

Briefly

INTERNATIONAL

Action needed to future-proof pollinators

International scientists have called for action to future-proof pollinating insects, birds and mammals. Agricultural expansion, new pesticides and emerging viruses present the biggest risks in coming decades, and the bats that pollinate plants in tropical and desert climates need legal protection. Some 35% of global crop production and more than 85% of wild flowering plants rely to some degree on pollination. The research used horizon-scanning to identify six priority issues: (1) corporate control of global agriculture, (2) novel systemic pesticides, (3) novel RNA viruses, (4) the development of new managed pollinators, (5) more frequent heatwaves and drought under climate change, and (6) the potential positive impact of reduced chemical use on pollinators in non-agricultural settings. Consolidation of the agri-food industries was identified as the single biggest threat to pollinators. The study also highlighted positive opportunities for protecting pollinators, such as reducing chemical use in gardens and parks.

Source: *PeerJ* (2016) dx.doi.org/10.7717/peerj.2249, & BBC News (2016) bbc.co.uk/news/science-environment-36849554

Perch in peril as they prefer plastic to plankton

Research has shown that fish exposed to microplastic particles (< 5 mm in size) during their development exhibit stunted growth and increased mortality rates. Larvae of the European perch *Perca fluviatilis* were found to feed preferentially on microplastics even when presented with their natural food source of plankton. Exposure to microplastic particles inhibited hatching, decreased growth rates and altered innate behaviours of the perch. Individuals in a plastic-rich environment also failed to respond to olfactory threat cues and were eaten by pike four times more quickly than those in a naturally reared sample. All fish exposed to polystyrene particles in the study were dead within 48 hours. Plastic particles have been found in the digestive tracts of seabirds, fish and whales, and campaigners have been calling on cosmetics companies to end the use of plastic microbeads in skin cleansers.

Source: *Science* (2016) science.sciencemag.org/content/352/6290/1213, & *The Guardian* (2016) theguardian.com/environment/2016/jun/02/microplastics-killing-fish-before-they-reach-reproductive-age-study-finds

The future of coral reefs: dark or bright...

An analysis of more than 2,500 coral reefs across 46 countries has revealed 'bright spots' where ecosystems are faring better than predicted, offering some hope for the future, at a time when unusually warm ocean temperatures have resulted in mass bleaching of reefs. In the face of anthropogenic pressures, including overfishing, climate change and pollution, the fish stocks in 15 locations, including in Indonesia, Papua New Guinea and the Solomon Islands, were more prolific than expected. These bright spots are characterized by high levels of local engagement in management, strong local ownership rights, high dependence on marine resources, and protective customary taboos. Conversely, 35 globally distributed dark spots were identified, some within marine reserves, where intensive netting activity and easy access to freezers are common factors. These findings underline that the creation of marine reserves alone is insufficient to protect coral reefs, and needs to be complemented by other efforts to reduce threats.

Source: *Nature* (2016) dx.doi.org/10.1038/nature18607, & *The Guardian* (2016) theguardian.com/environment/2016/jun/15/bright-spots-offer-fresh-hope-for-survival-of-coral-reefs

...as widespread bleaching continues...

Recent data suggest that the most widespread coral bleaching event in history is set to continue at least until the end of 2016. Severe bleaching has been recorded in every major reef region, and has affected approximately 93% of the reefs on Australia's Great Barrier Reef, almost a quarter of which is now dead. In addition to warming waters, research has found that oxybenzone, an ingredient in many sunscreens, not only kills coral but alters the DNA of adult coral, deforming the larval stage and affecting coral development. Research presented at the 2016 International Coral Reef Symposium identified areas, including two sites in the Florida Keys, where apparently healthy elkhorn coral

had no eggs or sperm. These so called zombie corals are unable to reproduce and are a disheartening marker of our changing oceans.

Source: *The Guardian* (2016) theguardian.com/environment/2016/jun/21/coral-bleaching-event-now-biggest-in-history-and-about-to-get-worse, & theguardian.com/environment/2016/jun/22/zombie-corals-pose-new-threat-to-worlds-reefs

...but a ray of sunshine for reefs?

The inaugural surveys of the Coral Reef Airborne Laboratory (CORAL) project have begun in Hawaii. Over 3 years the USD 15 million project will use an adapted NASA aeroplane to undertake the largest, most comprehensive survey of coral reefs to date. Instruments on board the CORAL plane can gather highly detailed data in the wavelength range applicable to underwater sensing (430–710 nanometres). Mapping the spectra of sunlight reflecting off the reefs, researchers will be able to distinguish between algae, sand and coral, and ultimately form an assessment of the health of a reef. The surveys in Hawaii, the Great Barrier Reef, the Mariana Islands and Palau will produce an extensive dataset, mapping approximately 3–4% of the world's reef area. Combined with surveys conducted by divers below, the baseline data recorded by the CORAL plane will provide an ecosystem-wide understanding of some of the world's most threatened reefs.

Source: *Nature* (2016) dx.doi.org/10.1038/534013a

Breakthrough in underwater microscopy shines a light on benthic ecosystems

Scientists have developed a system of underwater microscopy that is capable of *in situ* non-invasive imaging of life on the ocean floor at nearly micrometre resolution. Microscopic-scale processes have a significant influence on the health and characteristics of marine ecosystems such as coral reefs, kelp forests, mangroves and seagrass beds, but it is inherently difficult to study these processes in the natural environment because of its complex and dynamic nature, with fluctuating water currents, temperature, oxygen levels and acidity. Previous studies have relied on collecting samples for analysis in the laboratory but this fails to capture crucial information about how organisms interact and behave. Using the new diver-deployed equipment it is now

possible to study spatial and temporal processes such as the colonization of bleached corals by algae, the behaviour of individual coral polyps, and interspecific competition. *Source: Nature Communications* (2016) [dx.doi.org/10.1038/ncomms12093](https://doi.org/10.1038/ncomms12093), & *BBC News* (2016) bbc.co.uk/news/science-environment-36785883

Report reveals scale and diversity of wildlife crime

The first World Wildlife Crime Report has analysed over 164,000 wildlife crime-related seizures across 120 countries. Produced by the United Nations Office on Drugs and Crime, the report highlights the global scale of the problem, as no individual country was the source of more than 15% of the seized shipments. All countries played a role at either the source, transit or destination stage of the crime. The report also emphasizes the diversity of wildlife crime, with over 7,000 species, not one of which represented more than 6% of the total number of seizures. As well as iconic species such as tigers, elephants and rhinos, the report includes thousands of less well-known animals as well as plants and marine species. Concerns regarding the commodification of threatened species are heightened by the revelation that the amount of illegal ivory seized in recent years was greater than the amount of cocaine seized globally. *Source: Mongabay* (2016) news.mongabay.com/2016/06/from-endangered-species-to-commodities-report-reveals-scale-of-wildlife-crime/

The Restoration Initiative to generate action on forest landscape restoration

The Global Environment Facility has approved The Restoration Initiative, which will support 10 countries in meeting their commitments under the Bonn Challenge, a global effort to restore millions of hectares of degraded land. The initiative will foster collaboration at multiple levels and across sectors to achieve national and local priorities such as food security and employment as well as international commitments on climate change, biodiversity conservation and land degradation neutrality. Projects in each of the 10 countries will be linked by a Global Learning, Finance and Partnerships project, which will provide knowledge, tools and policy support. The participating countries are Cameroon, Central African Republic, China, Democratic Republic of the Congo, Guinea-Bissau, Kenya, Myanmar, Pakistan, Sao Tome and Principe, and Tanzania, all of which have significant potential for land restoration.

Source: IUCN (2016) iucn.org/news/iucn-and-partners-launch-global-effort-boost-restoration-degraded-forests

FairWild standard offers hope for plants

The FairWild Standard, which defines best practice guidelines for sustainable harvest and fair trade in wild plants, fungi and lichen, is increasingly being adopted in the supply chain for wild plants. Companies, including a number of key manufacturers of traditional Chinese medicine, are also using it as a basis for responsible sourcing of wild plants as part of their corporate social responsibility commitments. The standard was promoted at the State of the World's Plants Symposium held in London in May, at the Royal Botanic Gardens, Kew, as a viable solution to the overharvesting of wild plant species. A study launched at the symposium revealed that one-fifth of the world's plant species are at risk of extinction, the primary threats being overharvesting, logging and conversion of land for agriculture.

Source: TRAFFIC (2016) traffic.org/home/2016/5/12/symposium-highlights-threats-to-the-worlds-plants-but-soluti.html

Has terrestrial biodiversity loss exceeded safe limits?

A quantitative global analysis of changes in terrestrial biodiversity in response to land use and related pressures has found that local biodiversity intactness within most biomes, most biodiversity hotspots and some wilderness areas has dropped below the proposed planetary boundary, deemed to be the 'safe' limit. According to the planetary boundaries framework, updated in 2015, the loss of more than 10% of an area's biodiversity places the local ecosystem at risk of loss of ecological function. It is estimated that biodiversity intactness, or the average proportion of natural biodiversity remaining in local ecosystems, has already declined beyond this level across 65% of terrestrial surface area, with the greatest changes occurring in grasslands and biodiversity hotspots. These findings raise concerns regarding long-term sustainable development and the ecosystem services on which the well-being of human societies depends, including crop pollination, waste decomposition and regulation of the carbon cycle.

Source: Science (2016) dx.doi.org/10.1126/science.aaf2201, & *BBC News* (2016) bbc.co.uk/news/science-environment-36805227

UNESCO announces a plethora of new natural World Heritage sites

During its 40th session the World Heritage Committee inscribed nine new natural World Heritage sites, including sites in Kazakhstan, Kyrgyzstan, Uzbekistan, Canada and Chad. The newly recognized Hubei Shennongjia site protects the largest primary forests in central China and is home to the Endangered golden snub-nosed monkey *Rhinopithecus roxellana* as well as the world's largest amphibian, the Chinese giant salamander *Andrias davidianus* (see also *Oryx*, 50, 257–264 & 265–273). The new designations also recognize Mexico's Archipiélago de Revillagigedo, the only breeding site for the Critically Endangered Townsend's shearwater *Puffinus auricularis*, and two Marine National Parks in Sudan, which support a globally significant population of dugongs. India's Khangchendzonga National Park in the Himalayas includes the Zemu Glacier and is home to many threatened species, including the red panda *Ailurus fulgens*, the snow leopard *Panthera uncia* and the Asian wild dog *Cuon alpinus*.

Source: UNESCO (2016) whc.unesco.org/en/news/1528, & *IUCN* (2016) iucn.org/news/world%E2%80%99s-top-areas-iconic-species-among-new-sites-world-heritage-list

EUROPE

Rise of border fences hampers wildlife movements

The growth of border fences in Central and Eastern Europe is a major threat to wildlife, according to a new study. Up to 30,000 km of fences and walls have been built, some in response to the 2015 refugee crisis. For example, in November 2015 the Slovenian government constructed a fence along parts of its border with Croatia, to prevent refugees crossing. This barrier has unforeseen consequences for animals, separating bears, lynx and wolves from their core populations. Many of the fences may be in contravention of the World Heritage Convention, the Convention on Biological Diversity or the Habitats Directive of the European Union. There may be times, however, when the construction of fences benefits species, such as for the Asiatic wild ass on the Mongolian–Chinese border, where a 4,700 km fence prevents these animals from moving into Inner Mongolia, where illegal hunting is a problem. The study argues that governments should think about opening fences at times of migration.

Source: PLoS Biology (2016) [dx.doi.org/10.1371/journal.pbio.1002483](https://doi.org/10.1371/journal.pbio.1002483), & *BBC News* (2016) bbc.co.uk/news/science-environment-36598875

Glossy ibis returns to Serbian wetlands after 50-year absence

A survey in July confirmed the presence of four pairs of glossy ibis *Plegadis falcinellus* at Serbia's Obedska Bara wetlands, from which the species had been absent for more than half a century. The site was once considered a European stronghold for the species, with reports of up to 4,500 breeding pairs during the late 19th and early 20th century, but the breeding population went extinct there in the 1960s as a result of a deterioration in habitat conditions. In the 1990s a programme of habitat restoration began at the Ramsar site, which is also an Important Bird and Biodiversity Area, with initiatives including an annual international habitat restoration camp, and restoration of wet meadows and former pastures, where the land cover had changed to herbaceous bushes and woody vegetation as a result of a decrease in the intensity of grazing of domestic cattle and changes in the flooding regime of the Sava River.

Source: BirdLife International (2016) birdlife.org/europe-and-central-asia/news/half-century-glossy-ibis-returns-serbian-wetlands

Green 10 petition for post-Brexit EU agenda on environment

The 10 largest environmental NGOs working at EU level have written a joint letter to the heads of the EU institutions calling for a post-Brexit agenda that acts in the best interests of Europe's citizens and their environment. The letter was sent on 27 June, 4 days after the UK voted to leave the European Union. The NGOs, which have a collective membership of over 20 million citizens, many of whom live in the UK, affirmed their commitment to the values of openness, inclusiveness, tolerance, respect and sustainability, and to communicating more clearly the values and benefits EU policies have brought about, including 'cleaner air, water and beaches, thriving wildlife, safer substances and green energy.' They also emphasized that 'the EU remains uniquely placed to lead in tackling the global challenges of climate change, the depletion of natural resources, the collapse of ecosystems and disappearance of wildlife.'

Source: BirdLife International (2016) birdlife.org/europe-and-central-asia/news/ngos-call-post-brexit-eu-agenda-acts-its-citizens-and-their-environment, & birdlife.org/europe-and-central-asia/news/nobody-can-make-it-out-here-alone

New initiative for conservation in the Mediterranean

The Critical Ecosystem Partnership Fund (CEPF) has launched an initiative to update the Ecosystem Profile for the Mediterranean region. This document describes the conservation status of the region, including socio-economic issues and threats to biodiversity, and includes all available data on flora and fauna. The Mediterranean Basin is the world's second largest biodiversity hotspot, covering more than 2 million km², and CEPF has been investing in conservation projects there since 2010. In the past 4 years USD 10.5 million has been invested in 106 projects in the region, 14 new protected areas have been established and 14 threatened species have benefited directly from CEPF-funded projects, including the Vulnerable leatherback sea turtle *Dermochelys coriacea* and dalmatian pelican *Pelecanus crispus*, and the Endangered Barbary macaque *Macaca sylvanus*. Under the initiative grants are awarded to civil society organizations working to safeguard threatened species and critical sites through systematic conservation planning and activity.

Source: BirdLife International (2016) birdlife.org/worldwide/news/mediterranean-biodiversity-conservation-under-spotlight

Infectious wasting disease spreads to Europe

Chronic wasting disease, related to bovine spongiform encephalopathy (mad-cow disease), has been discovered in free-ranging reindeer *Rangifer tarandus tarandus* in Norway—the first time the disease has been found in this species in the wild. Previously believed to be restricted to deer, elk and moose in North America and South Korea, it is not yet known how the fatal brain disease arrived in Europe. It may have arisen spontaneously or crossed the species barrier, originating from sheep infected with the prion disease scrapie, although such a jump has previously been unknown. Researchers are now trying to determine whether the discovery was of a rare case or whether the disease is already widespread in Europe but has gone undetected. As yet there is no cure or vaccine for chronic wasting disease, which is not known to be transmissible to humans.

Source: Nature (2016) [dx.doi.org/10.1038/nature.2016.19759](https://doi.org/10.1038/nature.2016.19759)

Epic migration of a tiny tern

An arctic tern weighing just 100 g has clocked up 96,000 km on its round trip to Antarctica and back from its spring breeding grounds on the Farne Islands off the north-east coast of England. This is the longest distance ever recorded for a migratory bird. Arctic terns can live for up to 30 years, and during their lifetime they can fly as far as 3 million km, roughly equivalent to four round trips to the moon. In 2015 researchers from Newcastle University fitted 29 birds with geolocators to track their epic migrations. The record-breaking tern travelled down the coast of West Africa, pausing in the Indian and Southern Oceans, before arriving in the Weddell Sea just over 6 months after leaving the Farne Islands. More than 2,000 pairs of arctic terns breed on the Farne Islands but colonies in the Outer Hebrides and Shetlands are producing fewer chicks and the global population is decreasing.

Source: The Guardian (2016) theguardian.com/environment/2016/jun/07/arctic-tern-makes-longest-ever-migration-equal-to-flying-twice-around-the-planet, & *Newcastle University* (2016) newcastle.ac.uk/press/news/2016/06/arcticterns/

Warming climate wrecks havoc with seasonal cycles

Long-term phenological datasets collected between 1960 and 2012 have provided insights into the impacts of rising temperatures on 812 of the UK's plant and animal

species. Analysis revealed that, compared to secondary consumers, primary consumers were twice as sensitive to changes in temperature. It is predicted that by 2050 primary consumers will have shifted their seasonal activities an average of 6.2 days earlier in the year, more than twice as much as species at other levels in the food chain. The repercussions of this desynchronization are felt throughout the trophic levels as breeding cycles, migration patterns and predator-prey relationships alter. Early migrations have meant that birds arrive at breeding grounds well in advance of the common cuckoo *Cuculus canorus*, which relies on host species to nurture its young. Unusual temperatures have also led to poor synchronization between the caterpillars of the winter moth *Operophtera brumata* and the oak tree *Quercus robur* buds on which they feed.

Source: The Guardian (2016) theguardian.com/environment/2016/jun/29/climate-change-is-disrupting-seasonal-behaviour-of-britains-wildlife

Fundraising drive to save St Kilda's seabirds

Following the 30th anniversary of St Kilda's designation as a world heritage site The National Trust for Scotland has begun a fundraising campaign to safeguard the future of this remote, uninhabited archipelago. St Kilda is the UK's first and only double world heritage site, recognized for both its natural and cultural significance. It is one of only 32 such sites worldwide. Around 600,000 seabirds nest each year on St Kilda's seven islands but numbers are falling at an alarming rate. There has been a sharp decline in the availability of sand eels, one of the main food sources for seabird populations, and other marine foods are moving deeper into the water or further north in response to ocean warming. Since 1999 fulmar populations have declined by 56%, numbers of razorbills have fallen by 68% and the number of occupied kittiwake nests has fallen by 99%, placing the population on the brink of local extinction.

Source: The Guardian (2016) [& theguardian.com/environment/2015/dec/04/climate-change-threatening-puffins-kittiwakes-seabirds-st-kilda-scotland](http://theguardian.com/environment/2016/jun/19/fundraising-drive-aims-save-seabird-paradise-off-scotland)

Life thriving on UK's biggest underwater mountains

Scientists have used robotic submersibles to explore four sea mounts more than 2,000 m beneath the waves off the west coast of

Scotland. Video footage revealed cold-water coral reefs, sponge gardens, crustaceans and many fish species living in the cold, dark waters. The team also collected thousands of samples, and believe many species may be new to science. The largest underwater mountain explored is 1,700 m high. The scientists controlled the Isis Remotely Operated Vehicle from the deck of the RSS James Cook to record video, take photos and collect samples. Overall the sea mounts were found to be in good condition, and most are already designated as Marine Protected Areas. However, the scientists found signs of human impact, including litter and trawl marks, and they are concerned about how climate change may affect these habitats in the future.

Source: BBC News (2016) bbc.co.uk/news/science-environment-36806038

Outdoor learning boosts children's development

A recent report suggests that outdoor learning can have a positive impact on children's development but needs to be formally adopted. Childhoods are dramatically changing, with fewer opportunities to spend time outdoors, and the loss of exposure to the natural environment has negative long-term consequences. Because of busier family lives, combined with an increased sense of fear in society, children are having fewer opportunities to explore their natural environment, hampering their social skills and risking stifling their physical and emotional development and well-being. Although there is a significant body of research that supports outdoor learning in both formal and informal contexts, it is likely to remain on the margins of education until the benefits are recognized by policy-makers and reflected in policies. The report calls for it to be adopted by national curricula.

Source: BBC News (2016) bbc.co.uk/news/science-environment-36795912

Badgers may not spread TB to cattle through direct contact

New research has shown that badgers in the UK may not transmit TB to cattle by direct contact, but rather that cows contract the disease by coming into contact with infected faeces and urine in pasture. Advice given to farmers to control the spread of the disease may therefore need to be reassessed. Researchers tracked the movement of cattle and badgers using collars with GPS and proximity sensors across 20 farms in Cornwall, UK. The two species were never found in close proximity. Current control measures recommended

by the Department for the Environment, Food and Rural Affairs assume, however, that direct contact is an important method of transmission. The disease may be transmitted through badger faeces and urine, which may leave the TB infection in grazing pasture for many months. This would help to explain why it takes so long for culling badgers to have an effect, because the infection left in the environment can last for months.

Source: Ecology Letters (2016) [dx.doi.org/10.1111/ele.12654](https://doi.org/10.1111/ele.12654), & BBC News (2016) bbc.co.uk/news/science-environment-36976774

Malta designates its first marine Special Protection Areas

Malta is home to 50% of the Mediterranean subspecies of European storm-petrels, 10% of the world's yelkouan shearwaters and 3% of the global population of Scopoli's shearwaters. All three species are in decline, so the government's designation of Malta's first eight marine Special Protection Areas specifically for birds is welcome news. The protected areas will play a vital role in safeguarding the long-term survival of these species and will also mark Malta's implementation of the EU Birds Directive.

Source: BirdLife International (2016) birdlife.org/europe-and-central-asia/news/malta%28o%99s-first-marine-special-protection-areas-announced

NORTH EURASIA

A glimmer of hope for Kazakhstan's saiga antelopes

An aerial survey conducted during 18 April–3 May has revealed that all three populations of the Critically Endangered saiga antelope in Kazakhstan are increasing, offering hope for this severely threatened species, although numbers remain far below the 242,000 counted in spring 2015. The saiga suffered a mass die-off last year, with the loss of 200,000 individuals in Betpak-Dala alone, which is believed to have been caused by a bacterial infection although the underlying causes are still not fully understood. The Ustyurt population has increased to 1,900 individuals, from 1,200 in 2015, the Ural population has increased from 51,700 to an estimated 70,200 individuals, and the Betpak-Dala population now has c. 36,200 individuals. Poaching remains a significant threat to the recovering populations, as male saigas continue to be targeted for their horns, which are used in Chinese traditional medicine.

Source: *The Guardian* (2016) theguardian.com/environment/2016/jun/20/saiga-antelope-numbers-rise-after-mass-die-off

Russia downgrades environmental protection

In June the Russian parliament voted to reduce environmental protections across the country in favour of the expansion of private ski resorts, with plans to extend ski facilities into the Western Caucasus World Heritage Site, thus reneging on its commitments to enhance protection of the World Heritage Site, which includes a breeding centre for the Persian leopard, and the neighbouring areas of Sochi National Park. Russia is home to iconic species such as the snow leopard and the Amur tiger, and is renowned for its protected area network, which includes more than 200 federal protected areas, six World Heritage Sites, 103 strictly protected nature reserves and 48 national parks.

Source: WWF (2016) wwf.panda.org/wwf_news/?271638/Changes-in-Russian-law-threaten-world-famous-nature-reserves

NORTH AFRICA AND MIDDLE EAST

Satellite tracking reveals migration of Turkey's wild bears

Global positioning system data have revealed that Turkey's brown bears migrate seasonally in search of food. Between September and November tagged bears left the Scots pine forests of Sarıkamış Forest and travelled 100–249 km in search of bountiful oak forests. After eating their fill the bears returned to Sarıkamış in eastern Turkey in time to hibernate. Only 49 km² of the Sarıkamış Forest is protected, and logging and intensive grazing in the remaining area is driving bears towards cities and unfenced garbage dumps. Despite the disturbance of car headlights, bears, wolves, wild boar and dogs have been seen foraging alongside each other in dumps on the outskirts of Sarıkamış. This behavioural change in wild brown bears is concerning, but data have also shown that the bears' migratory path coincides with a wildlife corridor. It is hoped that increased forest connectivity may alleviate the pressures driving bears into cities.

Source: Mongabay (2016) news.mongabay.com/2016/07/turkeys-wild-bears-migrate-for-food-but-some-bears-prefer-garbage-dumps/

Iraqi marshlands obtain world heritage status

The Ahwar of southern Iraq, also known as the Iraqi marshlands, have had a turbulent past. In the 1990s dictator Saddam Hussein ordered the marshlands to be drained to prevent Shia guerrillas using the area as a hideout. Since this devastation, many dams and canals constructed under Saddam Hussein's regime have been demolished to allow waters from the Tigris and Euphrates to flood back, revitalizing the area. Once covering 20,000 km², the marshlands remain one of the world's largest inland delta systems despite the extreme aridity of the surrounding environment. The new UNESCO world heritage site comprises four wetland marsh areas as well as three unique archaeological sites. Iraq had been seeking heritage status for the marshlands since 2003 and whilst dams upriver in Syria and Turkey continue to restrict the flow of water to the marshes, this designation is a remarkable step for Iraq's irreplaceable marshlands.

Source: *The Guardian* (2016) theguardian.com/environment/2016/jul/18/iraqi-marshlands-named-as-unesco-world-heritage-site

SUB-SAHARAN AFRICA

Selous elephants under stress...

Under pressure from mining and poaching activities, the elephant population in the world heritage site of Selous National Park could disappear by 2022 unless urgent measures are taken to protect the remaining elephants. The park, in southern Tanzania, has lost almost 2,500 elephants per annum, on average, since the 1970s and current numbers are at an all time low of 15,000 individuals. At the height of the 2010–2013 wave of poaching an average of six elephants were killed every day. Meanwhile, 75% of the park is covered by oil and gas concessions, leaving elephant populations stressed to a critical level. The USD 6 million generated annually by the reserve is reliant upon the attraction of its rich wildlife, and the socio-economic footprint caused by depleting elephant populations may be considerable. Researchers are urging the Tanzanian government to conduct comprehensive assessments of the impact of mining activities to ensure a sustainable future for the area.

Source: *The Guardian* (2016) theguardian.com/environment/2016/jun/01/elephants-vanish-africas-key-reserves-six-years-tanzania-selous-national-park/

...and mass elephant relocation could save threatened populations

Wildlife experts in Malawi are to begin relocating up to 500 elephants to a sanctuary that they hope could eventually serve as a reservoir to restore some elephant populations in other parts of Africa where the threatened species has been heavily poached. The massive relocation, to be completed in 2017, will involve darting the elephants from a helicopter, hoisting them by crane and loading them in crates on to trucks for a ride of about 300 km to Malawi's Nkhotakota wildlife reserve. The relocation by African Parks, a non-profit group, comes amid increasing pressure on wildlife across much of Africa and especially on elephants, which have been slaughtered in large numbers to meet growing demand for ivory, mostly in Asia. In Malawi surplus elephants stripping large tracts of vegetation and coming into conflict with communities at two wildlife parks, Majete and Liwonde, will be moved to Nkhotakota, where there is more space and security.

Source: *The Guardian* (2016) theguardian.com/environment/2016/jun/20/mass-elephant-relocation-populations-africa

Cause for celebration in the Democratic Republic of Congo

The Democratic Republic of Congo (DRC) has announced the country's first new national park in more than 40 years. The Lomami National Park covers 9,000 km² of relatively untouched Congo Basin rainforest and contains more endemic species than any other protected area in the country. Alongside species such as the Congo peacock and the Endangered okapi, the area is also home to the recently discovered lesula monkey *Cercopithecus lomamiensis*. Local communities have been involved in mapping the park's boundaries and managed hunting zones and many individuals are also employed and trained as park guards. Sustainable livelihood projects have been introduced in key villages and early monitoring results indicate a drop in hunting activity around the park's periphery. Between 2001 and 2014 DRC lost nearly 80,000 km² of its tree cover. In the wake of increasing deforestation and continued conflict this park sets a welcome new standard for conservation within DRC.

Source: Mongabay (2016) news.mongabay.com/2016/07/drc-declares-first-new-national-park-in-20-years/

Thinking ahead: are African trees adapting to the warming climate?

Samples of trees in Ethiopia, Namibia and South Africa have revealed at least two species that may have increased the efficiency of their water usage in response to a warming climate. By analysing the ratio of carbon isotopes in individual tree rings, scientists have been able to estimate the water-use efficiency of three tree species. Over almost a century (1909–2003) two species of African trees have increased their water-use efficiency by an average of 25%. With rainfall in Africa predicted to decrease, these species may have a head start in adapting to the changing climate.

Source: *Nature* (2016) [dx.doi.org/10.1038/534593c](https://doi.org/10.1038/534593c)

South Africa's great white shark numbers show steep decline

A 6-year study has revealed surprisingly low numbers of great white sharks in South Africa's coastal waters. Researchers collected biopsy samples and used the unique markings on dorsal fins to identify individual sharks. It is estimated that 350–522 great white sharks remain in the area, with just 333 thought to be capable of breeding. South Africa's great white sharks have faced rapid decline and there is increasing concern that numbers may now be too low to ensure the survival of the local population. Whilst great white sharks are still prevalent in the waters off Canada, the United States and Australia, trophy hunting, shark nets, baited hooks and pollution are all contributing to the species' decline in South Africa. The study is the largest of its kind to be conducted in South African waters and the results will form the first ever database of the country's great white shark population.

Source: *The Guardian* (2016) theguardian.com/environment/2016/jul/20/south-africa-great-white-sharks-extinction, & BBC News (2016) bbc.co.uk/news/world-africa-36850591

SOUTH AND SOUTH-EAST ASIA

Using mobile technology to tackle human–wildlife conflict in India...

WildSeve, a mobile technology initiative to address conflicts between people and wildlife, has been implemented in 284 villages surrounding Bandipur and Nagarhole National Parks in southern India, which are home to tigers, elephants, leopards, wild dogs and a host of other wildlife

species. The technology incorporates a toll-free number that farmers can use to report a conflict incident and receive immediate assistance from WildSeve responders, who assist with damage assessment and filing compensation forms with the government. In the first year of implementation the WildSeve team helped file claims in relation to 3,261 incidents of crop raiding and property damage by elephants and other herbivores, 148 cases of predation of livestock by felids and wild dogs, 11 cases of injury, and two human fatalities. Compensation has an important role in fostering tolerance towards wildlife, and under the WildSeve scheme 1,000 families have received or are about to receive fair compensation for damage caused by wildlife.

Source: WCS (2016) newsroom.wcs.org/News-Releases/articleType/ArticleView/articleId/9093/High-Tech-Solution-for-Indias-Human-Wildlife-Conflict.aspx

...and SMART patrolling in the Sundarbans of Bangladesh

SMART (Spatial Monitoring and Reporting Tool) patrolling is being implemented in the Sundarbans to tackle the threats of wildlife and forestry crime and illegal fishing. The SMART approach is based on a combination of software, training materials and implementation standards, and uses information gathered from boat and foot patrols, intelligence sources, tourism operators and fishing communities to inform managers about the distribution and severity of threats. The tool will strengthen the capacity of Forest Department staff, enhance the effectiveness of conservation programmes and inform the development of a strategic response to wildlife crime and protected area enforcement in the Sundarbans, which are the world's largest mangrove forest and are home to many threatened species, including tigers, freshwater dolphins, otters and estuarine crocodiles. SMART has been implemented at 140 sites across 30 countries, and Bangladesh is one of the first countries to pilot the approach in a World Heritage Area.

Source: WCS (2016) newsroom.wcs.org/News-Releases/articleType/ArticleView/articleId/9074/Bangladesh-Rolls-out-SMART-Patrolling-Across-the-Sundarbans.aspx

Calls for urgent action to save the elusive saola

IUCN's Saola Working Group and WWF are calling on the governments of Viet Nam and Lao PDR to take action to save the saola, one of the world's most threatened and elusive mammals. Known

as the Asian unicorn, the species, which resembles an antelope but is in fact a member of the cattle family, inhabits dense rainforest and has been recorded in the wild only a few times since its discovery 24 years ago. The biggest threats to this Critically Endangered species are poaching snares and habitat fragmentation and destruction caused by illegal logging. The saola's preferred feeding grounds along forested river banks are also being destroyed by infrastructure projects such as dam-building, and the conversion of land for agriculture. Although more than 200,000 ha of Annamite forests are now protected across the species' core range, there is an urgent need for improved transboundary protection and increased collaboration between Viet Nam and Lao PDR to save the saola.

Source: IUCN (2016) iucn.org/news/first-world-saola-day-calls-urgent-action-save-critically-endangered-%E2%80%9Casian-unicorn%E2%80%9D-vietnam

Zero tolerance of illegal wildlife consumption in Viet Nam...

The Communist Party of Viet Nam is working to engage public servants and members of the public in adopting a zero tolerance approach to wildlife crime and illegal wildlife consumption. Representatives of the Central Committee for Propaganda and Education attended a 2-day workshop, jointly organized by the Committee and TRAFFIC, to establish a nationwide communications strategy to reduce consumer demand for threatened wildlife and educate the public about how they can tackle wildlife crime, which threatens sustainable livelihoods, national security, and the country's reputation as a biodiversity hotspot. Wildlife poaching and an increase in wildlife crime have resulted in a significant decrease in Viet Nam's biodiversity in recent years.

Source: TRAFFIC (2016) traffic.org/home/2016/6/25/united-in-zero-tolerance-of-illegal-wildlife-consumption.html

...but is there any hope for the country's Critically Endangered turtles?

Researchers remain hopeful that advanced environmental DNA (eDNA) survey techniques will help them to detect the presence of elusive species of Critically Endangered reptiles in Viet Nam despite limited success thus far. The country is home to some of the world's most threatened turtle species, including four of the most threatened turtle species globally. The eDNA approach offers the potential to confirm the presence of elusive species in aquatic environments, and is

being used to search for evidence of the Vietnamese pond turtle *Mauremys annamensis* and Zhou's box turtle *Cuora zhoui*, both of which are Critically Endangered. Current evidence suggests that the former is restricted to a small area of central Viet Nam and the latter may occur in isolated wetlands in the north. However, the eDNA surveys have yet to detect either species and they may already have been eradicated from the wild.

Source: IUCN (2016) iucnredlist.org/news/dna-surveys-offer-hope-to-vietnams-critically-endangered-turtles

Landmark for marine conservation in Cambodia...

In June Cambodia's Ministry of Agriculture, Forestry and Fisheries approved the country's first large-scale marine protected area. The designation of the 405 km² Marine Fisheries Management Area around the islands of Koh Rong and Koh Rong Sanloem is the culmination of over 5 years of work by the Fisheries Administration and conservation organizations, including Fauna & Flora International, who consulted with local stakeholders and communities and gathered baseline data about the region's biodiversity. The protected area will continue to support local livelihoods whilst ensuring marine resources are managed sustainably. Fishing, research and tourism activities will be permitted within the area, and ongoing monitoring of coral reefs, mangroves and seagrasses will optimize current and future management strategies.

Source: FFI (2016) fauna-flora.org/news/cambodias-first-large-scale-marine-protected-area-declared-for-koh-rong-archipelago/

...a new forest wildlife sanctuary...

The Cambodian government has designated a new 65,000 ha wildlife sanctuary in the deciduous forest of Western Siem Pang, in the north of the country. The Prey Siem Pang Lech Wildlife Sanctuary is home to the Endangered Eld's deer *Rucervus eldii* as well as breeding populations of five Critically Endangered bird species, including 50% of the global population of white-shouldered ibis *Pseudibis davisoni* and 10% of the world's giant ibis *Thaumatibis gigantea*. The northern half of Western Siem Pang was designated a Protected Forest in 2014 and BirdLife International has been working closely with government departments since then to bring about the extension of protection to the southern part of the forest. Enforcement patrols will be crucial as illegal logging and poaching activities

continue to be a major threat, and a Community Outreach Officer is working with local villages to help them create sustainable livelihoods in harmony with the protected area.

Source: BirdLife International (2016) birdlife.org/asia/news/huge-protected-forest-jigsaw-completed

...and a boost for mangrove conservation efforts...

A project funded by Mangroves for the Future, a multi-partner initiative co-chaired by IUCN and UNDP, has been working with the local community in the coastal fishing town of Koh Kong in Cambodia to help reduce destructive logging practices and overfishing in nearby Peam Krasop Wildlife Sanctuary, where conservation efforts continue to be hampered by illegal harvesting of mangrove trees to make charcoal. The aim of the project, which concluded in April, was to make farming livelihoods more lucrative and sustainable, providing training on best practices for farming vegetables and chickens, to reduce the pressure on the area's natural resources. Local people received numerous benefits from the project and saw their incomes increase as they implemented new farming techniques and diversified their livelihoods.

Source: IUCN (2016) iucn.org/news/new-farming-practices-boost-mangrove-conservation-efforts-cambodia

...but Tonle Sap is under threat

Cambodia's Tonle Sap, the largest freshwater lake in South-east Asia, is under threat from natural and anthropogenic factors, particularly forest fires and encroachment by fishers. Described by Cambodians as the heart of their culture and economy, the lake plays a central role in the country's freshwater fisheries, providing breeding and feeding grounds for fish, and is one of the world's most productive wetland areas. Competition over the lake's natural resources has increased with population and economic growth, and forest fires have been driven by forest clearance for rice cultivation and to create pathways for setting long fishing nets. The loss of flooded forest will lead to declines in both fish and waterbirds as their habitat is replaced with flooded grasslands. The problem has been exacerbated by extreme heat and drought this year, which resulted in record low water levels in the lake.

Source: IUCN (2016) iucn.org/news/flooded-forest-fires-major-threat-tonle-sap

Malaysia designates its largest marine park

Following over a decade of negotiations with local communities, NGOs and government authorities, Malaysia has formally established its largest marine park. The Tun Mustapha Park off Sabah Province in Borneo covers almost 1 million ha and more than 50 islands and islets across Kudat, Pitas and Kota Marudu districts. The park is located within the Coral Triangle, an immensely rich bioregion that is home to 76% of all known coral species. It is estimated that the Tun Mustapha Park itself contains over 250 species of coral and 300 species of fish, as well as dugongs and green turtles. The area currently supports more than 80,000 people in island and coastal communities, and the main threats to the marine environment are overfishing and pollution. Fishing will continue to be permitted within designated areas of the park, with a focus on ensuring sustainable use of resources.

Source: Mongabay.com (2016) news.mongabay.com/2016/06/malaysia-gets-its-largest-marine-park/, & the珊瑚triangle.com/about

Reality check: new Red List categorization for the Bornean orang-utan

The Bornean orang-utan *Pongo pygmaeus* has been recategorized as Critically Endangered on the IUCN Red List as the population continues to decline. In 2010 just 59.6% of Borneo's forest provided suitable habitat for orang-utans but logging and uncontrolled burning continue to threaten remaining safe havens. In addition to the pressures of habitat degradation, destruction and fragmentation, approximately 2,000–3,000 orang-utans have been hunted and killed in Indonesian Borneo each year during the past 4 decades. It is estimated that the population decline for the period 1973–2025 will amount to a devastating 86% and, as females only reproduce once every 6–8 years, populations may be slow to respond to conservation efforts.

Source: Mongabay (2016) news.mongabay.com/2016/07/bornean-orangutan-declared-critically-endangered-as-forests-shrink/, & IUCN (2016) iucnredlist.org/details/17975/0

Otters at risk from illegal trade in Asia

The illegal trade in Asian otters was a key topic of discussion at the 13th International Otter Congress, which took place in Singapore in July. A report by TRAFFIC, the wildlife trade monitoring network, reveals an increase in the number of seizures

of otter skins over the past 35 years, with the majority of seizures occurring in China and India. Meanwhile the number of individuals per seizure has decreased, which could indicate a decline in otter populations. There has also been an increase in seizures of live otters for the pet trade. The illegal trade has been poorly documented and is likely to be much larger than official seizure data indicate. The study focused on four Asian otter species: the Near Threatened Eurasian otter *Lutra lutra*, the Vulnerable small-clawed *Aonyx cinereus* and smooth-coated otters *Lutrogale perspicillata*, and the Endangered hairy-nosed otter *Lutra sumatrana*.

Source: TRAFFIC (2016) traffic.org/home/2016/7/5/otters-in-asia-at-risk-from-demand-for-their-skins-and-incre.html

Indonesia's bird species decimated by illegal trade

In Indonesia it is illegal to sell wild birds as pets, yet keeping birds has long been a part of the country's culture. Increasing demand for the thriving illegal trade has placed 13 species at serious risk of extinction: the silvery woodpigeon, the helmeted hornbill, the yellow-crested cockatoo, the scarlet-breasted loriket, the Javan green magpie, the black-winged mynah, the Bali mynah, the straw-headed bulbul, the Javan white-eye, the rufous-fronted laughingthrush, the Sumatran laughingthrush, the Java sparrow, and the Javan hawk-eagle, Indonesia's national bird. Most are sought after as pets, but helmeted hornbills are killed for their solid bill casques, which are carved, and sold in China as a substitute for elephant ivory. Indonesia's demand for songbirds is also threatening species in nearby countries such as Malaysia. The wildlife trade monitoring network, TRAFFIC, warns that both law enforcement methods and public awareness campaigns need to be improved to protect vulnerable bird species from the illegal pet trade.

Source: TRAFFIC (2016) traffic.org/home/2016/5/25/trade-wiping-out-indonesias-bird-species.html

New tool to improve transparency in palm oil supply chains

Demand for palm oil is global but cultivation is concentrated in the plantations of Indonesia and Malaysia, which produced over 85% of the global palm oil supply in 2013. Deforestation continues to threaten ecosystems and remove the habitats of Critically Endangered species such as the Sumatran and Bornean orang-utans and the Sumatran tiger. Managing the impacts of palm oil production, however, is a

complex task. A single company can source palm oil from multiple processing mills and the mills in turn obtain their fruit from a multitude of producers. The World Resources Institute, along with the NGO Proforest and the consulting firm Daemeter, has produced the PALM Risk Tool to predict and classify the risk of future forest loss associated with over 800 mills. Based on previous deforestation rates and the assumption that processing mills obtain their fruit from within a 50 km radius, the deforestation predictions can assist in tracing the impacts of large-scale supply chains. *Source:* Mongabay (2016) news.mongabay.com/2016/06/is-that-palm-oil-mill-sustainable-a-new-tool-can-tell/

NORTH AMERICA

USA, Canada and Mexico make joint pledge on climate

Under the terms of the North American Climate, Clean Energy, and Environment Partnership, Canada, Mexico and the USA have pledged to generate 50% of their electricity through clean energy technologies, including renewable, nuclear and carbon capture and storage technologies, by 2025. Hot on the heels of the Paris Climate Agreement this joint action plan is designed to not only curb greenhouse gas emissions but encourage the growth of low-carbon technologies. Inefficient fossil fuel subsidies will be phased out within the next 9 years, methane emissions from the oil and gas industry will be reduced by 40–45% and emissions from light and heavy-duty vehicles will also be tackled. According to the clean energy classifications laid out in the plan, 37% of North America's electricity is already obtained from clean energy sources. It is hoped that the pledge will accelerate investment in renewable energy and pave the way for a low-carbon economy.

Source: Mongabay.com (2016) news.mongabay.com/2016/06/canada-mexico-and-us-announce-joint-clean-energy-climate-commitments/

The state of North America's birds

An unprecedented continent-wide analysis of the vulnerability of North America's birds reveals that one third of the 1,154 native bird species require urgent conservation action. The species rated most at risk are those that depend on tropical forests or ocean habitats. Seabirds are threatened by overfishing, climate change, pollution and predation by invasive species, and the black-capped petrel *Pterodroma hasitata*,

the black petrel *Procellaria parkinsoni* and Townsend's shearwater *Puffinus auricularis* are of particular concern. Meanwhile, deforestation and habitat loss remain serious causes of concern for tropical birds, including the azure-rumped tanager *Tangara cyanotis*, the bearded wood-partridge *Dendrocygna barbata* and the belted flycatcher *Xenotriccus callizonus*. The report, which was compiled by the North American Bird Conservation Initiative based on data from volunteers and citizen scientists, also highlights steep species declines in coastal, arid and grassland habitats as a result of changes in land use.

Source: BirdLife International (2016) birdlife.org/americas/news/new-report-shows-alarming-state-north-american-birds, & NABCI (2016) stateofthebirds.org/2016/overview/results-summary/

Otters, kelp and climate change

A long-term study of otters in the Aleutian Islands has revealed the importance of this keystone species in maintaining critical kelp forests. Sea otters *Enhydra lutris* have the densest fur in the animal kingdom and had been hunted to near extinction by the 1900s for their pelts. The otters feed on sea urchins, crabs and shellfish, and need to consume about a quarter of their body weight each day to survive. The study found that in areas where otters were no longer prevalent unchecked urchin populations had devoured kelp forests, leaving barren ocean floors. Thus the presence of otters helps to maintain healthy kelp forests, which have the capacity to absorb billions of kg of carbon and reduce the acidity of oceans.

Source: The Guardian (2016) theguardian.com/environment/2016/jul/10/sea-otters-global-warming-trophic-cascades-food-chain-kelp

Eavesdropping on New York's whales...

An acoustic monitoring buoy has been deployed 35 km off the coast of Long Island, New York, to monitor whale populations in one of the busiest shipping areas in the world. Humpback and fin whales are regularly sighted in the waters off New York, yet information on the presence of whales in the New York Bight (the stretch of water spanning New York to New Jersey) is surprisingly sparse. Anchored to the sea floor at a depth of c. 38 m, the buoy contains a hydrophone to record the cacophony of vocalizations that whales make to communicate with other members of their pod. Research suggests that noise pollution from shipping could be interfering with

this communication. For the first time a long-term, holistic picture of the species and behaviours of New York's whales will be available, and it is hoped that the long-overdue data will inform appropriate and effective protection strategies.

Source: The Guardian (2016) theguardian.com/environment/2016/jun/28/new-yorks-whales-to-be-studied-for-the-first-time

Bald eagle numbers falling in Florida

Stretching between the southern mainland and the Florida Keys, Florida Bay has historically been a stronghold for America's bald eagles. The local population remained stable in the 1970s when numbers declined across the continent as a result of widespread use of the pesticide DDT (dichlorodiphenyltrichloroethane), which caused thinning of eggshells. Now the tables have turned and the species is flourishing elsewhere in America as numbers of bald eagles in Florida Bay are dwindling. Cameras at four nests in the Bay revealed that adult bald eagles were feeding their young less than twice per day, and chicks received less than half the quantity of food consumed by eagle chicks elsewhere. As the breeding season progressed the biomass of the food deliveries declined, suggesting a scarcity of available prey. High salt concentrations have depleted sea grasses, in turn triggering algal blooms and reducing fish numbers. Florida Bay's ecosystem is deteriorating and both eagle and osprey populations are suffering.

Source: New Scientist (2016) newscientist.com/article/2097850-starving-bald-eagle-chicks-hint-at-ecosystem-collapse-in-florida

Better safe than sorry: vaccinating Hawaiian monk seals

Biologists in Honolulu are undertaking an ambitious project to vaccinate wild populations of the Endangered Hawaiian monk seal *Neomonachus schauinslandi*. The species has evolved in a geographically isolated region and has limited resistance to infectious diseases. It is feared that an outbreak of the seal-killing phocine distemper virus, or another virus in the *Morbillivirus* genus, could decimate remaining populations. Scientists are administering a preventative vaccination to seals on the island of Oahu, with the aim of creating an immune herd. It is hoped that the Oahu herd could then act as a barrier, preventing potential outbreaks of the virus from spreading to populations living to the south-west and north-east. If the project is successful and the vaccine remains available on the market, biologists could begin vaccinating young pups on Hawaii's more remote islands.

Source: Science (2016) dx.doi.org/10.1126/science.352.6291.1265

CENTRAL AMERICA AND CARIBBEAN

New boa discovered in the Bahamas

A new species of boa constrictor has been identified on the Conception Island Bank in the Bahamas. The silver boa *Chilabothrus argentum* was so named for its metallic appearance and because the first specimen was found in a silver palm tree. Silver boas were captured over the course of two expeditions and fitted with electronic tags before being released back into their forest habitat. The snakes are believed to be among the most threatened boas globally, and scientists have assessed them to be Critically Endangered based on the IUCN Red List criteria, being threatened by feral cats in particular. Unlike new species of frogs and lizards, which are discovered with some regularity, the discovery of new snake species is relatively rare.

Source: Breviora (2016) bioone.org/doi/10.3099/brv0-549-00-1-19.1, & The Guardian (2016) theguardian.com/environment/2016/may/27/silver-boa-constrictor-species-discovered-on-remote-caribbean-island

Scientists play matchmaker with Montserrat's last two mountain chicken frogs

In 2009 a devastating outbreak of the chytridiomycosis disease ravaged Montserrat's wild mountain chicken frog *Leptodactylus fallax* population. The two sole survivors on the island have been brought together by conservationists and it is hoped that breeding will occur for the first time in 7 years. The frogs lay 10–80 eggs, which, as they develop into tadpoles, are nourished by a unique foam nest created by the female. Researchers will use camera traps to monitor the pair as part of a wider 20-year recovery plan for the species, which occurs only on the two Caribbean islands of Montserrat and Dominica and now numbers fewer than 100 individuals in the wild. The pandemic chytrid fungus has infected more than 600 amphibian species globally and caused decline, extirpation or extinction of more than 200 species. The two surviving frogs on Montserrat have been swabbed to investigate whether they have genetic resistance to the disease.

Source: The Guardian (2016) theguardian.com/environment/2016/jul/04/

[caribbean-islands-last-two-rare-frogs-are-reunited-mountain-chicken-frogs](#)

SOUTH AMERICA

Audit of Amazonian tree flora

The number of tree species in the Amazon rainforest remains unknown; however, a major audit of records of tree species in the Amazon Basin and Guiana Shield from the past 300 years has estimated that close to 12,000 species have been recorded to date, with an estimated 4,000 species yet to be discovered and described. At the current rate of collection it will take over 300 years to discover the remaining undiscovered species, and at least 4.5 million unique new collections will be required. The majority of known Amazonian tree species have been discovered in the past century, by thousands of botanists working on flora projects, collecting expeditions, and the establishment of tree inventory plots. To find the remaining species the researchers involved in the audit recommend expanding the collection effort to understudied sites, focusing collection on particular taxa, and using new technologies such as spectromics, DNA-barcoding and phylogenetic techniques.

Source: Scientific Reports (2016) dx.doi.org/10.1038/srep29549, & BBC News (2016) bbc.co.uk/news/world-latin-america-36790714

Dams threaten catfish migration in the Amazon

Travelling distances up to 8,000 km, the gilded catfish *Brachyplatystoma rousseauxii* undertakes the longest known freshwater migration. Using ground-breaking chemical analysis researchers have mapped the long-distance homing migration of 37 adult catfish. Beginning life in the upper Madeira and Amazon rivers, larvae and juveniles travel downstream to the lower Amazon before returning as adults to their original breeding grounds. The epic migration of this 3 m long, apex predator is severely threatened by over 400 proposed and existing dams on the Amazon. Young gilded catfish adapted to migrate downstream in flowing, highly oxygenated waters must now navigate unfamiliar lakes caused by dams. Despite mitigation measures, including fish passages, the upstream migration of adult catfish has been interrupted by both the Jirau and Santo Antônio dams. In the face of such large-scale hydro-power development, researchers are calling for some form of river basin planning as a

matter of urgency to demarcate rivers that must be kept free flowing.

Source: Journal of Applied Ecology (2016) dx.doi.org/10.1111/1365-2664.12665, & *Mongabay.com* (2016) news.mongabay.com/2016/06/amazonian-catfishes-5000-mile-migration-endangered-by-dams/

Rare blue-eyed ground-dove rediscovered in Brazil

For the first time since 1941 the blue-eyed ground-dove *Columbina cyanopis* has been sighted by researchers in the Brazilian state of Minas Gerais. Sightings of 12 individuals of the species, which was previously thought to be extinct, have now been confirmed. The blue-eyed ground-dove is endemic to Brazil and the locations of the newly discovered birds have not been disclosed. Supported by SAVE Brasil, Rainforest Trust and Butantan Bird Observatory, researchers are working to further understand the species and design conservation strategies to ensure the future of this Critically Endangered bird, which is threatened by the destruction of the Brazilian Cerrado, a savannah-like habitat. Protecting the species' habitat will be vital to securing the future of this rare bird. Searches for additional populations are ongoing but have been unsuccessful thus far.

Source: BirdLife International (2016) birdlife.org/americas/news/extremely-rare-species-x-rediscovered-brazil-after-75-year-disappearance

New private conservation area to protect montane forests in Peru

Following consultation with government, local communities and conservation organizations, the NGO Nature and Culture International has announced the creation of a 27,905 ha protected area in the Huancabamba Province of Peru. The Chicuate Chinguelas Private Conservation Area will protect 30% of the Piura region's montane forests and safeguard many of the natural resources that the Segunda y Cajas community rely on. The forests are home to populations of the mountain tapir *Tapirus pinchaque*, which is categorized as Endangered on the IUCN Red List, as well as the endemic Andean night monkey *Aotus miconax*, the white-capped tanager *Sericossypha albocristata*, the golden-plumed parakeet *Leptosittaca branickii* and the red-faced parrot *Hapalopsittaca pyrrhops*, all of which are categorized as Vulnerable. It is hoped that the creation of the new conservation area will provide further protection against the illegal logging of threatened trees, including the mountain

palm tree *Ceroxylon parvifrons* and the podocarpus tree *Podocarpus oleifolius*.

Source: Mongabay.com (2016) news.mongabay.com/2016/06/private-conservation-area-in-northern-peru-will-protect-30-percent-of-regions-montane-forests/

1,000th bird species confirmed in Bolivia's Madidi National Park

One thousand bird species have been recorded in Madidi National Park, which is one of the world's most biodiverse protected areas and is thought to contain 11% of all bird species. The 1,000th bird, the dusky-tailed flatbill *Ramphotreron fuscicauda*, was identified from audio recordings taken as part of Identidad Madidi, a 2-year expedition to expand existing knowledge on Madidi's birds, mammals, reptiles, amphibians, fish and butterflies. The expedition will cover 15 sites and span an altitude of more than 5,000 m, from the high Andes to the tropical forests of the Amazon and the grasslands of northern Bolivia. The seventh site, in the foothills of the Hondo river, was surveyed in April and May, and more than 400 species of vertebrates and c. 150 butterfly species were recorded there. Notable species at the site include the speckled worm lizard *Amphisbaena fuliginosa*, the water opossum *Chironectes minimus*, the pike cichlid *Crenicichla semicincta* and the royal flycatcher *Onychorhynchus coronatus coronatus*.

Source: WCS (2016) newsroom.wcs.org/News-Releases/articleType/ArticleView/articleId/9090/Identidad-Madidi-Announces-1000-Confirmed-Bird-Species-For-Bolivias-Madidi-National-Park.aspx

7,000 ha of mangroves have died along Australia's Gulf of Carpentaria, in the worst mangrove die-off in recorded history. Mangroves are crucial to safeguarding near-shore habitats of seagrass and coral, absorbing the impacts of storms and filtering sediment from rivers and floodplains. Concern increases as the growth rate of mangroves may be insufficient to stabilize these coastal areas.

Source: The Guardian (2016) theguardian.com/environment/2016/jul/07/australias-vast-kelp-forests-devastated-by-marine-heatwave-study-reveals, & theguardian.com/environment/2016/jul/11/massive-mangrove-die-off-on-gulf-of-carpentaria-worst-in-the-world-says-expert

Contraception implants trialled to control kangaroo population

In 2013 the largest real-world trial of hormonal implants in wild kangaroos began. In an attempt to reduce the need for large-scale culling, three-quarters of the female kangaroos living in a 200 ha area of the Western Plains in Victoria, south-east Australia, were implanted with the contraceptive hormone levonorgestrel (Norplant). A follow-up study found that only one of 75 females that were implanted had become pregnant and the reproductive rate of the local population had decreased by two thirds compared to 2012 figures. Kangaroos in Australia outnumber people two to one and are often the source of conflict as a result of contaminated water supplies, damaged grasslands and road collisions. As local populations soar the pressure on food sources grows and kangaroos are left starving and emaciated. Hormonal implants suppress fertility for 6 years but cost approximately AUD 250 per animal. The financial cost, long-term benefits and potential side effects of the implants require careful attention.

Source: New Scientist (2016) newscientist.com/article/2094401-cont-roo-ception-hormone-implants-bring-kangaroos-under-control/

AUSTRALIA/ANTARCTICA/NEW ZEALAND

Australia's marine and coastal environments hit hard by warming oceans

The 2°C increase in ocean temperatures off the western coast of Australia between 2010 and 2013 wiped out kelp forests along a 100 km stretch of the Great Southern Reef. Tropical bottom-grazing fish and turf-forming seaweeds rapidly moved into the area, diminishing opportunities for the kelp forests to re-establish. As well as being home to a multitude of endemic species, the area is vital to Australia's lucrative abalone and rock lobster fishing industry, contributing c. AUD 10 billion to the country's economy. Australia's coastal environments are also suffering from warming air and ocean temperatures. An estimated

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