

Briefly

SPOTLIGHT ON TURTLES

Power of pop changes minds over sea turtle meat consumption...

Researchers have developed a catchy way to reach communities on the island of São Tomé in West Africa. Having used consumer research methods, they discovered that people have high levels of trust in TV and radio. Using these insights, they persuaded the island's favourite singer, João Seria, to produce an original music video with a song called 'Mém di Omali' which means Mother of the Sea. The song uses three local languages, as many people do not use the official language of the country (Portuguese) at home. Lines include: 'My people, let the sea turtle live' and 'If you see sea turtle meat for sale, don't buy it.' São Tomé is a nesting and foraging ground for five marine turtles species. However, turtles have been exploited for human consumption for centuries, with meat and eggs used for subsistence and trade. The research provided key insights for the design of behaviour change campaigns aimed at reducing the demand for turtle meat and eggs.

Source: *Phys.org* (2020) phys.org/news/2020-02-power-minds-sea-turtle-meat.html

... and animated film stars turtles to highlight need for ocean protection

In January 2020 Greenpeace UK released a powerful short animation about ocean destruction, in collaboration with Aardman Animations and Oscar-winning actors. Climate breakdown, plastic pollution, oil drilling and overfishing have driven our oceans to a breaking point, but it is a story that does not get told often enough. The film *Turtle Journey* tells the touching story of a turtle family attempting to get home, in an ocean that needs protection. Like the family in *Turtle Journey*, sea turtles in real life are under intense stress from destructive industries. Six out of the seven sea turtle species are threatened with extinction as a result of anthropogenic pressures. Studies have shown that marine life is disappearing at twice the rate of life on land. Oceans play an important role in absorbing greenhouse emissions from the atmosphere, and protecting them is crucial in ensuring a safer future for all of us. Scientists say we need to protect at least one-third of the oceans.

Source: *Greenpeace* (2020) greenpeace.org/international/story/28229/turtle-journey-urgent-protect-the-oceans

Last hope for the world's rarest reptile

In Vietnamese mythology, the Yangtze giant softshell turtle *Rafetus swinhoei* is the living representative of the Great Turtle God, Kim Qui. But after decades of habitat disturbance by dams, overhunting and pollution the species is Critically Endangered, with three known individuals remaining. However, conservationists say if they can locate a male and female, survival for the world's biggest freshwater turtle is still possible. The plan would be to capture the animals and keep them in a semi-wild captive state, but more funding and resources are needed to move forward. Scientists are aware of the existence of three individuals: one in captivity (male) and two in the wild (sex unknown), but not inhabiting the same lake. The only known female died in captivity in April 2019, making the search for another female paramount. The captive male, in China, may be incapable of breeding. In Viet Nam, there has long been an individual in Dong Mo Lake, but in 2018, another individual was confirmed in Xuan Khanh Lake. Conservationists suspect others may still be hiding in Vietnamese lakes and rivers, and possibly in Lao PDR.

Source: *Mongabay* (2020) news.mongabay.com/2020/01/killing-gods-the-last-hope-for-the-worlds-rarest-reptile

Turtle tracking reveals key feeding grounds

Loggerhead turtles *Caretta caretta* feed in the same places year after year, thus protecting key feeding locations is important for their conservation. Scientists used satellite tracking and stable isotope ratios—a chemical signature also used by forensic scientists—to track female loggerhead turtles from Greece and Cyprus using data from 1993–2018. The study identified three main feeding areas: the Adriatic region, the Tunisian Plateau and the eastern Mediterranean. The researchers showed where the majority of nesting female turtles spend most of their life. This means that in addition to nesting beaches, important feeding grounds can also be protected. Nearly half of the Cyprus nesting population feeds on the Tunisian Plateau, an area with one of the highest turtle bycatch rates globally. The team supports recommendations to conserve this area. The new research shows the value of combining satellite tracking and stable isotopes to help understand these elusive animals.

Sources: *Diversity and Distributions* (2020) doi.org/10.1111/ddi.13023 & *Science Daily* (2020) sciencedaily.com/releases/2020/01/20200123095830.htm

Diamondback terrapins threatened by crab pots in Florida

A group of international turtle experts urged the Florida Fish and Wildlife Conservation Commission, USA, to require the use of excluder devices on crab traps, endorsing a rule sought by the Center for Biological Diversity, the Florida Turtle Conservation Trust and the Diamondback Terrapin Working Group in a January 2020 petition. Diamondback terrapins *Malaclemys terrapin* occur along the Atlantic and Gulf coasts from Massachusetts to Texas and are the only turtles that live exclusively in coastal estuaries. Their habitats are also home to blue crabs, which are trapped in pots for human consumption. Baited blue crab pots can trap and drown terrapins, and fleets of traps can remove many individuals from turtle populations, leaving them vulnerable to local extirpation. The petition asked the state to require bycatch reduction devices on all recreational and commercial blue crab pots. These inexpensive devices effectively reduce terrapin entrapment but have little to no effect on crab haul.

Source: *Centre for Biological Diversity* (2020) biologicaldiversity.org/w/news/press-releases/international-turtle-experts-urge-florida-protect-diamondback-terrapins-drowning-crab-pots-2020-02-05

Rain helps save Endangered Manning River turtle

Rainfall in late January 2020 in northern New South Wales, Australia, has eased a dire situation for the endemic Endangered Manning River helmeted turtle *Myuchelys purvisi*, reducing the risk of the reptiles dying in rapidly shrinking river pools. Wildlife experts, however, are concerned because many threats remain, including the risk of large amounts of sediment and ash from local fires being washed into rivers. The Manning River turtle is threatened by habitat loss, predation by foxes, and disease. Droughts over the past year have exacerbated these threats. Urgent action was taken by teams of wildlife experts to move c. 30 turtles from rapidly shrinking waterholes in the Barnard River to a deep pool downstream. The extended drought caused the rivers in the Manning Valley to stop flowing over December 2019 and early January 2020. The organization Aussie Ark aims to establish an insurance population for the Endangered turtle and has taken some rescued individuals into care for conservation and breeding.

Source: *ABC* (2020) abc.net.au/news/2020-02-09/rain-saves-manning-river-helmeted-turtle-but-threats-remain/11943480

INTERNATIONAL

Antarctica records hottest ever temperature at over 18 degrees . . .

Global warming is to blame for Argentine Antarctica recording its hottest day since readings began, Greenpeace has said. Temperatures climbed to 18.3 °C at midday on 7 February 2020 at the research station Esperanza base, the highest temperature on record since 1961, according to the National Meteorological Service. The previous record stood at 17.5 °C on 24 March 2015. The news comes after a decade of record temperatures on the planet, with 2019 being the second hottest year since registers have been kept. The new decade has begun along the same tendency, with January 2020 being the hottest January on record. The effects of global warming have already seen ocean levels rise as a result of melting ice caps. The two largest ice caps on the planet, in Antarctica and Greenland, have already lost an average of a combined 430 billion tons per year since 2006. According to UN climate experts, the ocean level rose 15 cm during the 20th century.

Source: *TheJournal.ie* (2020) [thejournal.ie/antarctica-temperature-4997707-Feb2020](https://www.thejournal.ie/antarctica-temperature-4997707-Feb2020)

. . . alarm over collapse of chinstrap penguin numbers . . .

On a Greenpeace expedition to Antarctica, researchers found that the chinstrap penguin population has plummeted by nearly 60% since it was last counted in 1971. The team used drone technology and individually hand counted the penguins to achieve an accurate population count on Elephant Island, off the coast of Antarctica in the Southern Ocean. Researchers found the total numbers of breeding pairs to be 52,786, which is nearly 60% less than the 122,550 pairs counted in 1971. The species is categorized as Least Concern on the IUCN Red List, but these results suggest an alarming drop in the numbers of chinstrap penguins that inhabit the island. The rocky, snowy terrain of the island that provides a nesting place for the penguins is characterized by steep slopes, making the area difficult to access. This is one reason why the penguins have been little studied for the past 50 years. The shrinking of sea ice and the warming of oceans are amongst the causes of the penguins' decline, together with a drop in krill populations, which the penguins depend on for food.

Source: *The Statesman* (2020) [sbstatesman.com/2020/02/16/stony-brook-researchers-find-chinstrap-penguin-population-plunged-nearly-60](https://www.sbstatesman.com/2020/02/16/stony-brook-researchers-find-chinstrap-penguin-population-plunged-nearly-60)

. . . and ozone-depleting gases may have driven extreme Arctic warming

Gases that deplete the ozone layer could be responsible for up to half of the effects of climate change observed in the Arctic during 1955–2005. This could help to explain the disproportionate toll of climate change on the region, which has long puzzled scientists. The Arctic is warming at more than twice the mean rate of the rest of the globe—a phenomenon known as Arctic amplification—and it is losing sea ice at a staggering pace. Ozone-depleting substances, which include chlorofluorocarbons (CFCs), are known to warm the atmosphere thousands of times more efficiently than carbon dioxide. The researchers compared climate simulations both with and without the mass emission of CFCs that began in the 1950s. Without CFCs, the simulations showed an average Arctic warming of 0.82 °C, compared to 1.59 °C when ozone-depleting compounds were factored in. The researchers saw similarly dramatic changes in sea-ice coverage between the two model simulations.

Source: *Nature* (2020) [nature.com/articles/d41586-020-00108-2](https://www.nature.com/articles/d41586-020-00108-2)

Bumblebee decline points to mass extinction

Bumblebees are in drastic decline across Europe and North America as a result of higher and more frequently extreme temperatures, scientists say. A study suggests the likelihood of a bumblebee population surviving in any given place has declined by 30% over the course of a single human generation. The researchers found that populations were disappearing in areas where the temperatures had risen, and the rates of decline appear to be consistent with a mass extinction. If declines continue at this pace, many of these species could vanish forever within a few decades. The team used data collected over a 115-year period on 66 bumblebee species across North America and Europe to develop a model simulating climate chaos scenarios. They were able to see how bumblebee populations had changed over the years by comparing where the insects were now to where they used to be. Bumblebees play a key role in pollinating crops such as tomatoes, squash and berries. The researchers say their methods could be used to predict extinction risk and identify areas where conservation actions are needed.

Sources: *Science* (2020) doi.org/10.1126/science.aax8591 & *The Guardian* (2020) [theguardian.com/environment/2020/feb/06/bumblebees-decline-points-to-mass-extinction-study](https://www.theguardian.com/environment/2020/feb/06/bumblebees-decline-points-to-mass-extinction-study)

New world map of fish genetic diversity

In a population of animals or plants, genetic diversity can decline much more quickly than species diversity in response to various stress factors such as disease, changes to habitat or climate. However, not much is known about fish genetic diversity around the world. Researchers have now analysed a database that contained the data of over 50,000 DNA sequences representing 3,815 species of marine fish and 1,611 species of freshwater fish. The analysis showed that genetic diversity is unevenly distributed amongst marine and freshwater fish. The greatest genetic diversity was found among marine fish in the western Pacific Ocean, the northern Indian Ocean and the Caribbean. In freshwater fish, genetic diversity was greatest in South America, but comparatively low in Europe. The study contributes to efforts to improve conservation of genetic diversity, and in turn biodiversity. The map of genetic diversity makes it easier to detect diversity hotspots and to plan appropriate protective actions.

Sources: *Nature Communications* doi.org/10.1038/s41467-020-14409-7 (2020) & *Science Daily* (2020) [sciencedaily.com/releases/2020/02/200210104110.htm](https://www.sciencedaily.com/releases/2020/02/200210104110.htm)

Marine parks need to move with the animals they are protecting

Scientists want provisions for mobile marine protected areas, which can shift boundaries or restrictions depending on the movement of aquatic organisms, to be included in the upcoming revamp of the United Nations Convention on the Law of the Sea. The convention has not been updated since it was implemented in 1982. In meetings on the treaty update, negotiators are still describing marine protected areas as having fixed boundaries. This could be problematic and many marine conservation experts think UN officials are failing to prepare for a less predictable future climate by maintaining this traditional view of marine protection. A new study proposes a solution: mobile marine protected areas. With dynamic management, protected areas could shift rapidly to reflect the movement of sensitive species or habitats. The ideal outcome for the researchers would be for the UN to adopt a guiding role in implementing these mobile protected areas, and rely on scientists' input when reviewing them.

Sources: *Science* (2020) doi.org/10.1126/science.aaz9327 & *Popular Science* (2020) [popsci.com/story/environment/mobile-ocean-parks-protect-species](https://www.popsci.com/story/environment/mobile-ocean-parks-protect-species)

EUROPE

Harvest mice found thriving 15 years after reintroduction efforts

In late 2019, 15 years after the release of captive-bred harvest mice *Micromys minutus* in Northumberland, UK, a team of volunteers found two distinctive, orb-shaped nests in dense reed beds close to where the animals had originally been released. This was the first time evidence had been found to suggest that the reintroduction had been successful. The nests were woven into grasses 1 m above ground and contained green leaves, showing they were freshly made. Initial follow-up surveys after the mice had been released in 2004 failed to find any trace of harvest mice, although the traps used for the surveys had successfully caught them in trials. The news of the recently discovered nests was welcomed by researchers and conservationists. A priority species for conservation and protected by law, the harvest mouse is the UK's smallest rodent and the country's only mammal with a prehensile tail, which it uses for grip and balance as it climbs the stalks of tall plants.

Source: *The Guardian* (2019) theguardian.com/environment/2019/dec/13/harvest-mice-found-thriving-15-years-after-reintroduction-efforts

Gay Birders' Club marks 25th anniversary

The Gay Birders' Club celebrated its 25th anniversary in February 2020. Founded in 1995 by a group of gay men in Tolpuddle, UK, the club is now well established as the country's foremost meeting place for those in the LGBT+ community who are interested in wildlife and birding. It has over 300 members from across the UK and abroad, runs c. 70 birding trips per year, organizes holidays and publishes a quarterly magazine, *Out Birding*. For its silver anniversary, the club is seeking to make a contribution to conservation and help tackle the climate emergency by joining the World Land Trust in its goal of protecting 3,953 acres of prime wildlife habitat in northern Mexico. The group aims to raise funds to help local partner Naturalia secure 25 acres of this special habitat, which is home to a rich diversity of threatened wildlife. Contributions can be made on the club's fundraising page at justgiving.com/fundraising/gaybirdersclub.

Source: *Bird Guides* (2020) birdguides.com/news/gay-birders-club-marks-25th-anniversary

Agricultural reforms in UK after break from EU farm subsidies

The UK's withdrawal from the EU means the country is no longer tied to EU farm subsidy policies, which to many researchers is a positive development. In January 2020 the UK government proposed radical changes to GBP 3 billion per year in agricultural spending that will focus the money on benefits to climate, ecosystems and the public. Under the new bill, farmers will be given subsidies not simply for cultivating land—the current EU system—but for delivering public services. These include sequestering carbon in trees or soil, enhancing habitat with pollinator-friendly flowers and improving public access to the countryside. To ease the transition, direct subsidies will be phased out over 7 years beginning in 2021, and the new payments for environmental services will be tested in pilot projects. Farmers could receive payments for sequestering carbon with tree plantations or restored peatlands, restoring heritage buildings or enhancing landscape beauty to boost tourism. Other payments will help farmers adapt to climate change or reduce their environmental impact.

Source: *Science* (2020) sciencemag.org/news/2020/01/united-kingdom-embark-agricultural-revolution-break-eu-farm-subsidies

France proclaims its first forest national park

In November 2019 France created its 11th national park. Located primarily in the Burgundy region, the core area of the Park covers 56,614 ha and the buffer zone 184,475 ha. The Parc National des Forêts protects a lowland deciduous forest, an ecosystem poorly represented in the French protected area network. The forests are dominated by beeches and oaks, and most of them are > 200 years old. The biodiversity is typical of old growth deciduous European forest. The Park harbours viable populations of boars and several species of deer, and it protects the largest French population of the black stork, a species categorized as Endangered in the country. To strengthen forest protection and to monitor ecological changes over time, an integral 3,100 ha nature reserve is being created within the Park's core area. The Park is expected to attract many scientists, foresters and others aiming to understand the response of the forest to ongoing climate change.

Source: *Parcs Nationaux* (2019) parcsnationaux.fr/fr/actualites/parc-national-de-forets-le-11eme-parc-national-francais-voit-le-jour

Stories of coexistence with large carnivores

The EU-funded LIFE EuroLargeCarnivores Project has launched a Europe-wide video campaign that features testimonials from people sharing the landscape with large carnivores. The videos demonstrate how people from all over the continent have found ways to coexist with these species. There are c. 17,000 wolves, 17,000 bears, 9,000 lynxes and 1,250 wolverines living in Europe (not including Russia). Where people and large carnivores share the same landscapes, conflicts can arise. People sharing their experiences in the videos include farmers and sheep herders that have found ways to protect their livestock, ecotourism operators and ordinary people from rural communities that accept and appreciate the presence of large carnivores. The videos were filmed in Finland, Norway, Germany, France, Slovakia, Romania, Italy, Spain, Portugal, Poland, Austria and Hungary, and have been published on the Project's YouTube channel.

Source: *Emerging Europe* (2020) emerging-europe.com/after-hours/stories-of-coexistence-emerging-europeans-share-their-experiences-of-living-with-large-carnivores

A beetle vs Romania's most awaited infrastructure project

The European Commission has postponed its decision on granting financing for Romania's most awaited infrastructure project: the Sibiu–Pitești highway, which should link southern Romania and the capital Bucharest to the Transylvania region and Western Europe. The Committee's decision was determined by vague environment protection objectives included in the report on the project's environmental impact, which the Romanian government sent to Brussels with the financing request. Romania is trying to get EU financing for 85% of the project's cost, which is estimated to be c. EUR 3 billion. The Commission's concerns are related to the project's impact on *Morimus funereus*, a species of beetle that lives in the area where the highway will be built. Also known as the tailor beetle, the species is on the list of animal and plant species of community interest whose protection requires the designation of special areas of conservation. The EU authorities have sent Romania a list of questions on the project's impact and the protection measures to be implemented.

Source: *Romania Insider* (2020) romania-insider.com/romania-ec-beetle-highway-project

AFRICA

Diversifying approaches to conservation in Africa

Conservationists do not always agree about the best ways to reinforce the protection of nature, and such debates can become confrontational. In a letter to the journal *Science*, a group of conservationists have argued that the model of trophy hunting in Africa to finance conservation is neither sustainable nor equitable, and have offered some alternatives. The letter's signatories promote meeting the needs and values of a variety of stakeholders and local communities, by empowering people to participate in decisions that affect them. They support a number of strategies for conserving natural landscapes and their ecological functions, including connecting local needs with the wider world, community-led sustainable practices, reducing negative human-wildlife interactions and tourism reforms and participatory approaches. A more diverse model for biodiversity conservation in Africa will be environmentally respectful, promote local knowledge and cultural exchange, and encourage the participation of women.

Source: *The Conversation* (2020) theconversation.com/diversifying-approaches-to-conserving-nature-126526

Climate change fuels locust swarms ravaging East Africa

Across East Africa enormous swarms of desert locusts have spread through the region in February 2020, destroying crops and pastures at a voracious pace. The UN warned of a severe threat to food security in a part of the world where millions already face hunger. Experts say the outbreak—the worst in recent memory—is caused by an increased number of cyclones. There is a link between climate change and the unprecedented locust crisis plaguing Ethiopia and East Africa, according to UN Secretary General António Guterres. Warmer seas mean more cyclones, generating the perfect breeding conditions for locusts. In January the UN's Food & Agriculture Organization stated the number of locusts in East Africa could expand 500 times by June. In 2019, the October–December rainy season was among the wettest in 40 years, with cumulative rainfall ranging from 120% to 400% of normal. Locust outbreaks are expected to become more frequent and severe as a result of climate change. Locust eggs can lay dormant in the soil for decades and mass hatch in response to extreme rainfall.

Source: *Bloomberg* (2020) [bloomberg.com/features/2020-africa-locusts](https://www.bloomberg.com/features/2020-africa-locusts)

Launch of Community Conservation Fund of Namibia...

In February 2020 the Community Conservation Fund of Namibia was launched in the country's capital, Windhoek. The organization was established to address the problem of limited funding in community-based natural resources management, and to create a sustainable finance framework for conservation. As part of the fund, Germany's government announced the inception of a c. EUR 5 million grant for addressing human-wildlife conflict, specifically targeted at communal conservancies in Namibia. The human-wildlife conflict project is expected to run for 4 years and the targeted beneficiaries are the registered communal conservancies mainly in central, west, east and northern Namibia, where people are affected by negative interactions with key species such as lions, elephants, hyenas, wild dogs and crocodiles. The number of conservancies benefitting from the fund is likely to reach 90–100 within the next 3–4 years, and it is expected that over time an increasing number of registered conservancies will become financially sustainable as their wildlife populations recover and partnerships with the private sector prosper.

Source: *Africa News* (2020) africanews.com/2020/02/14/the-community-conservation-fund-of-namibia-ccfn-was-successfully-launched-in-the-capital-today

... and new environmental protection project in Niger River Basin

The Integrated Programme for Development and Adaptation to Climate Change in the Niger Basin was launched in February 2020 in Bamako, the capital of Mali. The programme is implemented by the Niger Basin Authority, which comprises the nine countries of the Niger Basin: Benin, Burkina Faso, Chad, Ivory Coast, Guinea, Niger, Nigeria, Mali and Cameroon. The programme's aim is to tackle food insecurity while protecting the environment, and to enable the development of climate resilience of resources, ecosystems and human populations. The lands of the Niger Basin need to be protected from erosion, and the programme aims to develop agroforestry and stabilize sand dunes. The Mali government will also carry out water and soil conservation works to restore degraded land and carry out mechanical and biological treatment works in ravines. To ensure the sustainability of fishery resources in the rivers of the Niger Basin, spawning grounds and wetlands will be rehabilitated.

Source: *Afrik21* (2020) afrik21.africa/en/mali-environmental-protection-project-launched-in-niger-basin

Concerted action proposed to conserve giraffes...

Seven African countries proposed a plan of concerted action for conserving giraffes to be considered at the 13th Conference of Parties to the United Nations Environment Programme's Convention on Conservation of Migratory Species (CMS CoP 13), which was held in February 2020 in Gandhinagar, India. The proposal, prepared by representatives from Cameroon, Chad, Ethiopia, Kenya, Niger, Tanzania and Zimbabwe, in coordination with the non-governmental Giraffe Conservation Foundation, called for the development of Africa-wide, national and regional conservation plans. The population of giraffes has declined by nearly 28% since 1980, leaving an estimated 110,000 giraffes globally. Originally occurring in 28 African countries, the giraffe has already become extinct in seven: Burkina Faso, Eritrea, Guinea, Mali, Mauritania, Nigeria and Senegal. Loss, fragmentation and degradation of their habitat, illegal harvesting and trade, disease, and civil unrest are major threats to the species.

Source: *Down To Earth* (2020) downtoearth.org.in/news/wildlife-biodiversity/african-countries-propose-concerted-action-to-protect-giraffes-at-cms-cop-13-69337

... and lifeline for Africa's most threatened primates

Focusing on the most threatened group of primates in Africa, the University of Cumbria, UK, has spearheaded groundbreaking actions in The Gambia. With a global population of 2,500 individuals, Temminck's red colobus *Piliocolobus temminckii* is categorized as Endangered on the IUCN Red List of Threatened Species. Population numbers are decreasing as a result of habitat loss, climate change and disease, and without intervention the species could become extinct in as little as a decade. The monkeys have now been thrown a potential lifeline in the form of an ambitious 3-year community-based project. Backed by international organizations, including National Geographic and Global Wildlife Conservation, the University's programme has helped set up two key sites where local teams and partners will work on measures to help reverse the species' population decline. The teams will roll out environmental education, set up primate monitoring and forest patrols, and develop community tree nurseries, woodlots and ecotourism.

Source: *University of Cumbria* (2020) cumbria.ac.uk/about/news/articles/articles/lifeline-for-africas-most-threatened-primates.php

AMERICAS

Indigenous Amazonians use art for environmental advocacy

Visual artist Denilson Baniwa and singer Djuena Tikuna are using their art to call the world's attention to key questions about socio-environmental issues in the Amazon, such as the impact of colonial legacies. Denilson is a representative of the Baniwa, a people living along the Rio Negro that runs from the Brazilian state of Amazonas to the Venezuelan border. He seeks to denounce violence against Indigenous communities in Brazil, and to criticize president Jair Bolsonaro's position on environmental questions such as pesticide use and mining on Indigenous lands. Djuena, who is also a journalist and comes from Brazil's largest Indigenous tribe, uses songs performed in her native Tikuna language as a form of resistance and advocacy. She works to highlight issues such as health, education, territory and access to culture, and cooperation amongst Indigenous women who are working together to protect their lands and traditions. Source: *Mongabay* (2020) news.mongabay.com/2020/01/indigenous-artists-from-the-amazon-use-art-for-environmental-advocacy

Biocontrol beetle could help save hemlock forests. . .

A 5-year study has showed initial positive signs for one of North America's most threatened trees, the eastern hemlock *Tsuga canadensis*. The researchers aim to use biocontrol to reduce the population of an aphid-like pest that has caused widespread decline of the trees. The hemlock woolly adelgid *Adelges tsugae*, a tiny insect native to Japan, kills hemlock trees by sucking sugars from their needles, but a predatory black beetle *Laricobius nigrinus*, reared and released by researchers, is having an impact on local populations of the pest. At nine sites where the beetle was introduced, the study measured the difference between adelgid-infested trees isolated from the beetle and those exposed to it, and found that 30–40% of the pest's egg sacs had come under attack from the introduced predator. However, although first results are encouraging, the beetle's impact is not yet strong enough to reduce total adelgid populations in the USA, and the researchers are considering the introduction of other predator species to assist the beetle in tackling the problem.

Source: *Science* (2020) sciencemag.org/news/2020/01/aphid-munching-beetle-could-help-save-hemlock-forests

... and modified gut bacterium may offer hope for honey bees

Honey bees are facing an unprecedented crisis. Since the 1940s, the number of honey bee hives in the USA has dropped from 6 million to 2.5 million. A combination of colony-killing mites, viral pathogens, and possibly pesticides is largely to blame. Now, researchers are tapping an unusual ally in the fight to bring the bees back: a bacterium that lives solely in the bees' guts. By genetically modifying the bacterium to trick the mite or a virus to destroy some of its own DNA, scientists at the University of Austin, Texas, have improved bee survival in the lab and killed many of the mites that were parasitizing the insects. The work was carried out on small groups of bees and has yet to be tested in whole hives or outdoors but has potential to be effective over the longer term. However, although the modified bacteria could potentially act like a customized medicine for honey bees, the researchers caution that bacteria are typically not easy to contain, raising concerns about using this approach in the wild.

Source: *Science* (2020) sciencemag.org/news/2020/01/mite-destroying-gut-bacterium-might-help-save-vulnerable-honey-bees

New Fisheries law in Belize for wildlife and livelihoods

A comprehensive new Fisheries Resources Bill passed by the Senate of Belize in January 2020 is set to modernize the country's small-scale fishing industry. The law, replacing decades-old legislation, seeks to ensure the sustainable management of resources, enhanced protection of coral reefs, mangroves, and coastal waters, and improved decision-making, food security, and resilience among local communities. Various reforms are planned: driving a shift from a narrower focus on fish stocks to a broader, ecosystem-based approach, implementing a rights-based managed access system to encourage fishers to act as stewards of their fishing grounds, and improving participation of fishing communities in management decisions through a Fisheries Advisory Council. The Council will have a role in establishing penalties to counter illegal fishing, defining measures to enable surveillance and enforcement, and the co-management of marine reserves, enhancing community engagement and cooperation with the new legislation.

Source: *Wildlife Conservation Society* (2020) newsroom.wcs.org/News-Releases/Article/ArticleView/articleId/13726/New-Fisheries-Law-in-Belize-Protects-Both-Marine-Species-and-Livelihoods.aspx

Climate change causes mass die-off among seabirds

A study investigating the mass die-off of common murres *Uria aalge*, with over 62,000 emaciated birds washing up along a vast stretch of the North American Pacific coastline in 2015–2016, has concluded that it was caused by a record-breaking marine heatwave. The authors estimate that 1 million common murres died as a result of changes affecting the entire ecosystem, which were triggered by the heatwave that caused temperature spikes persisting from 2014 to 2016. The unprecedented magnitude, duration, and geographical extent of the die-off was associated with multi-year reproductive failures across numerous colonies. The heatwave was probably caused by continued ocean warming as a result of climate change combined with the effects of the Pacific Decadal Oscillation, and exacerbated by a strong El Niño in 2015–2016. Ocean temperatures from California to Alaska exceeded the average by 2–3 standard deviations, causing shifts in the food web which affected the availability of the murres' prey and increased competition with other marine species.

Source: *Inside Climate News* (2020) insideclimatenews.org/news/15012020/sea-bird-death-ocean-heat-wave-blob-pacific-alaska-common-murre

Defender of monarch butterflies found dead in Mexico

The conservation community is mourning the loss of Homero Gómez González, a Mexican environmentalist who was found tortured and murdered in the western state of Michoacán in January 2020. Gómez González, a former logger turned environmental activist who managed the El Rosario butterfly reserve, disappeared 2 weeks before his body was discovered. Fellow activists say he is likely to have been targeted because his work defended the wintering grounds of the monarch butterfly *Danaus plexippus* from illegal exploitation. Millions of the butterflies migrate 3,200 km from Canada annually to overwinter in the forests around El Rosario. Although the sanctuary is a UNESCO World Heritage Site and protected by federal law, it remains under threat from illegal logging and avocado farming. Gómez González's killing is one in a series of attacks on environmental defenders in Mexico, which continue despite promises from the country's president, Andrés Manuel López Obrador, to tackle the issue.

Source: *The Guardian* (2020) theguardian.com/world/2020/jan/30/mexico-activist-monarch-butterflies-dead-homero-gomez-gonzalez

ASIA & OCEANIA

More landslides in High Mountain Asia region

More frequent and intense rainfall events as a result of climate change could cause more landslides in the High Mountain Asia region of China, Tibet and Nepal, according to the first quantitative study of the link between precipitation and landslides in the region. High Mountain Asia stores more fresh water in its snow and glaciers than any place on Earth outside the poles, and more than a billion people rely on it for drinking and irrigation. The researchers used satellite estimates and modelled precipitation data to project how changing rainfall patterns in the region might affect landslide frequency. Increasing temperatures will cause more intense rainfall in some areas, and this could lead to more landslides in the border region of China and Nepal. Especially in areas currently covered by glaciers and glacial lakes, this could cause cascading disasters such as landslide dams and floods that affect areas downstream.

Source: *Phys.org* (2020) phys.org/news/2020-02-climate-trigger-landslides-high-mountain.html

Can orangutans persist in oil palm plantations?

A new study argues that instead of undertaking rescue operations, in which orangutans found on plantation and agricultural land are physically relocated to ever dwindling fragments of pristine Bornean forest, conservationists should try to bolster the animals' survival where they are. But not everyone working in orangutan conservation agrees, and there are hurdles to overcome, particularly minimizing negative interactions with humans. There is little data on the relocated orangutans' long-term survival, but some reports from release sites suggest that survival rates for reintroduced orangutans may be < 20%. Reasons could include the relocated animals engaging in fights with resident orangutans or experiencing difficulties adapting to a change in surroundings. Supporting orangutans in plantations, e.g. by ensuring they have access to nearby forest and food resources, could help. There is, however, still much work to do in understanding how orangutans fare outside their ideal habitat.

Sources: *Biodiversitas* (2020) smujo.id/biodiv/article/view/4852 & *Scientific American* (2020) scientificamerican.com/article/orangutans-are-hanging-on-in-the-same-palm-oil-plantations-that-displace-them

Threatened cheetahs can return to Indian forests

India's top court has said cheetahs *Acinonyx jubatus* can be reintroduced in the country, 70 years after they were extirpated. Responding to a plea by the government, the Supreme Court stated African cheetahs could be introduced to the wild in a carefully chosen location. The cheetah is categorized as Vulnerable on the IUCN Red List of Threatened Species and there are only 7,100 individuals left in the wild, almost all of them in Africa. The Asiatic cheetah, which once roamed in parts of India, is now only extant in Iran, where there are thought to be c. 50 individuals left. India's Supreme Court said the species would have to be introduced on an experimental basis to find out if it could adapt to Indian conditions. Studies show that at least 200 cheetahs were killed in India, mostly by sheep and goat herders, during the colonial period. It is the only large mammal to become locally extinct after the country gained independence in 1947.

Source: *BBC* (2020) bbc.co.uk/news/world-asia-india-51279206

New insights in genetic diversity of Philippine fruit bats

There may be more fruit bat species in the Philippines than previously thought, according to a genetic study, meaning that each individual species could be more threatened than initially assumed. Researchers collected tissue samples from 111 bats at 17 sites, including 19 of the 26 known species of fruit bats in the Philippines. Two key findings were highlighted: at least four bat species in the country are genetically different from their counterparts elsewhere in South-east Asia, and one fruit bat found only in the Philippines (the Philippine pygmy fruit bat *Haplonycteris fischeri*) exhibits significant genetic variation across different island groups within the country. Generally, a greater degree of variation between samples suggests a higher likelihood that the specimens come from distinct species. A 2–3% difference is the usual benchmark to identify separate species; for bats, the threshold is considered to be 2%. The researchers found a 6–7% difference in genetic distance between samples, suggesting genetically distinct populations. There may be a need to reassess the conservation status of Philippine bat taxa as a result of these findings. Currently 11 species of the country's fruit bats are considered threatened.

Source: *Mongabay* (2020) news.mongabay.com/2020/02/philippine-fruit-bats-may-be-entirely-new-species-of-their-own-dna-suggests

As unprecedented bushfires have devastated Australia...

Australia has been ravaged by devastating bushfires, the likes of which the nation has never seen. Fuelled by record-breaking temperatures and months of severe drought, these fires had burned > 26.4 million acres as of January 2020. Dozens of people, including several volunteer firefighters, have died. Thousands of homes, buildings and livelihoods have been destroyed. Estimates suggest that > 1.25 billion animals may have been killed directly or indirectly, including thousands of koalas and other iconic animals such as kangaroos, wallabies, gliders, potoroos, cockatoos and honeyeaters. Many forests will take decades to recover and the crisis is potentially pushing some animals closer to the brink of extinction. More frequent and intense heatwaves and prolonged dry periods as a result of climate change are creating the conditions for more frequent and expansive fires.

Source: *WWF* (2020) worldwildlife.org/stories/australia-s-devastating-bushfires

... 113 species need urgent conservation attention

The Kangaroo Island dunnart, the northern corroboree frog and the Blue Mountains water skink are among the 113 species that need urgent attention after the bushfire crisis, according to an analysis by the Australian government. Nineteen species of mammals, 13 birds, 20 reptiles, 17 frogs, five invertebrates, 22 crayfish and 17 fish species have been identified as most in need of assistance in coming months. The list was compiled by an expert panel who analysed which species required short-term assistance and long-term recovery work. It is based on the species' status before the fire crisis, the proportion of their area of distribution affected by the fires, and their likely response to fire.

Source: *The Guardian* (2020) theguardian.com/australia-news/2020/feb/11/expert-panel-says-113-species-need-urgent-attention-after-australias-bushfires

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 David Brugiere and Annkathrin Sharp. Contributions from authoritative published sources (including websites) are always welcome. Please send contributions by e-mail to oryx@fauna-flora.org.