

Briefly

SPOTLIGHT ON TECHNOLOGY

Robotic monster wolf guards Japanese town against bears...

In the Japanese town of Takikawa, on the country's northern island of Hokkaido, shaggy, wolf-shaped robots with glowing red eyes and speakers that play frightening sounds have been installed to guard the town from black bears. Residents had reported bears emerging from the surrounding forests to roam the town. Japan as a whole experienced an increase in bear sightings and encounters: 13,670 bear sightings were reported across the nation's various islands during April–September 2020, the highest tally for a 6-month span since 2016. Conservation scientists say this may be caused by deforestation and a paucity of acorns in the forests, forcing the bears closer to human settlements in search of food. In Takikawa the robots were installed in September 2020, and no bear encounters were recorded up to November, suggesting the robots are effective at least in the short term.

Source: *Smithsonian Magazine* (2020) smithsonianmag.com/smart-news/robotic-monster-wolf-protects-japanese-town-bears-180976300

... and robotic tortoises could help protect their wild counterparts

A major threat to the Mojave desert tortoise in California are predators. In some places, large populations of coyotes and ravens are sustained on human food waste, but they also prey on tortoises. Culling the predators is not desirable; the common raven is itself a federally protected species. To help protect the reptiles, a team of scientists and engineers have been developing robotic tortoises—intelligent decoys that interact with predators, discouraging them from pursuing the mimicked prey. They developed a sophisticated 3D printed model that mimics the appearance of a juvenile Mojave desert tortoise, including its complex colour pattern. The robot reacts to predator attacks by delivering a barrage of light, sound and nonlethal electric shocks. Motion sensors detect whether the decoy is lifted or flipped, indicating whether the predator is more likely to be a coyote or raven, which tend to lift vs flip tortoises, respectively.

Source: *Robotics Tomorrow* (2020) robotics-tomorrow.com/story/2020/10/these-robotic-turtles-are-nobodys-prey-/15795

Drone technology helps to protect the environment in novel ways...

Drone technology is advancing: the unmanned aerial vehicles are being equipped with new types of sensors, or with advanced cameras that allow 3D models to be produced from images. For example, scientists have developed drones that position sensors in trees, to monitor environmental variables in hard-to-navigate biomes such as the Amazon rainforest. Drones are also an effective and affordable tool to monitor the populations of threatened species, such as hippopotamuses in Botswana. Studies have shown that drones are just as effective as land surveys in estimating hippopotamus numbers, and they enable monitoring from a safe distance, especially for remote and aquatic areas. In fruit farming, drones can help farmers to improve yields and stay ahead of problems. For example, drone images and data can help produce an inventory of tree height and canopy volume, monitor tree health, manage pests and diseases and estimate fruit production and yield. Drones are also used to create marketing videos.

Source: *Digital Journal* (2020) digitaljournal.com/tech-and-science/science/drones-are-helping-to-protect-the-environment-in-novel-ways/article/580646

... and drone training in Senegal aims to improve ecological monitoring

The Senegalese government wants to improve biodiversity conservation in the country's national parks. In November 2020 a training course was held to train agents and eco-guards in the piloting of unmanned aerial vehicles and the collection, processing and analysis of drone data. In 64 hours of classes, including 20 hours of theory and 44 hours devoted to practice, learners were given an introduction to drone piloting, environmental monitoring, ecological monitoring of birds, assessment of human impacts and data processing and analysis. These new skills should help improve the surveillance and ecological monitoring of birds in the Djoudj National Bird Sanctuary, where wildlife is threatened by pollution and the exploitation of land for agriculture, particularly rice cultivation. Drones can obtain images and information from areas that are inaccessible for traditional ecological monitoring. The use of this technology in Senegal will also facilitate the processing of data, especially about birds that nest in colonies of thousands of individuals.

Source: *Afrik21* (2020) afrik21.africa/en/senegal-the-state-is-studying-the-drone-trail-for-the-security-of-its-national-parks

Artificial intelligence detects gunshots to fight poaching...

Analysing recordings of gunshots could help save threatened species by identifying poacher hotspots. New technology has been developed by the Zoological Society of London and Google Cloud. The system uses artificial intelligence to analyse audio recordings for gunshots and can be used to alert anti-poacher patrols. Conservationists currently rely on camera traps to track poachers, but acoustic sensors are cheaper, record continuously and can detect events up to 1 km away, within a 360-degree radius. The research team trialled this technology in Dja Faunal Reserve in Cameroon. They installed 69 audio recording devices in the Reserve for 1 month, generating the equivalent of 267 days of continuous sound recordings. Google's artificial intelligence searched the recordings for any gunshots, which were then linked to a specific location within the Reserve. The hope is that pinpointing poaching hotspots could help track down poachers and prevent further hunts. By using machine learning, large amounts of data can be analysed within hours, as there is no need for a human to listen to all recordings.

Source: *BBC* (2020) bbc.co.uk/news/technology-54980348

... and supports monitoring of coral reef health

Reef Support, an automatic warning system that uses artificial intelligence and satellite imagery to detect coral bleaching, algal blooms, sediment plumes and debris caused by humans, won the Copernicus Masters 2020 competition. Reef Support addresses environmental and economic aspects of coral reef health with state-of-the-art technology and also provides guidelines for crowd and pollution control, debris management and coral restoration. According to the team behind this innovative tool, different types of data can be combined to form a picture of reef ecology across a wide range of spatial and temporal scales. The Reef Support platform can also be used for strategic planning and resource management in aquaculture farming. Its deep learning algorithm adapts to user applications and regional tendencies. Celebrating its 10th iteration in 2020, the international innovation competition Copernicus Masters awarded prizes in 22 categories to outstanding products and services based on Earth observation data. A total of 591 participants from 47 countries entered the competition.

Source: *GPS World* (2020) gpsworld.com/coral-reef-conservation-technology-wins-copernicus-masters-2020-competition

INTERNATIONAL

Addressing gender in actions for forests and climate change

The role of women in the success of climate action initiatives and the sustainable management of forest resources has been proven many times. Yet in practice, challenges remain when it comes to gender issues being included in the design and implementation of forest-based climate action plans. In an effort to address these challenges, many member states of the Governors' Climate and Forests Task Force are taking important steps toward closing gender inclusion gaps and integrating gender into their work on the forest and climate agenda. In 2020, the Task Force piloted a series of online learning and knowledge-sharing workshops on gender and REDD+ for member states in Mexico, Peru, Indonesia and Brazil. Participants were introduced to evidence on the relationship between gender equality and forest management, and good practice examples for mainstreaming gender into REDD+. There was also emphasis on encouraging participants to share their experiences—including both successes and challenges—with respect to addressing gender in the context of their programmes.

Source: *Forest News* (2020) forestsnews.cifor.org/68417/mobilizing-to-address-gender-in-forests-and-climate-change-actions

Forest canopy bridges help wildlife navigate human-dominated landscapes

Super typhoon Rammasun swept over Hainan, an island province of southern China, in July 2014 and destroyed critical parts of the Hainan Bawangling National Nature Reserve, home to the world's 30 remaining Hainan gibbons. After noticing that the primates were no longer able to access their usual canopy routes, the managers of the Hainan gibbon conservation project installed aerial bridges. It took the gibbons more than 5 months to catch on, probably because they had never encountered an artificial structure before. Aerial bridges have been used in Peru, the UK, India, Kenya, Brazil, Australia and other countries to help a diversity of animals such as marsupial gliders, squirrels, sloths and monkeys. Aerial bridges are no replacement for protecting intact habitat, but they can play an important role in helping species survive and connecting habitats in an increasingly human-dominated landscape.

Source: *Scientific American* (2020) scientificamerican.com/article/rain-forest-canopy-bridges-aid-slow-lorises-gibbons-and-other-threatened-species

All-female scientific coalition calls for protection of Antarctic Peninsula

Climate change and human activities are harming Antarctica and threatening wildlife from humpback whales to microscopic algae, 289 scientists and conservation experts say, urging protections for the region. The coalition—all women—called for creating a new marine protection area around Antarctica, as governments began a 2-week meeting of the Commission for the Conservation of Antarctic Marine Living Resources in October 2020. Two areas in Antarctica are already protected: the South Orkney Islands and the Ross Sea. The new protection area, proposed in 2018 by commission members Chile and Argentina, would cover the western Antarctic Peninsula, the northernmost part of the southernmost continent. Protecting the peninsula would show the international community that collective action to tackle a global problem is possible. The Commission is also asked to consider marine protection areas off East Antarctica and in the Weddell Sea. The scientists who signed the commentary are part of the Homeward Bound programme, which organizes expeditions for women to Antarctica. For decades, women scientists were prevented from traveling to the continent's bases because of a lack of facilities for women.

Source: *Reuters* (2020) uk.reuters.com/article/us-antarctica-conservation-idUKKBN2742OG

COVID-19: why bats are not to blame

Bat experts have launched a campaign to dispel unfounded myths about bats, which are undermining conservation efforts. The animals have long been the target of disdain, persecution and prejudice, and fears and myths about them have only intensified during the time of COVID-19. Virus researchers in France and Zimbabwe have collected samples and droppings from cave-dwelling bats and extracted and sequenced the genetic material of bat viruses. They have discovered coronaviruses, including one in the same family as Sars and Sars-CoV-2. The precise origin of the Sars-CoV-2 virus has not been pinned down, but the majority of scientists agree that it crossed into humans from an animal, most likely a bat. Scientists estimate that three out of every four new or emerging infectious diseases in people come from animals. But rather than blaming one species or another, we need to reassess our relationship with the natural world: it is our increasing interference with these wild creatures that is at the root of the problem.

Source: *BBC* (2020) bbc.co.uk/news/science-environment-54246473

Alarm as Arctic sea ice not yet freezing in October

For the first time since records began, the main Arctic sea ice nursery in Siberia had not begun to freeze by late October 2020. The delayed annual freeze in the Laptev Sea was caused by protracted warmth in northern Russia and the intrusion of Atlantic waters. Ocean temperatures in the area had climbed to over 5 °C above average, following a record breaking heatwave and the unusually early decline of the previous winter's sea ice. Graphs of sea-ice extent in the Laptev Sea were not showing the usual healthy seasonal pulse. As a result, there was a record amount of open sea in the Arctic. This year's Siberian heatwave was made at least 600 times more likely by industrial and agricultural emissions. Climate change also leads to more balmy Atlantic currents being pushed into the Arctic, breaking up the usual stratification between warm deep waters and the cool surface, and making it difficult for ice to form. The downward trend is likely to continue until the Arctic has its first ice-free summer. The data and models suggest this will occur between 2030 and 2050.

Source: *The Guardian* (2020) theguardian.com/world/2020/oct/22/alarm-as-arctic-sea-ice-not-yet-freezing-at-latest-date-on-record

At sea and in court, the fight to save right whales intensifies

As numbers of North Atlantic right whales keep declining because of entanglements with fishing gear and fatal ship strikes, conservationists are using acoustic technology and waging an escalating legal battle to push for better protection of the world's rarest cetacean. Only c. 360 individuals were left in October 2020, 50 less than in 2019. Scientists are using cutting-edge acoustic technology to monitor right whales and identify where they are coming into contact with ships and fishing lines: hydrophones mounted on the ocean floor collect data about their movements, and autonomous underwater gliders relay their calls in near real-time, providing opportunities to alert mariners to slow down when whales are in the area. Rescue teams are scrambling to disentangle animals when they are spotted, and environmental advocates are making significant headway suing state and federal agencies to enforce provisions of the Endangered Species Act and Marine Mammal Protection Act, which were written to protect the whales from extractive industries such as lobster fishing.

Source: *Yale Environment 360* (2020) e360.yale.edu/features/at-sea-and-in-court-the-fight-to-save-right-whales-intensifies

EUROPE

Latest evaluation shows Europe's nature in serious, continuing decline. . .

Unsustainable farming and forestry, urban sprawl and pollution are the top pressures to blame for a drastic decline in Europe's biodiversity, threatening the survival of thousands of animal species and habitats. In addition, EU nature directives and other environmental laws are still not being implemented properly by member states. Most protected habitats and species are not in good conservation status and much more must be done to reverse the situation, according to the European Environment Agency's (EEA) *State of Nature in the EU* report, published in October 2020. The EEA report shows some positive developments in conservation efforts: both the number and area of sites protected under the Natura 2000 network have increased over the last 6 years and the EU met the global targets in this respect, with c. 18% of its land area and nearly 10% of marine area protected. However, most protected habitats and species have a poor conservation status and many of them continue to decline. The assessment shows that safeguarding the health and resilience of Europe's nature, and people's well-being, requires ambitious climate action, and fundamental changes to the way we produce and consume food, manage and use forests, and build cities. *Source: European Environment Agency (2020) eea.europa.eu/highlights/latest-evaluation-shows-europes-nature/*

. . . but Iberian lynx continues to flourish after successful conservation efforts

Two decades ago, it was hard to see how the Iberian lynx would survive, with fewer than 100 of them remaining, and less than a quarter of those thought to be breeding age females. To reverse the species' decline, a LIFE+ programme was founded with assistance from the EU, with a focus on captive breeding and release of captive-bred animals into carefully managed habitats. It has been so successful that the species has spread well beyond the original 260 km² release area and has progressed into established populations in the Spanish regions of Andalusia, Castilla-La Mancha and Extremadura, and across the border in southern Portugal. The number of wild lynx in Spain and Portugal is now estimated to be c. 900. Although still categorized as an Endangered species, the Iberian Lynx was moved off of the Critically Endangered list in 2015. *Source: Euro Weekly News (2020) euroweeklynews.com/2020/10/11/iberian-lynx-continues-to-flourish-after-successful-conservation-efforts-in-spain*

French company Ÿnsect to expand insect protein production

In 2020, French insect farming start-up Ÿnsect announced the extension of its Series C funding to USD 372 million. The company is cultivating mealworms to produce protein products. These products are consumed by fish and livestock, and are used to produce pet food and fertilizers. As such, they sustainably replace other, less efficient, animal proteins in the supply chain. Studies have shown that using cultivated mealworm products has led to a 34% increase in yield for rainbow trout, a 40% mortality reduction in shrimp and a 25% increase in yield for rapeseed. With a vertical farm, Ÿnsect said it uses 98% less land than conventional farms, while significantly reducing the carbon footprint of protein production and generating zero waste. Analyses show that the project is carbon negative, with a sequestered value chain, and avoids emitting more carbon dioxide. Co-founder and CEO Antoine Hubert said insect farming can play a pivotal role in producing more food with less available land and fewer resources. Mealworms are the larval form of the mealworm beetle *Tenebrio molitor*.

Source: Feedstuffs (2020) feedstuffs.com/news/ynsect-expand-insect-protein-production

Race to save Romania's 65 million-year-old fish

On a tiny stretch of the fast-flowing Valsan river in Romania lives one of the rarest fish in Europe, and quite possibly the world. The 65-million-year-old asprete *Romanichthys valsanicola* was first discovered by a biology student in 1956, and for decades it has teetered on the brink of extinction. This small nocturnal fish hides under rocks, has an uncertain future and faces myriad threats. Official estimates suggest there are only 10–15 individuals, which are thought to exist on a 1 km stretch of the shallow, rocky Valsan. In the early 2000s, there were c. 200 individuals. A small team of scientists and conservationists are campaigning to save the endemic fish species, encouraged by a recent discovery reported by a local fish biologist, who found 12 specimens in a small section of the Valsan river. Prominent mountain climber and conservationist Alex Gavan, biologist Nicolae Craciun and their team drafted an action plan to save the prehistoric fish, which includes ecological restoration of the Valsan river basin, an around-the-clock warden, raising local awareness and, ultimately, a riverside conservation centre that will double up as a captive breeding facility. *Source: BBC (2020) bbc.co.uk/news/world-europe-54823866*

New EU initiatives launched to safeguard biodiversity. . .

In December 2020, after an exceptionally challenging year for biodiversity conservation, the European Union, environmentalist and actor Leonardo DiCaprio, and Global Wildlife Conservation (GWC) launched two initiatives, worth EUR 34 million, to better protect the planet. Both initiatives exemplify the EU's commitment to delivering the EU's Green Deal and GWC's mission to conserve the diversity of life on Earth. With a budget of EUR 30 million, the Rapid Response for Ecosystems, Species and Communities Undergoing Emergencies (Rapid RESCUE) initiative will provide a rapid response to emerging biodiversity threats. A major focus will be the reduction of the impacts of future emergencies, like those caused by the current pandemic, on ecosystems critical to the planet's health, protected areas and surrounding vulnerable communities. EUR 4 million will go towards preserving Virunga National Park, the most biodiverse protected area in Africa. The Park earned international acclaim through a 2014 Oscar-nominated investigative documentary, *VIRUNGA*, on which Mr DiCaprio served as executive producer.

Source: European Commission (2020) ec.europa.eu/commission/presscorner/detail/en/ip_20_2435

. . . but EU's 2021 fishing quotas to exceed scientific advice

The European Union's fisheries ministers agreed in December 2020 on fishing opportunities for 2021 for the stocks managed by the EU, and provisional quotas for those stocks shared with the UK. The latter were still depending on the outcome of Brexit negotiations, in which fisheries were a critical issue. Following 2 days of negotiations, the European Council agreed on catch limits for over 200 commercial fish stocks in the Atlantic, the North Sea, the Mediterranean, the Black Sea and deep-sea areas. However, some of these quotas are still above sustainable limits issued by scientific bodies, increasing the risk of further over-exploitation of fish stocks. For the fish stocks managed exclusively by the EU, c. one-third are considered to be above the sustainable limits provided by the International Council for the Exploration of the Sea. EU commissioner for oceans and environment, Virginijus Sinkevičius, regretted that national ministers 'were not ready to fully take into account the scientific advice and agree on more ambitious effort reductions' that would have helped to restore the fish stocks to sustainable levels.

Source: EU Observer (2020) euobserver.com/environment/150420

AFRICA

Chameleon last seen a century ago rediscovered in Madagascar

Scientists have found an elusive chameleon species that was last spotted in Madagascar 100 years ago. Researchers from Madagascar and Germany discovered several living specimens of Voeltzkow's chameleon *Furcifer voeltzkowi* during an expedition to the north-west of the island. The team said genetic analysis showed the species was closely related to Labord's chameleon *Furcifer labordi*. Researchers believe that both reptiles only live during the rainy season—hatching from eggs, growing rapidly, sparring with rivals, mating and then dying during a few short months. The female of the species, which had never previously been documented, displayed particularly colourful patterns during pregnancy, when encountering males and when stressed. The estimated distribution of *F. voeltzkowi* is c. 1,000 km² and the species may qualify for categorization as Endangered on the IUCN Red List, with populations expected to be severely fragmented, and continuing habitat decline.

Sources: *Salamandra* (2020) salamandra-journal.com/index.php/home/contents/2020-vol-56/1996-glaw-f-d-proetzel-f-eckhardt-n-a-raharinoro-r-n-ravelojoana-t-glaw-k-glaw-j-forster-m-vences & *CNN* (2020) edition.cnn.com/2020/11/01/africa/chameleon-species-madagascar-100-years-trnd

Mystery of 7,000 Cape fur seal deaths at Namibian breeding colony

In October 2020 marine biologists in Namibia recorded the deaths of over 7,000 Cape fur seals at the Pelican Point breeding colony. Fur seals normally give birth there between mid November and mid December, but in the weeks prior to that period, thousands of miscarried young washed ashore, and many emaciated dead adult females were found on the beach. The cause of this mass die-off is still uncertain, but could be linked to chemical pollutants, bacterial infection or malnutrition. A previous mass die-off in 1994, in which some 10,000 dead seals and 15,000 aborted fetuses were found, was caused by a combination of malnutrition and a secondary bacterial infection. Scientists have taken biological samples in a bid to establish the cause of this most recent catastrophic event.

Source: *Al Jazeera* (2020) aljazeera.com/news/2020/10/25/thousands-of-seals-found-dead-in-namibia

South African conservation documentary wins top award at international film festival

South African conservation documentary *The Edge of Existence* by Black Bean Productions has won a top award at the 10th annual Wildlife Conservation Film Festival. Out of 150 documentaries, *The Edge of Existence* won the award for 'Best Human and Nature Film'. It took 3 years to film, with the crew sometimes spending days or even weeks trying to get a single shot. The unique wildlife documentary highlights the complex issues around human-wildlife conflict in Africa, specifically focusing on Tanzania's Western Corridor in the Serengeti, and delves into an issue that is quickly becoming a global crisis. The film features breathtaking cinematography including sweeping aerial shots of vast herds of game on the plains of Tanzania, which are set against stark images of life in the neighbouring villages. It calls on viewers to consider the communities living in close proximity to wildlife and to understand the daily challenges they face, while looking at how to protect wildlife that is impacted by human communities encroaching on wilderness areas. Director James Suter hopes the documentary will help to connect communities, conservation authorities and governments in Africa and beyond.

Source: *Africa.com* (2020) africa.com/sa-conservation-documentary-wins-top-award-at-international-film-festival

World's only known white giraffe fitted with tracker to deter poachers

The world's only known white giraffe has been fitted with a GPS tracking device to keep poachers at bay in north-east Kenya. A conservation group said rangers could monitor the lone male giraffe's movements in real time. The giraffe has a rare genetic condition called leucism, which causes the loss of skin pigmentation. He is thought to be the last of his kind, after poachers killed two of his family members in March 2020. Rangers fear the giraffe could suffer the same fate as his relatives, a female and her 7-month-old calf with similar white skin. Their carcasses were found in a conservation area in Kenya's north-eastern Garissa County, where the male giraffe is currently living alone. The Ishaqbini Hirola Community Conservancy, which oversees wildlife in the area, said the tracking device was attached to one of the giraffe's horns on 8 November 2020. White giraffes were first spotted in Kenya in March 2016, c. 2 months after a sighting in neighbouring Tanzania.

Source: *BBC* (2020) bbc.co.uk/news/world-africa-54980914

Divergent wildlife conservation perspectives in Africa

In African wildlife conservation, most documented experiences are from southern and south-eastern Africa. These are countries with well-developed wildlife industries, but new research presents divergent perspectives from other parts of the continent. In the southern parts of Africa, conservation is largely driven by funding generated through tourism and wildlife utilization, with trophy hunting part of the industry in many countries. This model has been faced with reduced income and increased cost in the COVID-19 pandemic. In West, Central and the Horn of Africa, however, where wildlife densities are lower, a wildlife industry never developed and tourism plays a smaller role. Wildlife makes substantial contributions to local livelihoods but not to national economies, and most conservation activities depend on funding from donors working on sustainable development. Communities benefit from wildlife through cultural values and ecosystem services but they cannot accrue much commercial value. The researchers argue that empathy towards multiple perspectives will lead to more coherence in African conservation policy and to increased resilience to COVID-19 and other crises.

Source: *Phys.org* (2020) phys.org/news/2020-11-divergent-wildlife-perspectives-africa.html

How honeybees are helping Ugandans and elephants co-exist

Negative interactions between people and elephants are becoming more common across Africa as human settlements expand and wilderness habitats decline. In the past few years, elephants have accounted for more than 70% of complaints received by the Ugandan wildlife authority. Rather than resort to culling or relocation of so-called problem animals, Uganda Wildlife Authority has created a project to successfully establish 400 productive beehives along the boundary of Kibale National Park in western Uganda. The bees sting the soft skin around the elephants' trunks, eyes and ears, causing temporary swelling and pain. As a result, elephants have steered clear of the defensive barrier, reducing crop raids by 80% in the last 6 years. The scheme has a three-fold impact: in addition to supporting elephant conservation, it is helping to increase numbers of the African honeybee and has the potential to boost local economies through the sale of honey.

Source: *The Telegraph* (2020) telegraph.co.uk/travel/safaris-and-wildlife/honeybees-helping-ugandans-elephants-harmoniously-co-exist

AMERICAS

Peck by peck, seabirds are eating live whales

Seabirds are opportunists, commonly flocking to fishing boats to scavenge on scraps. In the South Atlantic, researchers have documented giant petrels exploiting fishing operations in an unusual way: by taking bites out of the whales they attract. The team combined their own sightings with those made by fisheries observers during 1997–2019, and reported in a scientific article 23 cases of giant petrels preying on sperm whales. Off the coast of Argentina's Valdes Peninsula, kelp gulls have also been observed to attack southern right whales in the same way. Those attacks have intensified in recent years, in part because discarded food from fishing boats and open-air dumps is sustaining an artificially large gull population. From the 1970s to the 2000s, the proportion of whales with gull wounds increased from 2 to 99%. The birds' assaults may also be contributing to the area's high death rate for whale calves. These observations highlight how nearly every human activity affects ecosystems—sometimes in unexpected ways.

Source: *Hakai Magazine* (2020) hakaimagazine.com/news/peck-by-peck-seabirds-are-eating-live-whales

Wolf attacks on beavers affect landscape of national park

A wolf pack in Voyageurs National Park in northern Minnesota, USA, has specialized to prey heavily on beavers, with an outsize impact on the entire ecosystem, according to a new study. By influencing where beavers live and build dams, the wolves shape Voyageurs's vast wetlands—an ecological chain reaction that alters the contours of the land itself. During 2015–2019, scientists tracked 32 wolves with GPS collars, inspected kill sites and identified the wolves' prey species. In many cases, the wolves had consumed beavers, which are especially prolific in Voyageurs, where their ponds cover 13% of the Park's total area. The wolves did not have a major impact on long-term beaver numbers, but did influence where their prey lived. The wolves frequently ate dispersing beavers that had left their home lodges to colonize new areas, and whose partial ponds then remained unoccupied for the rest of the year. So the predators prevented forests from fully transitioning to ponds and wetlands—forestalling dramatic environmental change.

Source: *Science* (2020) sciencemag.org/news/2020/11/wolf-attacks-beavers-are-altering-very-landscape-national-park

Critically Endangered Loa water frogs given a lifeline in Chile

In June 2019 the last known 14 Loa water frogs *Telmatobius dankoi* were rescued from perilously dry conditions near the city of Calama in the Atacama Desert by conservationists from the National Zoo of Chile. Indigenous leaders and conservationists discovered that the habitat of the water frog had almost completely dried up because of water extraction for mining, agriculture and real estate development in an area where water is scarce. The 14 malnourished frogs were taken to the National Zoo of Chile to be nursed back to health, and to rear future generations to restore their population. The task of rearing a species never previously kept in captivity is challenging, but the breeding programme at the zoo has so far been a great success, with the hatching of nearly 200 Loa water frog tadpoles. Although this is to be celebrated, the larger challenge is to secure a safe habitat for the frogs in the wild. There are 63 known species of water frogs in South America. They are vulnerable to climate change and also threatened by habitat destruction, pollution, disease and invasive trout.

Source: *Discover Wildlife* (2020) discoverwildlife.com/news/critically-endangered-loa-water-frogs-given-a-lifeline-in-chile

An Indigenous effort to return condors to the Pacific Northwest nears its goal

In partnership with 16 different federal agencies, private companies, conservation and wildlife organizations, the Yurok Tribe plans to soon reintroduce North America's largest bird to northern California. The plan is to build condor release facilities in Redwood National Park. It will be the first time a tribal nation has reintroduced the California condor, and the end of a long wait: it has been a century since the imposing birds were seen soaring across northern California skies. The return of the condor comes at the same time as a larger Yurok revival, which includes language revitalization, reclamation of water rights, the largest dam removal in the USA, and a continued effort to buy back ancestral territory. California condors once ranged from British Columbia to Baja California, and can travel up to 200 miles in 1 day. But the arrival of colonizers in the 19th century brought harmful practices that nearly drove the species to extinction. By 1987, just 27 condors were left in the world.

Source: *The National Audubon Society* (2020) audubon.org/news/an-indigenous-effort-return-condors-pacific-northwest-nears-its-goal

Treatment success for sick Turks and Caicos corals

The Turks and Caicos Islands Reef Fund is tackling stony coral tissue loss disease, which affects over 20 species of reef building corals. The highly lethal disease was first discovered in the Turks and Caicos Islands in 2019. Once a coral colony is infected, the entire colony can die within days, weeks or months, depending on its size and resistance against the disease. This is a concern as these highly biodiverse reefs support local fishing livelihoods and a vital tourism industry. The disease is suspected to be caused by a bacterial infection, and researchers in Florida have developed a highly effective treatment: an antibiotic ointment applied via scuba diving. Test results from over 200 colony treatments have shown that it is nearly 90% effective in stopping disease progression. As a waterborne pathogen, the disease cannot be eliminated from the waters, but the pathogen load can be reduced by starting treatment early when reefs begin to show signs of infection. There are now over 50 trained divers to monitor the spread of the disease, and over a dozen divers trained on the treatment protocol.

Source: *Marine Conservation Society* (2020) mcsuk.org/news/TCI_Coral_Update

Imperilled desert tortoises join California's Endangered list

The California Fish and Game Commission has granted temporary Endangered species status to the Mojave desert tortoise *Gopherus agassizii*. Conservation groups had argued that recategorizing the reptile's status from Threatened to Endangered could bolster conservation efforts. Endangered species have higher priority and funding for conservation actions such as habitat protection, recovery efforts and mitigation measures to reduce the impacts of development projects. *Gopherus agassizii* was listed as Threatened under state law in 1989 and under federal law the following year, based on a severe decline in its population. A 2018 study found that adult populations had plummeted by as much as 90% in some critical habitat management units since the 1980s. Threats include vehicles, shootings, urban encroachment, military manoeuvres, mining, collecting, diseases introduced by pet tortoises released into the wild, and predation. Unlike their heavily armoured parents, baby desert tortoises are saddled with soft, fingernail-thin shells that make them easy pickings for predators.

Source: *Los Angeles Times* (2020) latimes.com/environment/story/2020-10-14/desert-tortoises-join-california-endangered-list-for-now

ASIA & OCEANIA

Inflatable tube men could keep dingoes away from livestock

A new study suggests the unpredictable movements of inflatable tube men—large wriggling figures usually used to attract people to retail outlets—could keep wild dingoes from killing livestock. Official reports suggest dingoes kill thousands of farm animals and cause up to USD 60 million in damages per year. In response, farmers and the government have long relied on poisoning and shooting, but this can cause more damage in the long term because apex predators such as dingoes affect the whole food chain. Nonlethal alternatives such as high-pitched sounds and colourful flags are of limited use because the dogs quickly get used to them. In an experiment at a Melbourne dingo sanctuary, researchers used a 4 m tall, yellow tube man near a bowl of dog food. Seeing the dancing tube man for the first time, nine of the 12 dingoes ran away in fear, compared with only one that ran from the gunshots emitted from a speaker in a control plot. Over 3 days of testing, the tube man successfully protected the food in 75% of trials.

Source: *Science* (2020) [sciencemag.org/news/2020/10/wacky-tube-men-could-keep-dingoes-away-livestock-australia](https://www.sciencemag.org/news/2020/10/wacky-tube-men-could-keep-dingoes-away-livestock-australia)

Newly discovered primate already threatened with extinction

A monkey that is new to science has been discovered in the remote forests of Myanmar. The Popa langur, named after its home on Mount Popa, is Critically Endangered, with only c. 200 individuals. Langurs are a group of leaf-eating monkeys that are found across South-east Asia. This species is at risk from habitat loss and hunting. Scientists have long suspected there might be a new species in Myanmar, based on DNA extracted from the droppings of wild monkeys, but evidence has been hard to find. With very little information to go on, they turned to historical specimens stored in natural history museums in London, Leiden, New York and Singapore. Early explorers to Burma collected the monkey specimens, which had never been examined in detail. The researchers extracted DNA and measured physical features, which they compared with those of wild populations, revealing a new species. Describing the species scientifically will help in its conservation.

Sources: *Zoological Research* (2020) [dx.doi.org/10.24272/j.issn.2095-8137.2020.254](https://doi.org/10.24272/j.issn.2095-8137.2020.254) & *BBC* (2020) [bbc.co.uk/news/science-environment-54894681](https://www.bbc.co.uk/news/science-environment-54894681)

Myanmar monk offers temple sanctuary for threatened snakes

Buddhist monk Wilatha is trying to play a part in saving scores of snakes that might otherwise be killed or sold on the black market. He has created a refuge for snakes such as pythons, vipers and cobras at the Seikta Thukha TetOo monastery in Yangon. Since the snake refuge launch 5 years ago, residents and government agencies have been bringing captured snakes to the monk. Having such a sanctuary in mainly-Buddhist Myanmar means people can gain 'merit' by giving the snakes to a monk rather than killing or selling them. The South-east Asian country has become a global hub in the illegal wildlife trade, with snakes often smuggled to neighbouring countries such as China and Thailand. Despite being an invasive species in some parts of the world, the Burmese python has been categorized as Vulnerable in its native South-east Asia by the IUCN.

Source: *Reuters* (2020) [uk.reuters.com/article/uk-myanmar-monk-snakes/myanmar-monk-offers-temple-sanctuary-for-threatened-snakes-idUKKBN28Eo4o?il=0](https://www.uk.reuters.com/article/uk-myanmar-monk-snakes/myanmar-monk-offers-temple-sanctuary-for-threatened-snakes-idUKKBN28Eo4o?il=0)

Community conservation reserves protect fish diversity in tropical rivers

Prohibiting fishing in conservation reserves is a common strategy for protecting ocean ecosystems and enhancing marine fisheries management. However, such reserves are rare in freshwater ecosystems, where conservation efforts are generally linked to the protection of terrestrial habitats and species. Freshwater ecosystems globally have experienced rapid species declines, with overfishing being one of the major causes, particularly in regions where fish are a vital source of human nutrition. In a recent study, researchers tested whether the benefits documented from marine conservation reserves might also apply to freshwater systems. They found that small, community-based reserves in Thailand's Salween River Basin are serving as critical refuges for fish diversity in a region where subsistence fisheries have suffered from decades of overharvesting. These reserves had been created by local communities to support their nearby fishing grounds, and contained more fish species and a higher fish density than adjacent areas. Community members reported that having the reserves over time helped them to catch larger fish. This indicates the reserves not only protect biodiversity but can also bolster the food security of local populations.

Sources: *Nature* (2020) [dx.doi.org/10.1038/s41586-020-2944-y](https://doi.org/10.1038/s41586-020-2944-y) & *Science Daily* (2020) [sciencedaily.com/releases/2020/11/201125135134.htm](https://www.sciencedaily.com/releases/2020/11/201125135134.htm)

Toxic algae blamed for mass marine death in Russia

The mass death of sea creatures off the coast of Kamchatka in Russia's far east was most likely caused by toxic algae, Russian officials have said. The find raised fears of a major marine pollution incident. Social media posts showed dead octopuses, seals and other sea life, and local people complained of sickness. Apparently there had been no oil spills in the area, although initial analysis detected oil products and phenol in the water. The raised levels of these substances were thought to be not critical and had been in the area since 1970. It was not clear why the algae were so toxic. Environmental group Greenpeace described the incident as an ecological disaster, called for an independent, transparent investigation and sent its own teams of scientists to the region.

Source: *BBC* (2020) [bbc.co.uk/news/world-europe-54658108](https://www.bbc.co.uk/news/world-europe-54658108)

Rare four-horned antelope camera-trapped in India

A rare four-horned antelope *Tetracerus quadricornis*, which is categorized as Vulnerable on the IUCN Red List, has been photographed by a camera trap at Veeranahosahalli Range in Nagarhole Reserve Forest, India, in October 2020. Also known as Chousingha in Hindi, this animal is one of the smallest Asian bovids. These antelopes have four horns, whereas other bovids have two horns. Their body is slender, with thin legs and a short tail, and their coat is yellowish brown to reddish in colour. They inhabit areas with significant cover from grass or heavy undergrowth, and feed on grass, herbs, shrubs, foliage, flowers and fruits. The animals tend to stay close to water bodies as they need to drink frequently. Four-horned antelopes are very shy and avoid human-inhabited areas. Most of the species' populations are in India, but some can be found in neighbouring Nepal.

Source: *Star of Mysore* (2020) [starofmysore.com/rare-four-horned-antelope-camera-trapped-at-veeranahosahalli-range-in-nagarahole](https://www.starofmysore.com/rare-four-horned-antelope-camera-trapped-at-veeranahosahalli-range-in-nagarahole)

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