Briefly

SPOTLIGHT ON INVERTEBRATES

New deep-sea species found in Pacific conservation zones...

London's Natural History Museum scientists were part of an international group of researchers involved in the DeepCCZ mission to examine seafloor conservation areas of the Clarion-Clipperton Zone (CCZ). The team carried out a survey of life on the seafloor of the western Zone in the Pacific Ocean, a mineral-rich area that has attracted the interest of deep-sea miners. Over 100 species of large animals were filmed and collected from Areas of Particular Environmental Interest. The researchers identified two new species and believe there will be more once all of the specimens have been studied. They also found at least 10 species of giant sea cucumbers, a huge squid worm never seen before in the Pacific Ocean, many types of sponges, and animals with unique adaptations, such as sea cucumbers with long tails that allow them to sail along the seafloor.
Source: Natural History Museum (2018) nhm.ac.uk/discover/news/2018/july/new-species-found-in-pacific-conservation-zones.html

... a tiny sponge could help preserve our deep oceans...

Seabed mining could be a threat to *Plenaster craigi,* a newly discovered tiny sponge that lives exclusively on polymetallic nodules in the Clarion-Clipperton Zone (CCZ) in the Pacific Ocean. The substrate on which the sponge depends, small chunks of minerals on the sea-floor, has attracted interest from mining companies. Some Areas of Particular Environmental Interest have been designated to protect the entire region from the impacts of mining, but it is unclear whether they are effectively conserving biodiversity. Scientists have now studied the distribution of *P. craigi* and the molecular composition of specimens from three areas of the CCZ to see whether sponges from the protected area would be able to repopulate the mined areas. Results suggest that sponges from different areas are genetically distinct and that the protected areas should be revised, and perhaps added to, before any mining begins.
Sources: Natural History Museum (2018) nhm.ac.uk/discover/news/2018/october/the-tiny-sponge-that-could-help-preserve-our-deep-oceans.html, & *Molecular Ecology* doi.org/10.1111/mec.14888

... and World's largest deep-sea octopus nursery discovered

Off the coast of California, c. 2 miles below the surface of the Pacific Ocean, scientists piloting a remotely-operated submersible discovered > 1,000 individuals of the octopus *Muusoctopus robustus* nestled among the rocks of Davidson Seamount. Most of the animals appeared to be inverted, which is common among females of this species that are protecting their growing young. In some cases, the submersible's camera recorded tiny embryos cradled within their mothers' arms. Scientists also noticed that the water appeared to shimmer in multiple places where the octopuses were concentrated. This suggests that warm water may be seeping out of the seamount, and the octopuses are huddled in those spots. The submersible was not equipped with temperature probes on this dive, but if the finding is verified it could mean the octopuses are seeking out such warmth to help incubate their eggs.
Source: National Geographic (2018) nationalgeographic.com/animals/2018/10/deep-sea-octopus-nursery-discovered-animals-news/

Microplastic toxins leave shellfish at mercy of predators...

Researchers studying common periwinkles *Littorina littorea* have found that toxins from microplastics completely suppress the ability of these small sea snails to detect and avoid predators. This species grazes on algae but is eaten by crabs, and its central role in the food chain makes it a keystone species on beaches. It is also widely eaten by people. When a crab approaches a periwinkle, chemical cues usually lead the shellfish to take evasive action, such as withdrawing into their shells or hiding under rocks. However, in the lab, when the periwinkles were kept in water with microplastics collected from a beach near Calais in France, they failed to react. The concentration of microplastics used in the experiments was similar to that on the beach. Microplastics are known to attract heavy metals and persistent organic pollutants and the researchers believe the release of this chemical cocktail interferes with the periwinkle's senses.
Sources: Biology Letters (2018) doi.org/10.1098/rsbl.2018.0453, & *The Guardian* (2018) theguardian.com/environment/2018/nov/28/microplastic-toxins-leave-shellfish-at-mercy-of-predators-research

... and Bahamian conch fishery could disappear in near future

Scientists measured > 3,000 conch during 2009–2017 at 42 sites throughout The Bahamas and found that the country could lose its conch industry in 10–15 years if pressure on this food source is not reduced. The number of adult conch decreased with increased fishing pressure and populations in fishing grounds have become younger. Densities of legal-to-harvest queen conch are now well below the minimum threshold for reproductive success in most areas. As their abundance decreases, these slow-moving snails struggle to find a mate and reproduce. There is currently no closed season for conch fishing in the The Bahamas, unlike in most Caribbean nations. To secure a sustainable conch fishery, the researchers recommend a size limit for legal harvest based on shell lip thickness ≥ 15 mm, enforcement of landing and trade of conch in the shell, and an end to the export of queen conch. Such measures would impact the livelihoods of fishers, who will require assistance in finding other sources of income if the industry is to survive in the long term.
Source: The Nassau Guardian (2019) thenassauguardian.com/2019/01/09/study-conch-fishery-could-disappear-in-15-years/

Popular science helps to reveal abundance of jellyfish

When the *Rhizostoma luteum* jellyfish was discovered in 1827 in the Strait of Gibraltar, only nine specimens were identified. It was so inconspicuous that it was not seen for the next 6 decades. Scientists have now confirmed that it is not as difficult to find as previously believed. Rather than being very rare, the species is relatively common in the region, but had been regularly misidentified as various other types of jellyfish. There are now several new historical and recent records of *Rhizostoma luteum*, thanks to the observations of scientists and a citizen initiative that encouraged people to send in historical accounts, photographs and videos taken in the northeast Atlantic Ocean and the Alboran Sea. The results confirm > 150 observations in the last 17 years. This type of research makes it possible for researchers to monitor biodiversity and the manner in which species respond to climate change in marine ecosystems.
Sources: Marine Biodiversity doi.org/10.1007/s12526-017-0637-z, & *Science Daily* (2018) sciencedaily.com/releases/2018/11/181113115438.htm

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Invasive zebra mussels infest Grapevine Lake in Texas...

Local authorities are encouraging boaters to take steps to ensure that zebra mussels at Grapevine Lake, Texas, do not interfere with water intake or cause environmental damage. In 2018 the Texas Parks and Wildlife Department announced they had found a juvenile zebra mussel and microscopic larvae in the lake. Native to southern Russia and Ukraine, the species was recorded in Texas for the first time in 2009. The invasive mussels pose an ecological and economic threat because they can harm native freshwater mussels and other aquatic species, affect water clarity and cause algal blooms, damage boats and threaten water supplys by clogging pipes. Grapevine Lake is expected to be classified as infested (having an established, reproducing zebra mussel population). Neighbouring Lake Lewisville is already classified as infested. The Wildlife Department is working to educate the public to clean boats with high-pressure water and soap and let them dry for at least a week before moving to another lake, to reduce risks of cross-contamination.

Source: Community Impact Newspaper (2018) communityimpact.com/dallas-fort-worth/grapevine-colleyville-southlake/environment/2018/10/11/invasive-zebra-mussels-infest-grapevine-lake-texas-parks-and-wildlife-report/

... and rare snails introduced to Pentland Hills, UK

Conservation experts have hailed the first ever release of the rare pond mud snail *Omphiscola glabra* in the Lothians as a vital step in efforts to save the species. Native to Europe, pond mud snail populations in the UK have almost halved over the past 25 years because of habitat loss. Measuring c. 1 cm in length and categorized as Near Threatened on the IUCN Red List, the snails were previously found in only seven locations within central Scotland, a fraction of their former range. More than 80 snails have now been introduced to a specially created habitat near the Pentland Hills, bringing the number of populations in the country to eight. They have been bred at the Royal Zoological Society of Scotland's Edinburgh Zoo, a key partner of the Marvellous Mud Snails project being run by Buglife Scotland. The project aims to continue releasing these snails into suitable sites across the country and to work with partners to create a stable and healthy population throughout central Scotland.

Source: Buglife (2018) buglife.org.uk/news-and-events/news/rare-snails-introduced-to-pentland-hills

Beautiful new species of swallowtail butterfly discovered on Fiji

A new species of papilionid butterfly, *Papilio natewa*, has been discovered on the Natewa Peninsula on the Fijian island of Vanua Levu, bringing the total number of swallowtail butterflies known from the region to three. The swallowtail butterfly is a relatively large insect, measuring c. 8 cm across. It has two elongated edges projecting from the hind wings, a striking black and white zigzag emblazoned on the top of its wings, and a cream and black speckled pattern underneath, gilded with soft yellows and blue eye spots. Given the species' size and recognizable pattern, it is remarkable that it has gone unnoticed for so long. It was first found and photographed by the ornithologist Greg Kerr in 2017. Initial sightings of the butterfly were sporadic, but after a few months of field work, its true habitat was discovered. The insect was regularly spotted along a former logging track bounded by forest gardens and undisturbed primary rainforest. There is still much about *P. natewa* that remains a mystery, including almost everything about its natural history.

Source: Natural History Museum (2018) nhm.ac.uk/discover/news/2018/november/beautiful-new-species-of-swallowtail-butterfly-discovered-on-fij.html

Sea cucumbers under threat as demand grows and market prices soar

Having been valued as a delicacy in Chinese cuisine for centuries, sea cucumbers are now under increasing pressure. Of 1,250 species, 70 are commercially exploited, typically marketed in dried form and served on special occasions. Demand from a growing middle class in China has risen, combined with interest from Western pharmaceutical companies that use sea cucumber products to treat cancers and to reduce blood clots. Overexploitation has lead to population declines and price increases: seven species are now categorized as Endangered, including the Japanese spiky sea cucumber *Apostichopus japonicus*, which can sell for up to USD 3,500/kg. As populations decline, harvesting the animals becomes more difficult and dangerous because fishers have to dive deeper to reach them. In Yucatan, Mexico, divers saw a 95% drop in their harvest during 2012–2014. Expanded aquaculture, already a large industry in China, could help protect local economies and allow wild sea cucumber populations to recover.

Source: Business Insider (2019) businessinsider.com/why-sea-cucumbers-so-expensive-seafood-2019-1

Farmers to play big role in new bee-friendly initiatives

A GBP 60,000 fund has been announced to develop and test pollinator habitat mapping, and farmers will play a major role in spearheading new bee-friendly initiatives. The fund will identify where new habitats will provide the greatest benefit for bees and other pollinators. There are c. 1,500 species of pollinators in the UK, improving crop productivity by an estimated GBP 400–680 million per year. The project will involve partnering with organizations such as Natural England, Buglife, The Wildlife Trusts and other bodies working on habitat mapping and insect conservation. The UK government is also announcing investment in two projects to create pollinator-friendly landscapes, including the Bumblebee Conservation Trust's West Country Buzz project in North Devon, which seeks to develop a partnership of land managers and farmers to improve habitats for bees. In April 2018 the government voted to restrict the use of three neonicotinoids further because of their perceived harmful effects on bees and other pollinators. The measures came into force at the end of 2018.

Source: Farming UK (2018) farminguk.com/news/Farmers-to-play-big-role-in-new-bee-friendly-initiatives_50566.html

Heatwaves affect male insect fertility

Research has found that heatwaves severely damage the fertility of male beetles, and consecutive hot spells leave them virtually sterilized. Researchers studied beetles because their 400,000 species represent c. one quarter of all known species. The study found that exposing beetles to a 5-day heatwave in the laboratory reduced sperm production by 75%; females were unaffected. The red flour beetle *Tribolium castaneum* used in the experiments is a tropical species that thrives at 35 °C. When exposed to temperatures of 5 and 7 °C above this optimum, male fertility plummeted. Although these were very high temperatures, 90 countries have experienced them in recent years. After being exposed to a heatwave, the number of offspring produced by males fell by half, and by 99% if they experienced two heatwaves 10 days apart. Even more worryingly, harmful effects were inherited by the males they produced; their lives were 20% shorter and they in turn produced fewer offspring.

Sources: Nature Communications (2018) doi.org/10.1038/s41467-018-07273-z, & *The Guardian* (2018) theguardian.com/environment/2018/nov/13/heatwaves-wipe-out-male-insect-fertility-beetles-study

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INTERNATIONAL

Ozone layer finally healing after damage caused by aerosols

The ozone layer is showing signs of continuing recovery from man-made damage and is likely to heal fully by 2060. The measures taken to repair the damage will also have an important beneficial effect on climate, as some of the gases that caused the ozone layer to thin, and in places disappear, also contribute to atmospheric warming. Phasing them out could avoid as much as 0.5 °C of warming this century. Recovery from the holes and thinning caused by aerosol chemicals has progressed at a rate of 1–3% per decade since 2000, meaning the ozone layer over the northern hemisphere and mid latitudes should heal completely by the 2030s, if current rates are sustained. Over the southern hemisphere and in the more polar regions, recovery will take longer. The results represent a rare instance of global environmental damage being repaired, and a victory for concerted global action by governments.
Source: The Guardian (2018) theguardian.com/environment/2018/nov/05/ozone-layer-healing-after-aerosols-un-northern-hemisphere

Cautious optimism amid conservation success stories in the IUCN Red List update...

The November 2018 update to the IUCN Red List of Threatened Species gave cause for optimism, with evidence that the fin whale *Balaenoptera physalus*, grey whale *Eschrichitius robustus* and mountain gorilla *Gorilla beringei beringei* are beginning to recover following conservation action. The international ban on whaling is credited with the gradual increase in numbers that has seen the Critically Endangered grey whale recategorized as Endangered, and the previously Endangered fin whale as Vulnerable. Collaborative cross-border efforts to protect the mountain gorilla resulted in re-categorization as Endangered, but the eastern lowland gorilla *Gorilla berengei graueri* remains Critically Endangered. Despite these conservation successes, overexploitation is causing declines elsewhere, with the update highlighting various fish and tree species as increasingly threatened by overfishing and illegal logging, respectively. The IUCN Red List now includes 96,951 species, of which 26,840 are threatened with extinction.
Source: IUCN (2018) iucn.org/news/species/201811/fin-whale-mountain-gorilla-recovering-thanks-conservation-action-iucn-red-list

...but WWF Living Planet Report 2018 presents sobering picture

The 12th edition of the World Wildlife Fund's biennial publication emphasizes the alarming extent to which human activity has impacted the natural resources on which people and wildlife depend. Using indicators such as the Zoological Society of London's Living Planet Index (LPI), the Species Habitat Index, the IUCN Red List and the Biodiversity Intactness Index, as well as Planetary Boundaries and the Ecological Footprint, the report concludes that the pressure placed on the planet's natural systems and habitats by human activity is dire and unsustainable. The LPI, which tracks trends in global wildlife abundance, indicates that fish, bird, mammal, amphibian and reptile populations fell by an average of 60% during 1970–2014. The principal threats identified result directly from human activities, including the overexploitation of wild plants and animals, habitat loss and degradation. The report emphasizes the need for greener agricultural and fisheries policies, the restoration of habitats, and urgent action on climate change.
Source: WWF (2018) wwf.panda.org/our_work/biodiversity/?337386/Nature-in-steep-decline-due-to-human-activities-WWF-Living-Planet-Report-2018

Ambitious genome sequencing project to decode DNA of 1.35 million species

The Earth BioGenome Project hopes to slow the decline in biodiversity by sampling and sequencing the DNA of all 1.35 million known eukaryotic species over the next decade. Launched in late 2018, the major international effort is under development and is seeking USD 4.7 billion in funding to help achieve its goals. This grassroots initiative will include the work of researchers who are already studying the DNA of diverse groups of organisms, combining results from other efforts such as the UK-based Darwin Tree of Life project to help deliver completed sequences more rapidly. The primary aim is to provide genetic insights that could be key to informing more targeted conservation planning. Beyond this, the genomic information gathered through this project could potentially also be applied in the development of biofuels, useful agricultural traits and new medical drugs. Finding such applications, and so presenting the conservation of biodiversity as a boon to national economies, local cultures and the environment, should further help governments to back efforts to preserve biodiversity.
Source: Nature (2018) nature.com/articles/d41586-018-07323-y

World's fastest shark swimming towards disaster...

Conservationists have warned that the world's fastest shark, the Vulnerable shortfin mako *Isurus oxyrinchus*, is at increased risk of extinction after a major fisheries body failed to address continued overfishing. This species, which can reach speeds of up to 70 km/h, is fished worldwide but is not subject to any international fishing quotas. It is considered particularly at risk in the North Atlantic, where scientists have recommended all landings be reduced by at least two-thirds to prevent overfishing. Member states of the International Commission for the Conservation of Atlantic Tunas (ICCAT), which includes the European Union, agreed in 2017 to narrow landing conditions and to report and review all mako catches in 2018. However, a review of January–June 2018 landings showed catches were already 50% higher than the annual recommended threshold, proving that ICCAT is off-track in reducing the shark's mortality and stopping overexploitation.
Source: The Guardian (2018) theguardian.com/environment/2018/nov/26/worlds-fastest-shark-speeding-toward-extinction-shortfin-mako

...and strangest sharks and rays on brink of extinction

Some of the most unusual sharks and rays are on the brink of extinction because of threats such as commercial fishing. In 2018 sharks, rays and chimeras (fish with cartilage in place of bones) were assessed for the first time for the EDGE (Evolutionarily Distinct and Globally Endangered) of Existence programme, to create a list of the 50 most threatened species. The assessment found fishing, both targeted and accidental, was to blame for the steep decline in many of these populations, together with habitat loss as a result of coastal development, degradation of mangrove forests, water pollution and trawling. Sharks have a bad image and many people do not understand how important and threatened they are. Most sharks are at the top of the food chain, which makes them crucial to the health of the oceans. Losing them would have a big impact on other fish populations and, ultimately, human livelihoods.
Source: BBC (2018) bbc.co.uk/news/science-environment-46420736

Seabird populations at risk from fishing industry

A global analysis of the degree of competition seabirds face over prey species targeted by the fishing industry reveals that this

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pressure is threatening the survival of many seabirds, with population declines of up to 70% since the 1950s. The 2018 study by the University of Aberdeen and international collaborators compared 1970–1989 and 1990–2010, to assess the degree of competition seabirds faced for prey such as anchovy, mackerel, krill and squid. Estimating the annual consumption of those prey species for nearly 300 varieties of seabird, they found that consumption by seabirds decreased but annual fishery catches increased over the same period. Alongside contributing factors such as pollution, habitat destruction, and climate change, the study reports that competition with the fishing industry has made seabirds the most threatened bird group, and calls for improved fisheries management to help alleviate the pressures they face.
Source: Independent (2018) independent.co.uk/environment/seabirds-decline-population-fishing-industry-pollution-climate-change-birds-puffins-a8670736.html

Rare plants may require different approach to conservation

Researchers at the Royal Botanic Gardens, Kew, who are striving to preserve the rarest and most economically important plants, have found that some of the most valuable plants under threat from climate change may need a new approach for their conservation. The plant conservation strategy currently most widely used is storing seeds in banks: large repositories that contain thousands of species, insulated from threats such as seasonal variations, mutations and climate change. The new study indicates that 36% of these vital and economically important plants cannot be banked using the usual method of drying seeds before freezing them, because their seeds are recalcitrant, meaning they cannot survive drying. The team are looking into better methods to preserve such complex seeds, for example by forgoing the drying stage and flash-freezing the seeds at a much lower temperature soon after they are collected.
Sources: Nature Plants (2018) doi.org/10.1038/s41477-018-0298-3, & *Firstpost* (2018) firstpost.com/tech/science/rare-vital-plants-may-require-an-entirely-different-approach-to-conservation-5512201.html

Camera traps designed for animals are now invading human privacy

Camera traps have proven invaluable in ecological research and conservation management. However, they frequently take pictures of people as well as wildlife. This has important implications for privacy and human rights and may ultimately undermine conservation goals. In a recent survey of researchers who had deployed camera traps, > 90% of the 235 respondents stated their cameras had photographed both people and wildlife. Cameras photographing people can be highly problematic for two principal reasons. Firstly, many respondents had captured images they considered private, and secondly, even if images of people are not used or shared, camera traps can generate fear and anger, which can lead to local opposition to camera trapping. Researchers are now thinking about this problem, with many establishing protocols to manage pictures of people caught on camera (e.g. by blurring images or not sharing them publicly).
Sources: Conservation & Society (2018) doi.org/10.4103/cs.cs_17_165, & *The Conversation* (2018) theconversation.com/camera-traps-designed-for-animals-are-now-invading-human-privacy-105327

Google searches reveal public interest in conservation is rising

The number of Google searches for conservation-related topics has been increasing since 2004, a new study has found. Authors used Google Trends, which measures these searches over time, and in turn can be a proxy measure of what the general public is interested in or wants to know more about. Interest in both conservation and climate change-related topics seem to be tightly linked and rising similarly since 2007. This increase is possibly linked to the 2006 release of the climate-change documentary film An Inconvenient Truth. Interest in climate change has since caught up with, but not displaced, interest in biodiversity conservation, with interest in the two topics attaining similar levels over the past 5 years. Although the rise in Google searches for conservation-related terms doesn't necessarily translate to increased support for conservation, it does suggest that conservationists must continue to communicate their results to reach all the people interested in conservation and environmental issues.
Sources: Frontiers in Ecology and the Environment (2018) doi.org/10.1002/fee.1962, & *Mongabay* (2018) news.mongabay.com/2018/11/google-searches-reveal-public-interest-in-conservation-is-rising

Protect the last of the wild

Researchers from the University of Queensland and the Wildlife Conservation Society have compiled the first comprehensive map detailing what is left of the world's pristine marine and terrestrial wilderness. According to their results, most of the Earth's surface has been modified by human activities, and we are running out of time to save what is left. Australia, the United States, Russia, Canada and Brazil hold 70% of the world's wilderness, excluding the high seas and Antarctica. Marine areas without industrial fishing, pollution and shipping are now almost completely confined to the polar regions. The researchers created a global map by combining 2016 data, which looked at the human impact on land, with 2018 data that analysed our impacts on the oceans. Excluding Antarctica, they found we have modified 77% of the Earth's surface, and 87% of oceans. The study suggests that the first disruption of an ecosystem often does the most damage, so instead of using conservation to respond to ecological crises when they happen, they argue for a prevention-over-cure approach.
Sources: ABC (2018) abc.net.au/news/science/2018-11-01/wilderness-australia-needs-protection/10447816, & *Nature* (2018) nature.com/articles/d41586-018-07183-6

Thawing of Arctic permafrost carries grave climate consequences

A Stockholm University study of melting Arctic permafrost has highlighted the impact of this process on increasing levels of greenhouse gas emissions. Researchers have shown rising amounts of methane gas emerging from lake sediments and soil as frozen organic material in the permafrost begins to thaw and decompose. The data are of concern because the greenhouse gases stored in Arctic permafrost soil are estimated to amount to more than double the volume currently held in the earth's atmosphere. Although the complexity of the Arctic's natural systems makes it difficult to determine the exact quantity of gases emitted, the process represents what could become a viciously deteriorating cycle, as a global temperature increase of as little as 1 °C will likely be enough to cause further large areas of permafrost to thaw, turning them from a vital carbon store into carbon emitters that will in turn accelerate warming.
Source: Public Radio International (2018) pri.org/stories/2018-10-29/arctic-permafrost-starting-thaw-here-s-why-we-should-all-care

USD 10 billion pledged in new commitments to protect oceans

Global participants in the fifth Our Ocean Conference have pledged the highest amount of funding yet for new initiatives and commitments on the protection of a combined expanse of ocean eight times the size of Alaska. The event, hosted by the Indonesian government on the island

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of Bali, generated 287 pledges in bilateral and multilateral agreements between governments, the private sector, civil society organizations and philanthropic foundations. The pledges were valued at more than USD 10 billion to protect c. 14 million km² of the world's oceans. To date, the Our Ocean Conference has resulted in commitments totaling USD 28 billion and covering 26.4 million km² of ocean. The impacts of illegal, unreported and unregulated fishing and climate change on the world's oceans were the key focuses during the 2-day conference.
Source: Mongbay (2018) news.mongabay.com/2018/10/10bn-pledged-in-new-commitments-to-protect-the-worlds-oceans/

EUROPE

Marine Protected Areas overlook a large fraction of biodiversity hotspots

A new performance assessment of the Finnish marine protected area (MPA) network has concluded that current MPAs leave almost 75% of ecologically and functionally important species unprotected. The study found the MPAs were designated with little knowledge of local marine biodiversity, and that increasing existing networks by just 1% in the ecologically most relevant areas could double conservation of the most important species. In addition to identifying areas of high conservation value, the methodology, which uses a unique new dataset of 140,000 samples, can also be used in ecosystem-based marine spatial planning and impact avoidance, including siting of wind energy infrastructure, aquaculture and other human activities. Although the current MPAs serve to protect many important habitats, they give too little consideration to underwater nature, especially functionally important species. Because extensive protective coverage has already been implemented in Finnish seas, clear evidence is required for any changes to be made to existing MPAs.
Source: Frontiers in Marine Science (2018) doi.org/10.3389/fmars.2018.00402, & *EurekAlert!* (2018) eurekalert.org/pub_releases/2018-11/f-mpa110518.php

Ocean floor rover finds large shark nursery in Irish waters

The largest shark nursery in Irish waters has been discovered among cold-water coral reefs 320 km west of Ireland. A remotely operated vehicle surveying the deep ocean floor revealed thousands of egg cases deposited on coral skeletons at depths of up to 750 m. Video footage from the SeaRover, a survey by Ireland's Marine Institute and partners including Plymouth University, showed a large school of blackmouth catsharks *Galeus melastomus* around the egg cases. The rarer and more solitary sailfin roughshark *Oxynotus paradoxus* was also seen moving through the area. No shark pups were detected during the summer expedition, but the scientists plan to return during the hatching season to observe the juveniles, which are vulnerable to predation when they emerge and seek refuge in the nearby coral reefs. The eggs were laid on the remains of dead coral, which provides protection, preventing them from being swept away by currents.
Source: The Guardian (2018) theguardian.com/environment/2018/nov/09/shark-nursery-found-irish-waters-blackmouth-catsharks

Beavers chip in to boost Yorkshire flood defences

The UK's Forestry Commission is enlisting beavers to help prevent rivers from flooding. Up to eight microchipped beavers will be introduced to Cropton Forest on the North York Moors in the hope they will build dams to slow down any surges of water from heavy rainfall, helping prevent flooding downstream in places such as Pickering. In another project, beavers were introduced in the summer of 2018 to the Forest of Dean in Gloucestershire to prevent flooding in the village of Lydbrook, which was badly flooded in November 2012. Beavers are often termed ecosystem engineers as they can extensively modify riparian systems and help create wildlife habitats. The rodents build their dams on shallow streams and rivers using small tree trunks, branches, mud and stones. A recent study by researchers at Exeter University found that beavers released at a location in West Devon in 2011 slowed the flow of water, and also cleaned up polluted water and soil washed off fields upstream.
Sources: Earth Surface Processes and Landforms (2018) doi.org/10.1002/esp.4398, & *The Guardian* theguardian.com/environment/2018/nov/05/species watch-beavers-chip-in-to-boost-yorkshire-flood-defences

Momentous decision on the future of Scotland's kelp forests

In November 2018 the Scottish parliament voted to back an amendment that will ensure the effective protection of kelp from destructive harvesting. This follows 4 months of concerted appeals from local communities and Scottish NGOs for protection of Scottish kelp forests in the face of a proposal for commercial kelp dredging, to be undertaken for the first time in Scotland. Scotland holds a significant proportion of the UK's kelp beds and the habitat is therefore considered to be nationally important. The beds are known to provide vital nursery grounds for many species of juvenile fish. They are also highly valued for their carbon storage capacity, and protecting these and other repositories of so-called blue carbon is essential for healthy seas and for action against climate change. The targeted, wholesale removal of large, old-growth fronds from these kelp beds would substantially reduce their ability to provide these vital, free ecosystem services.
Source: Fauna & Flora International (2018) fauna-flora.org/news/huge-relief-momentous-decision-future-scotlands-kelp-forests

NORTH EURASIA

Silk road countries form alliance to protect Roof of the World

Partners from protected areas in Afghanistan, China, Pakistan and Tajikistan have created the Bam-e-Dunya (a Persian phrase for Roof of the World) network to promote long-term conservation and sustainable mountain development in the Hindu Kush Karakoram Pamir Landscape (HKPL). The partnership aims to enhance knowledge exchange, technology transfer and capacity building, and also to identify joint opportunities and challenges related to conservation and development in the interconnected protected areas. The new network falls under the framework of the HKPL Conservation and Development Initiative, supported by the Government of Sweden. It was launched at a workshop co-organized by the International Centre for Integrated Mountain Development and Lanzhou University, titled Harmonizing Conservation and Development along the Silk Road, held in Lanzhou, China, in September 2018.
Source: International Institute for Sustainable Development (2018) sdg.iisd.org/news/silk-road-countries-form-alliance-to-protect-roof-of-the-world/

Captive breeding will not save wild Asian houbara

The Vulnerable Asian houbara bustard *Chlamydotis macqueenii* is of major cultural and political significance because of Arab falconry, with hunting influencing

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international diplomacy. Uncontrolled hunting and poaching has caused decline of the species in the Middle East and Central Asia since the 1960s. The species' survival now depends on the regulation of trapping and hunting, rather than solely on captive breeding, according to research carried out in Uzbekistan. The study based on 7 years of desert field work and satellite tracking of wild and released birds found that the country's houbara population is declining by > 9% per year. Conservation efforts have largely focused on releasing captive-bred birds in increasing numbers. But these individuals have a higher mortality than young wild birds, and 7,200 captive-bred birds would have to be released into a population of 4,700 birds every spring just to prevent the population from decreasing. This would risk domestication of the breeding stock, making it less fit than its wild ancestors. International cooperation between falconers and houbara range countries is needed to develop a truly sustainable hunting and conservation model.
Source: Surfbirds (2019) surfbirds.com/community-blogs/blog/2019/01/07/captive-breeding-will-not-save-wild-asian-houbara-without-regulation-of-hunting/

NORTH AFRICA AND MIDDLE EAST

Northern bald ibis recovering

Once down to just 59 pairs in the wild, the northern bald ibis *Geronticus eremita* population is now recovering thanks to conservation action. Following BirdLife International's latest assessment of the extinction risk of the world's birds, the northern bald ibis has been recategorized from Critically Endangered to Endangered. Once widespread across North Africa, the Middle East and southern Europe, habitat loss, pesticides and hunting drove the northern bald ibis down to a small and dwindling population, mainly confined to one breeding colony in Souss-Massa National Park, Morocco. BirdLife and local partners in Morocco employed local fishers as wardens to protect breeding ibises from human disturbance and predators. Thanks to this and further conservation measures, the population has risen to a modern-day record of 147 breeding pairs, which in 2017 spread to two new sites. Although the Endangered categorization shows that the ibis' future is far from secure, it also demonstrates that conservation efforts do work.
Source: BirdLife International (2018) birdlife.org/worldwide/news/red-list-northern-bald-ibis-pink-pigeon-making-comeback

Global biodiversity treaty still searches for its moment in the spotlight

More than 8,000 delegates from around the world convened in the Red Sea resort of Sharm el Sheikh during 13–29 November 2018 to discuss the U.N. Convention on Biological Diversity, a global treaty that entered into force 25 years ago. The timing of the meeting was critical, with just 2 years left to reach a set of biodiversity goals established in 2010 by the treaty's 196 signatories. The agreement forms the basis of the Aichi Targets, a 20-point programme to protect terrestrial and marine life and habitats by expanding protected areas, reshaping public policy, raising awareness, and working to ensure equal access to the social and economic benefits that come from intact ecosystems. Significant progress was made in establishing discussions for the 2020 Conference of the Parties, particularly in determining the process by which governments will aim to develop a new Global Deal for Nature in Beijing.
Source: Mongabay (2018) news.mongabay.com/2018/12/global-biodiversity-treaty-still-searches-for-its-moment-in-the-spotlight/

Al Wathba Wetland included on IUCN Green List

Al Wathba Wetland Reserve in Abu Dhabi is now on the IUCN Green List of Protected and Conserved Areas, a first for the region. In 2013 Al Wathba became the first area to be designated a Ramsar site in Abu Dhabi, to protect the emirate's biodiversity and threatened species. Ramsar sites are wetlands of international importance. Al Wathba Reserve is home to > 4,000 flamingos and 260 other bird species, 320 species of invertebrates and numerous species of plants, reptiles and mammals. The reserve is also the only site in the Arabian Gulf where the greater flamingo breeds regularly. In 2018 601 flamingo chicks hatched in the reserve, the highest number ever recorded at Al Wathba. Announcement of inclusion on the global list was made at the 14th meeting of the Conference of the Parties to the Convention on Biological Diversity in Sharm El-Sheikh in November 2018.
Source: The National (2018) thenational.ae/uae/abu-dhabi-s-al-wathba-wetland-marked-as-a-protected-area-on-international-list-1.796308

SUB-SAHARAN AFRICA

Four rhinos die after Chad conservation effort

Four out of six South African black rhinos that were translocated from South Africa to a reserve in south-east Chad in a bid to revive this threatened species have died, but not from poaching. Six rhinos were introduced to Zakouma National Park under a joint initiative comprising Chad, South Africa and the NGO African Parks, which successfully operates a number of wildlife reserves in Africa. Post-mortems and tests on blood, tissue and faeces have been sent to a lab in South Africa and so far there is no evidence of infectious disease or plant toxicity as a cause of death. Low fat reserves suggest that the rhinos failed to adapt to their new environment, but future tests on brain and spinal fluid may shed additional light on why exactly they died. There are < 25,000 rhinos left in the wild in Africa, only 5,000 of which are black rhinos. Northern white rhinos disappeared from Chad several decades ago and the last western black rhino was recorded there in 1972, after decades of poaching pushed both subspecies to local extinction.
Source: France 24 (2018) france24.com/en/20181106-four-rhinos-die-after-chad-conservation-effort

Thousands of radiated tortoises seized from traffickers in Madagascar

Authorities in Madagascar confiscated 7,347 radiated tortoises *Astrochelys radiata* from wildlife traffickers in October 2018, just months after a similar bust led to the seizure of nearly 10,000 tortoises of the same species. The Turtle Survival Alliance have been looking after the latest batch of tortoises in southwestern Madagascar, which traffickers had kept in poor conditions. Trade in radiated tortoises is banned under CITES, but surging demand for the meat and pet trades, primarily from Asia, appears to be driving poaching of this Critically Endangered species from the dry shrubland of its native Madagascar. The Turtle Survival Alliance's immediate concern is to manage the care of this new group of tortoises in addition to the > 18,000 tortoises already at its facilities. Their plan is to move the surviving tortoises to neighbouring partner facilities, but securing funding for their food and transport remains difficult.
Source: Mongabay (2018) news.mongabay.com/2018/10/thousands-of-radiated-tortoises-seized-from-traffickers-in-madagascar/

Fish are vanishing: Senegal's devastated coastline

Foreign trawlers and an expanding fishmeal industry are increasingly threatening the livelihood of Senegalese fishers, forcing many to migrate to Europe. St Louis lies

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at the heart of one of the world's richest fishing areas. Fish caught here, mainly sardinella and other pelagic fish migrating up and down the coast, provide up to 75% of the protein consumed by millions of people in Senegal and its neighbouring landlocked countries such as Burkina Faso and Mali. Decades of mainly European and Asian trawlers scouring its coastline have lead to overfishing, exacerbated by artisanal fishers building larger boats to go further out to sea, as they became increasingly dependent on catching fish in Mauritanian waters. However, in 2016 the Mauritanians halted this, causing the catches of St Louis fishers to fall by 80%. Reports suggest dozens of fishers have been killed in conflicts with Mauritanian coastguards, but the exact number is unknown. In 2017 almost half of Mauritania's fish catch was processed into fishmeal, exported mainly to China to feed other fish and livestock.
Source: BBC (2018) www.bbc.co.uk/news/amp/world-africa-46017359

South Africa announces new Marine Protected Area network

The Department of Environmental Affairs announced that Cabinet approved a network of 20 new Marine Protected Areas that are representative of South Africa's rich coastal and ocean biodiversity. This will increase the proportion of ocean protected around South Africa from 0.4 to 5%. The new areas cover c. 50,000 km², two and a half times the size of the Kruger National Park. The new network will advance protection for offshore ecosystems and provide the first protection to several threatened and fragile ecosystem types. This includes Childs Bank, a unique underwater feature with deep water corals on its steep slopes. Several undersea mountains in the Indian and Atlantic Oceans, submarine canyons (including South Africa's Grand Canyon off Saldahna Bay), rare mud habitats and key areas for recovery of linefish are also safeguarded for the first time thanks to the establishment of these new protected areas.
Source: South African National Biodiversity Institute (2018) sanbi.org/media/south-africa-announces-new-marine-protected-area-network/

Zebras reintroduced to park in southern Tanzania

A herd of zebras now roams the southern highlands of Tanzania for the first time since the 1960s. Staff from the Wildlife Conservation Society (WCS) and its partners released 24 plains zebras *Equus quagga* into Kitulo National Park in October 2018. Plains zebras had been a fixture on the Kitulo Plateau until hunting and sheep and dairy farming forced them out more than 50 years ago. Kitulo National Park, created in 2002, lies at an altitude of 2,600 m. Fire and grazers are critical to maintaining the plant diversity of these high-elevation grasslands. Following the abandonment of the farms, 4 million native trees have been planted in the southern highlands, providing woodland thoroughfares for duikers and monkeys. For the past 2 years, WCS staff have been ensuring that the Park can support zebras and educating local communities about the effort.
Source: Mongabay (2018) news.mongabay.com/2018/10/absent-for-decades-zebras-reintroduced-to-park-in-southern-tanzania/

SOUTH AND SOUTH-EAST ASIA

Wind turbines act as apex predators by driving down bird numbers

Wind turbines can act as top predators in ecosystems by driving down populations of birds and triggering knock-on effects across food chains. Researchers found that predatory birds were four times rarer in parts of an Indian mountain range covered in wind turbines, suggesting they were avoiding the structures. The same areas saw an explosion in numbers of the raptors' prey, fan-throated lizards, which also became more confident and less scared of humans because of the lack of predation. These cascading effects on ecosystems mean that wind turbines could have far-reaching consequences for nature. Scientists have become increasingly aware of the impact these massive structures can have on wildlife, with studies showing birds and bats can be killed or scared away by their spinning blades. New turbines should therefore be built in areas with the lowest impact possible.
Sources: Nature Ecology & Evolution (2018) doi.org/10.1038/s41559-018-0707-z, & *The Independent* (2018) independent.co.uk/environment/wind-power-turbines-birds-predators-renewable-energy-lizards-rspb-a8619236.html

Myanmar's lizard bonanza yields record number of new species...

In a little over 1 year, the limestone landscapes of Myanmar have yielded a large number of lizard discoveries: five new species of slender gecko, one new parachute gecko, and a staggering 18 new species of bent-toed gecko, and descriptions of a further 14 species are awaited. To discover so many new vertebrate species in such a short timeframe is unprecedented, and even more remarkable given that scientists in the country are working under tight restrictions. Crucially, these additions to the lizard lineage are not the result of an arbitrary taxonomic reshuffle based on molecular genetics. The new discoveries were made during recent expeditions into some of the more remote regions of Myanmar. Most significantly, all the new species were discovered in isolated pockets of karst limestone habitat—in many cases just a single cave or hilltop—and are believed to be confined exclusively to the specific block of limestone on which they were found.
Source: Fauna & Flora International (2018) fauna-flora.org/news/geckos-galore-myanmars-lizard-bonanza-yields-staggering-numbers-new-species

... and two newly discovered frog species could already be threatened

Discovered at an altitude of 3,143 m in a cool climate, two new species of frog have been described by scientists from the Zoological Society of London (ZSL) and partners. The two frogs have been named after the places in which they were found: the Mount Fansipan horned frog *Megophrys fansipanesis*, and the Hoang Lien horned frog *Megophrys hoangliensis*. Amphibian experts are already concerned that the frogs could be facing extinction. The habitat in which both species reside is currently under development to support the large numbers of tourists that visit the area to enjoy Viet Nam's natural beauty, putting the new species at risk. This most recent discovery is the third new frog species to be found on Mount Fansipan in 5 years by the same ZSL team. As they face increasing threats, promoting responsible ecotourism is vital to help protect these species before it is too late.
Source: Discover Wildlife (2018) discoverwildlife.com/news/newly-discovered-frog-species-could-already-be-endangered/

Historic first for thresher shark tag team

An award-winning team of marine conservationists supported by the Conservation Leadership Programme, a partnership comprising Fauna & Flora International, BirdLife International and the Wildlife Conservation Society, has successfully tagged a thresher shark for the first time in Indonesia. All three species of thresher shark are categorized as Vulnerable on the IUCN Red List and have recently been added to Appendix II of CITES. Highly

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valued for their meat and fins, they are frequently victims of gillnet and longline fishing, either as direct targets or as bycatch. Their slow rate of reproduction makes them extremely vulnerable to overharvesting. Little is known about the species' Indonesian populations, which account for > 50% of bycatch recorded aboard tuna-fishing vessels, beyond the fact that numbers have fallen by > 80% since 2005 and continue to decrease. Indonesia's government is aiming to improve conservation management of thresher sharks and this project is designed to support that goal through a combination of fisheries surveys, satellite tagging data analysis, citizen science and community outreach.
Source: Fauna & Flora International (2018) fauna-flora.org/news/tails-unexpected-historic-first-thresher-shark-tag-team

Dead whale had 1,000 pieces of plastic in stomach

A dead whale that washed ashore in Southeast Sulawesi, Indonesia, had a large lump of plastic waste in its stomach, causing concern among environmentalists and government officials in a country heavily affected by plastic pollution. Rescuers from Wakatobi National Park found the remains of the 9.5 m sperm whale in November 2018 near the Park after receiving a report from environmentalists that villagers had begun to butcher the rotting carcass. Researchers from WWF and the park's conservation academy extracted c. 5.9 kg of plastic waste from the animal's stomach, including 115 plastic cups, four plastic bottles, 25 plastic bags, two flip-flops, a nylon sack and > 1,000 other assorted pieces of plastic. Indonesia's coordinating minister of maritime affairs said the whale's discovery should raise public awareness about the need to reduce plastic use, and has spurred the government to take tougher measures to protect the ocean.
Source: The Guardian (2018) theguardian.com/environment/2018/nov/20/indonesia-dead-whale-had-1000-pieces-of-plastic-in-stomach

EAST ASIA

Tiger breeders behind push to lift China's trading ban

China's State Council announced in October 2018 that it would replace a 1993 ban on the trade of tiger bones and rhino horn, introducing exceptions under special circumstances, including medical research. The move was postponed in November following widespread protests from conservation groups, who are concerned a legal trade of tiger parts will enable the laundering of wild animal parts into farmed supplies, threatening the species' survival. Operators of tiger breeding farms hope to lift the ban stating that without selling tiger products they are unable to cover their costs and carry out key conservation plans endorsed by the national government. Conservationists, however, argue that no captive Chinese bred tigers have been released into the wild and there is no scientific or medical need to use rhino or tiger products in Traditional Chinese Medicine. They estimate there are more than 6,500 tigers and c. 40 rhinos at c. 200 farms in China, but only 40–50 wild tigers remain in the country.
Source: Reuters (2019) uk.reuters.com/article/idUKKCN1P129O

Japan leaving IWC, to resume commercial whaling

In December 2018 the Japanese government confirmed it is withdrawing from the International Whaling Commission (IWC) and will resume commercial whaling operations in the North Pacific. The IWC, an inter-governmental organization founded in 1946, focused on whale conservation and management of the whaling industry, adopted a moratorium on hunting whales in 1982. This allows member nations to issue whaling permits for scientific research. Japan has openly flouted the moratorium by issuing such permits and selling the harvested whale meat ever since the moratorium took effect in 1986. The country has set an annual quota of 333 minke whales in the Southern Ocean, leading to the capture and death of 122 pregnant females in the 2017–2018 hunting season. In announcing its exit from the IWC, Japan said it will stop hunting whales in the Antarctic and restrict whaling activities to its own waters in the North Pacific, starting in July 2019.
Sources: Mongabay (2018) news.mongabay.com/2018/12/japan-leaving-iwc-to-resume-commercial-whaling/, & *The New York Times* (2018) nytimes.com/2018/12/26/world/asia/japan-whaling-withdrawal.html

Exhibition of Taiwan's leopard cats aims to promote conservation efforts

Three specimens of the leopard cat *Prionailurus bengalensis* killed in car accidents have been preserved and are on display at the National Museum of Natural Science in Taichung City as part of its efforts to raise public awareness of the importance of conservation. Recent decades have seen a shrinking of the leopard cat's habitat because of human activity and land development, and many leopard cats have reportedly been killed in car accidents, in traps or by poisoning. Estimates suggest there are < 1,000 leopard cats in Taiwan, mostly in undeveloped mountains in the country's central region. The species was categorized as Endangered by the Taiwan government in 2008. The exhibition aims to promote conservation of the leopard cat and increase awareness about the threats to its survival. It also includes specimens or records of animals that share the same environment, including the masked palm civet, crab-eating mongoose and Chinese ferret-badger.
Source: Taiwan News (2018) taiwannews.com.tw/en/news/3605486

NORTH AMERICA

Wild sheep and goats in the Yukon to be protected from diseases

The Yukon government is to implement a control order to protect wild sheep and goats from catching potentially lethal respiratory diseases from their domesticated relatives. The plan, to come into effect on 1 January 2020, preemptively safeguards thinhorn sheep and mountain goats. The bacterium in question, *Mycoplasma ovipneumoniae*, can cause pneumonia and other respiratory maladies. Owners of domestic sheep and goats are being instructed to keep their animals below an elevation of 1,000 m before the control order is officially rolled out. Other conditions include keeping domestic animals in an inspected enclosure, permanent tagging and up-to-date record-keeping for each animal, and annual testing for pathogens. Implementing the order is expected to cost USD 752,000 over a 6-year period and will end in 2024. This money will go towards inspectors' salaries, annual tests, fencing and compensation for any animals destroyed.
Source: Yukon News (2018) yukon-news.com/news/wild-sheep-and-goats-in-the-yukon-to-be-protected-from-diseases-by-control-order/

Sighting of sperm whales in Arctic a sign of changing ecosystem

A rare sighting of sperm whales in the Canadian Arctic is the latest sign of a changing ecosystem, as a growing number of species expand their range into warming Arctic waters. The pair of large whales were spotted just outside Pond Inlet, a community at the northern tip of Baffin Island, in September 2018. This is the second

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known sighting of sperm whales in the region. Although a number of whale species thrive year-round in the Arctic, the physiology of sperm whales makes navigating colder waters difficult. Their heads and upper parts of the body are soft and contain an oily fat that turns waxy in cold waters, and their bodies cannot effectively break through ice. There are concerns sperm whales could become trapped as winter approaches. The vast area of the Arctic waters makes it difficult to track changes effectively in the ecosystem, including the arrival of previously unreported species. Baseline datasets are also rare, hindering identification of any trends. Increasingly, researchers are working with Inuit communities, who have a long oral history of species in the region.
Source: The Guardian (2018) theguardian.com/environment/2018/nov/05/sperm-whales-canadian-arctic

Crab fishers sue 30 oil firms over climate change

The warming of Pacific waters off the coast of California has lead to algal blooms causing toxin build-up in crabs, shortened fishing seasons and a near-decimation of crab fisher livelihoods. In November 2018 associations representing California crab fishers filed a suit against 30 fossil fuel companies, including Chevron, ExxonMobil and BP, seeking to make them pay for the harm global warming has caused to California's fisheries. The suit demands that petroleum interests finance the changes that will be needed to sustain the crab fishing industry in the future. The lawsuit is the first legal action by a private industry group seeking to hold to account the fossil fuel companies responsible for major losses attributed to global warming. The fishers' suit raises the question of who should have to bear the costs of financing the major adaptations that industry and society will have to make in a warming world.
Source: The Guardian (2018) theguardian.com/environment/2018/nov/14/crab-fishermen-sue-oil-firms-exxon-chevron

CENTRAL AMERICA AND CARIBBEAN

Caribbean beaches swamped by smelly seaweed

Tourist beaches have been swamped by large tides of sargassum, a type of ocean seaweed. An essential habitat for some marine life while at sea, sargassum rots when it reaches land, removing oxygen from the water and emitting hydrogen sulphide gas. It has washed up in the Caribbean in unusually large amounts since 2011 but in 2018 the largest ever volumes appeared on shores from Barbados to Mexico, with deep piles along the coasts, and dozens of metres out to sea. This has had a significant effect not only on tourism in the region: the gas destroyed nearby electric units, eroded metals and affected human health. There have also been reports of fish, turtles and dolphins succumbing to the piles of rotting algae. Global warming could be a causal factor, and coastal communities could face even worse sargassum inundations in the future.
Source: The Guardian (2018) theguardian.com/environment/2018/nov/16/caribbean-swamped-by-seaweed-that-smells-like-rotten-eggs

Social marketing campaigns can help threatened wildlife species recover

Scientists have studied the effects of the campaign to save the yellow-shouldered Amazon parrot, or lora, on the Caribbean island of Bonaire. In 1998, before a conservation campaign was launched, there were more loras in captivity on Bonaire than in the wild. Annual population surveys show that the species is recovering, from 294 individuals in 1998 to 1,023 in 2018. The Rare Pride campaign used marketing techniques including posters, songs, fact sheets and church sermons, to raise awareness about the bird's threatened status and the laws surrounding ownership, capture and trade. The research team, having interviewed stakeholders such as veterinarians, tourism professionals, educators, government officials and local residents, found that there were three main explanations for the recovery: behavior change campaigns, environmental education programmes, and law enforcement efforts. This research is one of the first to look at the long-term impacts of behaviour change campaigns, and shows that these can play an important role in the recovery of wildlife populations.
Sources: Conservation Biology (2018) doi.org/10.1111/cobi.13218, & *Science Daily* (2018) sciencedaily.com/releases/2018/12/181204095414.htm

SOUTH AMERICA

Jair Bolsonaro launches assault on Amazon rainforest protection

Soon after taking office in January 2019, Brazil's new president, Jair Bolsonaro, issued an executive order transferring the regulation and creation of new Indigenous reserves to the agriculture ministry. This caused an outcry from Indigenous leaders, who said it threatened their reserves, which make up c. 13% of Brazilian territory. Demarcation of Indigenous reserves was previously controlled by Funai, the agency for Indigenous people, which has been moved from the justice ministry to a new ministry of women, family and human rights. The decision was included in an executive order that also gave Bolsonaro's government secretary potentially far-reaching powers over non-governmental organizations working in Brazil. During the 2018 election campaign Bolsonaro promised to end demarcation of new Indigenous lands, reduce the power of environmental agencies and free up mining and commercial farming on Indigenous reserves.
Source: The Guardian (2019) theguardian.com/world/2019/jan/02/brazil-jair-bolsonaro-amazon-rainforest-protections

Amazon fish contaminated by plastic particles

Researchers have found the first evidence of plastic contamination in freshwater fish in the Amazon, highlighting the extent to which plastic and other waste dumped in rivers is affecting the world's wildlife. Tests on the stomach contents of fish in Brazil's Xingu River, one of the major tributaries of the Amazon, revealed plastic particles in > 80% of the species examined. The study focused on fish in the Xingu because of their rich diversity and breadth of feeding habits. Analysis of the fishes' stomach contents identified a dozen distinct polymers used to manufacture plastic items, including bags, bottles and fishing gear. Most pieces were black, red, blue, white or translucent and varied from 1 mm particles to flakes measuring 15 mm. Thirteen of the species had consumed plastics, regardless of whether they were herbivores that feed on river plants, carnivores that survive primarily on other fish, or omnivores.
Sources: Environmental Pollution (2018) doi.org/10.1016/j.envpol.2018.10.088, & *The Guardian* (2018) theguardian.com/environment/2018/nov/16/sad-surprise-amazon-fish-contaminated-by-plastic-particles

Progress on jaguar conservation in Suriname

Jaguars have long been considered threatened in North and Central America, but have been thought to enjoy a safe stronghold in South America. However, the rapid pace of road building in Amazonia is bringing the outside world further into the rainforest. The spread of cattle ranches, particularly in the Brazilian Amazon,

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attracts jaguars, which are then often killed to eliminate livestock predation. The Belt and Road Initiative is a multibillion-dollar development strategy designed and promulgated by the Chinese government. An unanticipated aspect of the Chinese presence in Suriname is a rising demand for jaguar parts for traditional medicine. In October 2018 Surinamese civil society organized a meeting to help combat this practice. Representatives are now designing an action plan for jaguar conservation in Suriname. This should serve as a powerful tool for protecting Suriname's jaguars and for providing a blueprint for bringing different people together and uniting them in a common cause.
Source: Mongabay (2018) news.mongabay.com/2018/11/progress-on-jaguar-conservation-in-suriname/

PACIFIC

Hawksbill turtle poaching to be fought with DNA technology

Researchers will use DNA technology to try to stop the illegal poaching of hawksbill turtles for use in tortoiseshell products. The population of this Critically Endangered species has declined by > 75% in the Pacific Ocean and illegal trade is a key threat to its survival. Hawksbills are usually poached in waters in the coral triangle and are the only sea turtles hunted for their shells, despite international trade in hawksbill products having been banned for > 20 years. Scientists and researchers from WWF and the National Oceanic and Atmospheric Administration have begun a 3-year project that will trace tortoiseshell products such as earrings and bracelets sold in markets and specialty shops to where they were poached. They will achieve this by DNA testing both products and live turtles throughout the Asia-Pacific region, to create a DNA map that will pinpoint where turtles have come from and identify the hawksbill populations most at risk.
Source: The Guardian (2018) theguardian.com/environment/2018/nov/13/hawksbill-turtle-poaching-to-be-fought-with-dna-technology

Chinese demand wiping out forests in the Solomon Islands

According to NGO Global Witness, logging companies are harvesting timber from the forests of the Solomon Islands, a small country in the South Pacific, at c. 19 times the sustainable rate, with > 80% of the exports going to China. As other countries in South-east Asia and Africa have tightened restrictions on timber exports, China has turned to the Solomon Islands and neighbouring Papua New Guinea, which together account for c. 50% of China's tropical timber imports. There is no law in China regulating this trade, meaning that all imports are legal, even when there is a high risk of illegality at the point of harvest. Most regulated markets, including the EU and the USA, have laws that require importers to verify that the products they are buying are sourced legally. Global Witness is urging China to ensure its laws are changed accordingly, and to extend its commitments to addressing climate change and the illegal timber trade beyond its borders.
Source: Mongabay (2018) news.mongabay.com/2018/10/chinese-demand-wiping-out-forests-in-the-solomon-islands-new-report/

AUSTRALIA/ANTARCTICA/ NEW ZEALAND

Queensland flying fox species decimated by record heatwave

In November 2018 thousands of spectacled flying foxes *Pteropus conspicillatus* died from heat stress brought on by extreme temperatures in far north Queensland. Conservationists and wildlife volunteers estimated > 4,000 perished during the record heatwave, which saw temperatures in Cairns reach all-time highs of 42.6 °C. The endemic species is currently categorized as Vulnerable under national environment laws, but conservationists have been pushing to have the species recategorized as Endangered because of declines in the population. Volunteer carers who have been counting dead animals and taking orphaned young into care say it is the first time the species has suffered mass deaths because of extreme heat.
Source: The Guardian (2018) theguardian.com/environment/2018/nov/30/queensland-flying-fox-species-decimated-by-record-heatwave

Plans rejected for East Antarctic marine park

A vast area off the coast of East Antarctica rich in cold-water corals and penguin foraging grounds will remain unprotected for at least another year. Conservation advocates from Australia and the EU had hoped that the region, covering 1 million km^2, would become the continent's newest marine protected area. However, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) failed to reach agreement before the end of its annual meeting in October 2018 in Australia, for the sixth year in a row. Opposition from China and Russia has blocked the proposal each year. Both have current or historical fishing interests in the region.
Source: Nature (2018) nature.com/news/plans-rejected-for-east-antarctic-marine-park-1.22913

Scientists prepare for the most detailed whale faeces expedition

A team of scientists will collect blue whale faeces and examine their impact on biodiversity and climate change in Antarctica. Blue whale numbers plunged by 95% in the early 20th century, but have stabilized and partially recovered since the introduction of a global ban on catches in 1966. Most research has focused on the whales' breeding and migratory habits, but the new study will consider how they contribute to nutrition levels in Antarctic waters. Their excrement is an iron-rich ocean fertilizer that stimulates the growth of bacteria and phytoplankton, which act as the greatest biological source of carbon sequestration. Researchers will try to quantify that fertilizing impact and test theories suggesting that the whale is irreplaceable in the polar ecosystem.
Source: The Guardian (2018) theguardian.com/environment/2018/nov/26/scientists-prepare-for-the-most-detailed-whale-poo-expedition-ever

All internet addresses were up to date at time of writing. Note that in the online version of this document (at cambridge.org/oryx) all internet links are live and can thus be used to navigate directly to the cited web sites. 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 web sites) are always welcome. Please send contributions to oryx@fauna-flora.org.

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