every-year-to-help-environment/story-03ekvrEq3KpAyOPGTkvbLL.html)

Experts raise alarm over destruction of coral reefs in South China Sea

Coral reefs in the South China Sea are critical for the marine environment, and for preventing a collapse in fish stocks that sustain the livelihoods of tens of millions of people. The South China Sea is home to c. 458,000 km² of extremely biodiverse coral reefs, with an estimated 571 different species of coral and 3,794 different species of fish. But some of the South China Sea reefs have been destroyed by the creation of military bases atop them. The majority of such construction has been by China, which dredged up Fiery Cross Reef, Subi Reef, Mischief Reef, Woody Island and some other islets during 2014–2017, to make way for artificial islands that now host its military. Another major threat is posed by harvesting of giant clams through reinforced boat propellers. Scientists estimate that > 90% of the remaining reefs in the South China Sea require immediate attention to preserve them.

Source: *BenarNews* (2020) [benarnews.org/english/news/malaysian/South-China-Sea-coral-10052020175520.html](https://www.benarnews.org/english/news/malaysian/South-China-Sea-coral-10052020175520.html)

New marine protected areas along the Turkish Mediterranean coast

A total of 350 km² of No Fishing Zones and Fisheries Restricted Areas have been designated by the Turkish Government in the eastern Mediterranean. The announcement solidifies sustained efforts by conservation organization Akdeniz Koruma Derneği garnering legal recognition for the new areas amid growing concerns for the state of the Mediterranean. Compounding threats include unsustainable fishing, tourist activities, development, and rapid arrival and spread of Lessepsian species with rising sea surface temperatures. The area brought under protection is home to important marine species including charismatic Mediterranean monk seal and enigmatic dusky grouper, and endemic *Posidonia oceanica* seagrass meadows that provide fish nursery grounds and carbon storage. Effective management of the new areas will be the next challenge to ensure these biodiversity refuges meet their conservation potential and enable ecosystem recovery. The work is supported by the Endangered Landscapes Programme, which is managed by the Cambridge Conservation Initiative and funded by Arcadia, a charitable trust of Lisbet Rausing and Peter Baldwin.

Source: *Fauna & Flora International* (2020) [fauna-flora.org/news/new-marine-protected-areas-connect-hundreds-kilometres-turkeys-mediterranean-coast](https://www.fauna-flora.org/news/new-marine-protected-areas-connect-hundreds-kilometres-turkeys-mediterranean-coast)

Tasmanian devils return to mainland Australia for first time in 3,000 years

Tasmanian devils were extirpated in mainland Australia 3,000 years ago. But now, 26 of the Endangered predators have been reintroduced. The species is famous for its ferocity and powerful jaws, but in the 1990s it was hit with a contagious and deadly mouth cancer. The only remaining wild population, on the Australian island state of Tasmania, dropped to just 25,000 animals. The devils disappeared from Australia originally probably as a result of human actions. As scavengers, they play a crucial role in maintaining a balanced, healthy ecosystem, and scientists have worked for decades to return them. In March 2020 15 individuals were released with radio collars to track them, and researchers provided kangaroo carcasses for food as the animals adjusted to their new home. After all of them showed signs of thriving, another 11 individuals were released in September 2020.

Source: *National Geographic* (2020) [nationalgeographic.com/animals/2020/10/tasmanian-devils-return-to-mainland-australia](https://www.nationalgeographic.com/animals/2020/10/tasmanian-devils-return-to-mainland-australia)

Challenges for tūturuatu conservation highlighted on Mana Island

The shore plover, also known by its Māori name of tūturuatu, is a small bird endemic to New Zealand. During February–August 2020, 34 juvenile tūturuatu, raised as part of a captive breeding programme, were introduced to pest-free Mana Island. After release they dispersed to the mainland, where they often fall prey to introduced predators such as cats, rats and stoats. Now, no tūturuatu remain on the island. The small tūturuatu are easy prey for the fast kārearea, the New Zealand falcon. Kārearea is a native species that is itself recovering and repopulating areas where it was once common. This situation highlights some of the complexities of managing threatened species, especially ones with very small overall populations and particular habitat needs.

Source: *Mirage News* (2020) [miragenews.com/challenges-for-tuturuatu-conservation-highlighted-on-mana-island](https://www.miragenews.com/challenges-for-tuturuatu-conservation-highlighted-on-mana-island)

All internet addresses were up to date at the time of writing. The Briefly section in this issue was written and compiled by Emma Muench, Julia Hochbach and Martin Fisher, with additional contributions from Annkathrin Sharp and Katy Walker. Contributions from authoritative published sources (including websites) are always welcome. Please send contributions by e-mail to oryx@fauna-flora.org.