

Briefly

SPOTLIGHT ON PRIMATES

Cao vit gibbons on the brink

Thanks to new technology, we now have a better idea of just how rare the Critically Endangered cao vit gibbon is. The population is estimated to comprise 74 individuals in 11 family groups; 38% lower than the previous estimate of 120 individuals. In collaboration with local partners, Fauna & Flora conducted the latest survey using advanced monitoring techniques to obtain more accurate results than traditional methods can typically achieve. For the first time, the team applied a vocal fingerprinting technique, whereby acoustic recorders are used to listen to gibbon songs and identify individual voices. The count was also assisted by drones with thermal cameras, enabling more accurate counts (see Wearn et al., 2024, pp. 183–186 of this issue). There is no evidence that the cao vit gibbon population has declined; the lower estimate is thought to be a result of double-counting in previous surveys.

Sources: *Nature* (2024) doi.org/mcdf & *Fauna & Flora* (2024) fauna-flora.org/news/a-primate-on-the-brink

Planting green corridors to save golden lion tamarins

Deforestation over centuries has decimated parts of Brazil's Atlantic Forest, the only place where the Endangered golden lion tamarin *Leontopithecus rosalia* occurs. In November 2023, dozens of young people kneeled under the scorching sun to plant a green corridor that will be a future safe passageway for the region's most emblematic and threatened species. The 300 tree seedlings planted will eventually connect two patches of forest together. Until recently, the bare and dry land being replanted had belonged to a ranch whose owner had removed trees in favour of cattle pasture. The green corridors are important as the monkeys, of which there are fewer than 5,000 individuals remaining in the wild, avoid crossing bare land that separates isles of green vegetation, for fear of predators such as large felids. This replanting was the latest in a series of incremental forest growth initiatives providing an ever-larger habitat for the monkey.

Source: *Euronews* (2023) euronews.com/green/2023/11/13/how-are-green-corridors-saving-one-of-brazils-most-endangered-species-from-deforestation

Monkey trafficking from Africa to Asia

In December 2023, Togolese authorities intercepted a shipment of 38 monkeys transiting through Togo on their way from the Democratic Republic of the Congo (DRC) to Thailand. Thirty of the animals had not been declared in the official documentation upon leaving the DRC. Togo repatriated the distressed animals to Kinshasa, but 14 died at Kinshasa Zoo before the remaining 24 were transferred to an animal sanctuary. The high mortality rate was a result of the poor conditions in which the traffickers transported the monkeys. Among the animals intercepted were two species categorized as Vulnerable on the IUCN Red List: the lesula *Cercopithecus lomamiensis* and the black crested mangabey *Lophocebus aterrimus*. Listed in CITES Appendix II, both can be exported from the DRC with the necessary permits, which the traffickers did not possess. Traffickers often use fraudulent documentation to smuggle protected species.

Source: *Mongabay* (2024) news.mongabay.com/2024/01/togo-monkey-seizure-turns-spotlight-on-illicit-wildlife-trafficking-from-dr-congo

Monkeys become easier prey for felids in damaged tropical forests

Primates, generally living high up in the tree canopy, are not usually easy prey for large felids. But jaguars and pumas living in human-modified forests in southern Mexico appear to regularly include more monkeys in their diet. Researchers studied felid faeces in the Uxpanapa Valley and found that primates made up nearly 35% of the prey found in jaguar and puma scats. Primate remains were more likely to be found in scats collected from areas with less forest and more villages, and in forest that was regrowing after being disturbed. The findings may indicate that populations of the felids' preferred prey species are shrinking, or that changes in the environment, such as a decline in tree cover, make catching primates easier. This could threaten the survival of primate populations and subsequently large cats in tropical forests, potentially destabilizing the entire ecosystem.

Sources: *Biotropica* (2023) doi.org/mdrm & *The Conversation* (2023) theconversation.com/big-cats-eat-more-monkeys-in-a-damaged-tropical-forest-and-this-could-threaten-their-survival-215091

Orangutan killings in Borneo

Critically Endangered orangutans continue to be illegally killed in Borneo, probably in large numbers, even when there are nearby conservation projects aiming to protect them. Killing orangutans is taboo as well as illegal, yet researchers heard evidence of a direct killing from at least one person in 30% of 79 villages surveyed in Indonesia's Kalimantan region. The research, which involved interviews with more than 400 villagers, comes more than 10 years after a study claimed that 2,000–3,000 orangutans were probably being directly killed every year. The apes are apparently killed for several reasons, including fear of the animals or because they enter gardens or crop fields. Orangutan mothers may also be killed so that babies can be sold as pets or to be trained as performers. Sometimes people kill them for their meat and body parts. The researchers argue that a key part of improving Bornean orangutan conservation practice involves directly addressing these killings and the underlying drivers.

Sources: *Conservation Science and Practice* (2023) doi.org/mdsc & *The Guardian* (2023) theguardian.com/environment/2023/oct/11/borneo-orangutan-killings-likely-still-occurring-numbers-research

Saving Sanje mangabeys in Tanzania

Bristol Zoological Society (BZS) has been working to project Sanje mangabeys *Cercocebus sanjei*, an Endangered primate species found only in Tanzania, since 2014. The rare monkeys live in Udzungwa Mountains National Park and the total population is estimated to be c. 4,000 individuals. Threats to the mangabeys include illegal hunting, habitat loss through land conversion for agriculture, and a growing human population in surrounding areas. As part of the efforts to conserve the species, researchers from BZS are monitoring mangabey troops and examining factors that influence birth rates and population trends, to identify variables that could lead to population declines. These data will also be used to model the future viability of the species. The Society also supports local programmes such as community-led anti-poaching patrols, which directly protect mangabeys and provide alternative livelihoods for the people living near them.

Source: *Bristol Zoo Project* (2023) bristolzoo.org.uk/news/saving-the-sanje-mangabey-in-tanzania

INTERNATIONAL

Freshwater fish highlight escalating climate impacts

An IUCN update released in November 2023 completed the first comprehensive assessment of freshwater fish species, revealing that 25% (3,086 out of 14,898 assessed species) are at risk of extinction. At least 17% of threatened freshwater fishes are affected by effects of climate change, including decreasing water levels, rising sea levels causing seawater to move up rivers, and shifting seasons. This compounds threats from pollution (affecting 57% of at-risk freshwater fishes), dams and water extraction (45%), invasive species and diseases (33%), and overfishing (25%). For example, the large-toothed Lake Turkana robber *Brycinus ferox*, an economically important species in Kenya, has moved from Least Concern to Vulnerable on the IUCN Red List because of overfishing, climate-change driven habitat degradation and dams reducing freshwater entering the lake.

Source: IUCN (2023) iucn.org/press-release/202312/freshwater-fish-highlight-escalating-climate-impacts-species-iucn-red-list

New open access learning hub for conservationists launched

Conservation NGO Fauna & Flora has launched an open access learning hub for conservation professionals. Hosted on its own dedicated website, the hub features over 20 e-learning courses, authored by Fauna & Flora technical specialists. Courses cover a wide range of topics including stakeholder engagement, grievance mechanisms, good fund management, conflict resolution, active listening, achieving work–life balance, learning from failure, effective strategies to motivate people and more. New courses are added continuously, including in languages other than English. The e-learning hub is hosted on the Capacity for Conservation platform, a website managed by Fauna & Flora together with Birdlife International to support self-led organizational development. The many resources hosted on the website, all of which are freely available, are aiming to help conservation organizations to develop themselves to be stronger, more resilient and able to deliver enduring conservation impacts. The creation of the e-learning hub was made possible through support from Arcadia—a charitable fund of Lisbet Rausing and Peter Baldwin. Source: *Capacity for Conservation* (2023) capacityforconservation.org/elearning

Future of migratory bird species put at risk by cyclones and droughts

Research led by the Zoological Society of London reveals that migratory bird species globally are affected by cyclones and droughts. Combining almost 30 years of global data with information on 383 fully migratory bird species, the team identified that 182 species were highly exposed to cyclones or drought in either their breeding or wintering ranges, with an additional 67 species highly exposed to both types of events within a singular range. For example, species such as common swifts, which provide insect control and crop protection in both their Eurasian breeding grounds and African wintering grounds, are severely exposed to drought: more than 95% of populations have experienced extreme drought in the last 30 years. The study also reveals that cranes, crakes, rails and nightjars were most commonly exposed to cyclones, whereas hawks, eagles, vultures and kites were most exposed to droughts. The researchers call for collaborative conservation efforts and action to tackle climate change. Source: ZSL (2023) zsl.org/news-and-events/news/future-200-migratory-bird-species-put-risk-cyclones-and-droughts

Nearly half of all flowering plants may face the threat of extinction

Scientists from the Royal Botanic Gardens, Kew, built a model that uses artificial intelligence (AI) to guess whether plant species are threatened. Only 18% of all plant species have been assessed for the IUCN Red List, which is an important channel for conservation funding. The researchers showed the AI all plants that have been evaluated, and taught it to recognize the threatened ones based on shared qualities. The AI picked out geographic risk factors, such as plants in the tropics that will be subjected to more warming in the future. Other plants were identified as threatened because of their precarious habitats, for example epiphytes that grow on top of other plants. Once the AI reliably reproduced the Red List's existing classifications, it was presented with information on new, unlisted species, asking whether they more resembled the threatened or the non-threatened plants. Of 330,000 species of flowering plants, the AI categorized 45% as threatened. The team hopes the IUCN can now focus its attention on those the AI is most confident are in danger. Sources: *bioRxiv* (2023) doi.org/gszn3k & *Mongabay* (2023) news.mongabay.com/2023/12/nearly-half-of-the-worlds-flowering-plants-face-the-threat-of-extinction-study-says

Endangered vultures protected by international conservation project

An international effort is successfully protecting Endangered Egyptian vultures by tackling threats along their migration route between Europe, the Middle East and Africa. The birds are threatened by shooting, poisoning and electrocution as they migrate across 14 countries each year. Their population in Eastern Europe has dropped from 600 breeding pairs in the 1980s to now just 50. An EU-funded conservation project was launched in 2017 to protect them along their migration route. In the Balkans, the number of poisoning incidents halved between 2018 and 2022 thanks to conservationists working with farmers to reduce the use of poisoned bait for livestock predators. Thirty captive-bred vultures were released in Bulgaria, a key breeding site, between 2016 and 2022. The project also insulated live components on > 10,000 electricity poles near perching sites from Bulgaria to Ethiopia, and promoted the use of substitutes for vulture body parts in traditional medicine in Niger and Nigeria. This has led to a small decrease in mortality and a population growth of 0.5% per year. Sources: *Animal Conservation* (2023) doi.org/md9z & *New Scientist* (2023) newscientist.com/article/2403949-endangered-vultures-saved-from-deadly-poisoning-and-electrocution

DNA extracted from paw prints helps study elusive polar bears

Polar bears are mostly solitary creatures that roam across huge areas of rugged, remote terrain in Canada, Norway, Russia, Greenland and Alaska. This makes it difficult to find them and to study how they are responding to rising global temperatures. Now, an emerging research method may be able to help. Scientists have shown they can identify individual bears by analyzing tiny amounts of DNA they leave behind in footprints in the snow. Past studies have successfully used environmental DNA (eDNA) to detect wildlife, but this is the first time researchers have linked eDNA with individual animals. Researchers now hope to combine eDNA with other techniques, such as tracking collars, aerial studies using synthetic aperture radar and artificial intelligence models, to get a more complete picture of polar bear populations. Sources: *Frontiers in Conservation Science* (2023) doi.org/g57s3v & *Smithsonian Magazine* (2023) smithsonianmag.com/smart-news/dna-pulled-from-paw-prints-may-help-researchers-study-elusive-polar-bears-180983384

EUROPE

Lost fish species found in Turkey

A team of ichthyologists has rediscovered the leopard barbel *Luciobarbus subquincunciatus*, a carp-like, spotted fish, in the Tigris River in Turkey. Last scientifically documented in 2011, it is the second on SHOAL and Re:wild's Most Wanted Lost Fishes list to be rediscovered. It was once abundant, but over the last 3 decades fishing, pollution, habitat destruction and dam construction have pushed it to the edge of extinction. Since the last records of the species, nine dams have been built in the Turkish portion of the river. Anecdotal evidence from local fishers suggested that the fish may still be there, so the research team enlisted their help, as well as working with the local fisheries aquaculture department, to locate the species. They were excited when a local fisher caught two specimens with black spots and a fleshy filament dangling from the mouth, characteristic of the species. After confirming these were in fact leopard barbels, they were safely released. The team are now hoping to determine how many still exist and where they occur.

Source: SHOAL (2024) shoalconservation.org/lost-leopard-barbel-rediscovered

Urgent call to protect England's resident bottlenose dolphins

England's only resident population of bottlenose dolphins is under serious threat from a combination of human activity, environmental pollution and difficulties in rearing young. For almost a decade, scientists and conservation groups based along the coast of the English Channel have been working together with citizen scientists to monitor the movements and distribution of this population. They estimate the pod currently consists of only 48 individual dolphins—less than half the size of most coastal bottlenose dolphin populations. Their fight for survival is made even more challenging by the fact that they inhabit some of the busiest shipping lanes in the world and are subject to pollution and fishing pressure. The researchers, from Cornwall Wildlife Trust and the University of Plymouth, call for urgent measures to protect the population and its habitats.

Sources: *Animal Conservation* (2023) doi.org/mcddb & *Phys.org* (2023) phys.org/news/2023-11-highlights-vulnerability-england-resident-bottlenose.html

Norway parliament approves highly controversial deep sea mining

Norway could become the first country to push ahead with deep sea mining, after voting in January 2024 to open its waters for exploration, provoking an outcry from environmental groups. In a major step towards kicking off commercial deep sea mining, the country's parliament formally agreed to allow the exploration of around 108,000 m² of Arctic seabed between Norway and Greenland. The decision was taken despite mounting concern from scientists, politicians and environmental groups about the potential damage deep sea mining could inflict on marine life. A Norwegian study last year found a substantial amount of metals and minerals on the seabed of the country's extended continental shelf. Proponents of deep sea mining argue that extracting these raw materials will allow a faster transition to a low-carbon economy and could come at a lower environmental cost than terrestrial mining. But scientists say very little is known about the depths of the oceans, and many are concerned about the impacts on ecosystems already affected by pollution, trawling and the climate crisis.

Source: CNN (2024) edition.cnn.com/2024/01/09/climate/norway-deep-sea-mining-climate-intl/index.html

More Przewalski's horses set to roam free in the Iberian Highlands

In November 2023, a herd of 16 Przewalski's horses (12 females and four males) was released in the Iberian Highlands rewilding landscape in Spain. The animals arrived after a long journey from Hortobágy National Park in Hungary, and joined a group of 10 horses that had been brought to the landscape earlier in the year from France. The entire herd will live in a 5,700-ha public forest near the village of Villanueva de Alcorón, where the grazing rights are managed by Rewilding Spain. The forest will become the first place in Western Europe where Przewalski's horses move freely in the wild. The animals are expected to deliver wide-ranging benefits to both people and nature, as their grazing will help to open up the landscape, which will enhance biodiversity and reduce the risk of catastrophic wildfires. The arrival of the horses also brings a potential for nature-based tourism that can benefit the region economically, as well as driving environmental education.

Source: *Rewilding Europe* (2023) rewildingeurope.com/news/more-przewalskis-horses-set-to-roam-free-in-the-iberian-highlands

Toxic chemicals exceed safe thresholds in UK orcas

Levels of banned chemicals in orcas stranded in the UK are 30 times over the toxic threshold, according to research led by the Zoological Society of London. By analysing post-mortem records and associated tissue samples from over 1,000 animals spanning 11 species of whales, dolphins and seals stranded in the UK, the research showed that concentrations of dangerous chemicals were highest in long-lived species at the top of the food chain, such as orcas, bottlenose dolphins and white-beaked dolphins. The study found that six chemical pollutants remain at highly toxic levels within UK marine mammals, even though more than 2 decades have passed since the use of many of them was restricted or banned. The limits of concentrations that are considered safe were exceeded in half of animals investigated. The situation could worsen further with climate change, as around 10,000 landfills in Europe are situated on coasts at risk of sea-level rise, flooding or erosion, with the potential to release their contaminant load directly to the marine environment.

Source: *Zoological Society of London* (2023) zsl.org/news-and-events/news/toxic-banned-chemicals-exceed-safe-thresholds-uk-orcas

International conference for restoring European rivers

Free Flow 2024, the international conference on protecting and restoring free-flowing rivers in Europe, will take place during 15–17 April 2024 in Oosterpoort, Groningen, the Netherlands. Policy makers, river managers, ecologists, researchers, students and industry representatives will gather to find solutions to the threats facing European rivers, and to build climate resilient rivers that can adapt to a changing environment. The conference is expected to accommodate c. 400 delegates from all over Europe and beyond, and more than 130 speakers will present their research. There will be opportunities for networking at various side events, including five field trips allowing participants to visit river restoration and fish passage projects. Prior to the conference, a 2-day dam removal course will be held, led by experts from the field and targeted towards early-career river restoration practitioners. The course will focus on social and technical aspects of dam removal, including planning, design and construction techniques.

Source: *Free Flow Conference* (2024) freeflowconference.eu

AFRICA

Addax now roaming free in Chad

Ten Critically Endangered addax antelopes *Addax nasomaculatus* have been released into Chad's Ennedi Natural and Cultural Reserve, as part of an ongoing initiative to re-establish a viable population in the region. The animals were transported from another reintroduction programme in Ouadi Rimé-Ouadi Achim Wildlife Reserve. They arrived in November 2023 and, after a period of monitoring and care, were released in December. There are plans to translocate more individuals and establish a healthy population exceeding 500, to secure the species' long-term survival. The addax, a desert species once found in large numbers in arid regions, disappeared from Chad in recent decades and the last remaining viable population survives in Niger.

Source: *African Parks* (2023) africanparks.org/addax-antelope-released-now-roaming-free-ennedi-natural-and-cultural-reserve

Sharp decline of African birds of prey

Dozens of species of African birds of prey are in steep decline, with many now considered to be at risk of extinction, according to a new analysis of data from across the continent. Farming and pesticide use, poisoning by poachers and infrastructure such as power lines that can be deadly to birds have reduced numbers of nearly all 42 species surveyed. This includes secretary birds, which declined by 85% over three generations, martial eagles (90%), and bateleurs (87%). Some birds not previously thought to be threatened now are, the study found. The African hawk eagle for instance is categorized as Least Concern on the IUCN Red List, but is estimated to have declined by 91%. Data was gathered from > 53,000 sightings of the 42 species on nearly 100,000 km of surveyed roads in Burkina Faso, Niger, Mali, Cameroon, Botswana and Kenya between 1969 and 2020. Additional data came from the most recent Southern African Bird Atlas Project, a citizen science-led survey. The researchers found that declines were more than twice as severe in unprotected areas, suggesting that well-managed national parks and reserves are critical for the birds' long-term survival.

Sources: *Nature Ecology & Evolution* (2024) doi.org/gtcbkf & *New Scientist* (2024) [newscientist.com/article/2410714-sharp-decline-of-african-birds-of-prey-puts-them-at-risk-of-extinction](https://www.newscientist.com/article/2410714-sharp-decline-of-african-birds-of-prey-puts-them-at-risk-of-extinction)

Rare blind mole detected in South Africa after 87 years

A blind mole that has been lost to science since 1936 has been found in South Africa. A research team from the Endangered Wildlife Trust (EWT) and the University of Pretoria rediscovered De Winton's golden mole *Cryptochloris wintoni* using environmental DNA. The moles live in inaccessible burrows, have extremely sensitive hearing and can detect vibrations from movement above ground, making them difficult to locate. However, a dog trained to sniff out golden moles led the team to trails left behind by the burrowing mammals. The researchers collected soil samples from beaches and dunes on the north-west coast—including Port Nolloth beach, the only place where De Winton's golden mole had previously been found—and determined that there were four species of golden mole: two Least Concern species, the Endangered Van Zyl's golden mole and the Critically Endangered De Winton's golden mole. The EWT have since identified four more populations of the latter.

Source: EWT (2023) ewt.org.za/conservation-news/media-releases

First rhinoceros pregnancy by in vitro fertilization

There is new hope for saving the northern white rhinoceros *Ceratotherium simum cottoni* from extinction. There are only two individuals of this subspecies left on the planet, both females: Najin and her daughter Fatu. Both are kept at the Ol Pejeta Conservancy in Kenya. The subspecies is already functionally extinct, but scientists have turned to radical fertility science to bring these animals back from the brink. After many failed attempts, they have achieved the first rhinoceros pregnancy using in vitro fertilization (IVF), successfully transferring a lab-created embryo into a surrogate mother of a closely related subspecies, the southern white rhinoceros *Ceratotherium simum simum*. The project has taken years and has had to overcome many challenges, from working out how to collect eggs from the animals, to creating embryos in a lab and establishing how and when to implant them. Sadly, the surrogate mother carrying the embryo died 70 days into the pregnancy from an infection. However, her case showed that the technique had worked and that a viable pregnancy through IVF is possible. The next step will be to try implanting northern white embryos into southern white surrogate mothers.

Source: BBC (2024) [bbc.co.uk/news/science-environment-68064432](https://www.bbc.co.uk/news/science-environment-68064432)

Fruit bats need conservation action

Species of *Pteropus*, *Acerodon* and related genera in the subfamily Pteropodinae, also known as large Old World fruit bats, are important seed dispersers and pollinators across the Paleotropics. Yet 71% of the 75 existing species are at risk of extinction. Researchers have drawn on data from IUCN Red List assessments and an extensive literature review, revealing a concerning decline. The scientists highlight how the keystone role that these species play in their native ecosystems is being compromised by declining populations, and the cascading effects that this may have. Threats faced by the bats include hunting, land-use changes, habitat degradation, climate change, invasive species, urbanization and persecution. The researchers propose a comprehensive conservation strategy, including habitat restoration, monitoring, modeling of population trends, engaging local communities, strengthening legislation and enforcement, captive breeding and increasing research capacity.

Sources: *Annual Review of Ecology, Evolution, and Systematics* (2023) doi.org/md97 & *Phys.org* (2023) phys.org/news/2023-12-vital-species-emphasizes-action.html

Invertebrate BioBlitz in Mauritius

Durrell Wildlife Conservation Trust and partners have long been working to conserve species of the Mauritian offshore islands, including reptiles, birds, giant tortoises and highly threatened plants. However, invertebrates are one of the most overlooked yet vital parts of the ecosystem, playing a crucial role in food webs and providing services such as pollination, decomposition and soil improvement. In 2023, the Durrell team in Mauritius completed an invertebrate BioBlitz, creating a snapshot of the variety of life in selected locations. In seven expeditions, they explored offshore islands over 86 days. Using techniques such as pitfall traps and sweep netting, over 45,000 individual invertebrates were captured. Estimates suggest they represent c. 500 species, from moths and butterflies to beetles, flies and ants; some could even be new to science. The researchers will analyse the results to find out how invertebrate communities vary between islands and how they may have been historically affected by habitat destruction or invasive species. Through a partnership with London's Natural History Museum, the team are planning to identify the specimens to species level.

Source: Durrell Wildlife Conservation Trust (2023) durrell.org/news/looking-out-for-the-little-guys

AMERICAS

New species of magnolia tree discovered in Honduras

A new tree species *Magnolia ciroorum* has been discovered in 2023 by a research team in the Atlántida department in northern Honduras, and named in honour of the leading local botanist and his deceased son *Ciro Navarro*. Clinging to a steep mountainside of tropical rain forest in the Pico Bonito National Park, just five individual trees of this new species have been found—making it incredibly rare and qualifying to be categorized as Critically Endangered on the IUCN Red List. The rich diversity of forests in the region is severely threatened by deforestation, agricultural expansion, illegal timber extraction and uncontrolled use of wood for furniture, especially in the lower buffer zone of the Park, where the newly discovered magnolia is found. The new species was uncovered through a project to document and conserve threatened tree species in the Park, led by the Honduran organizations FUPNAPIB and LARECOTURH, and supported by Fauna & Flora with funding from the Franklinia Foundation.

Source: *Fauna & Flora* (2024) fauna-flora.org/news/new-magnolia-tree-species-discovered-in-northern-honduras

New estimate of pumas in California

The first comprehensive population estimate of mountain lions *Puma concolor* in California, USA, has been completed. The number is vital for shaping puma-friendly land-use decisions and ensuring that the predators have room to roam, hunt and breed. The total number of individuals is estimated to be between 3,200 and 4,500—thousands fewer than previously thought. Researchers searched in mountain forests, canyons and desert badlands for tracks, and used camera traps, GPS collar data and genetic information from scat samples to model population densities across the Sierra Nevada Mountains, the Mojave Desert and Southern California's patchwork of weedy fire-stripped wilderness. For decades the state's mountain lion population was estimated to be c. 6,000, but there was little data to support this figure. The species is categorized as Least Concern on the IUCN Red List, but in California it is affected by vehicle strikes, rat poison, wildfires, urban encroachment and road systems.

Source: *Phys.org* (2024) phys.org/news/2024-01-california-mountain-lion-population-thousands.html

Sea otters helped prevent California kelp forest declines

A study by Monterey Bay Aquarium researchers has found that sea otter population growth during the last century enhanced kelp forest resilience in California, USA. The finding reinforces the importance of conservation and recovery of the threatened southern sea otter and highlights a potential nature-based solution for restoring kelp forests along the California coast. The study revealed dramatic regional kelp canopy changes between 1910 and 2016. During this time there was a significant increase in kelp forest canopy along the central coast, the only region of California where southern sea otters survived after being hunted nearly to extinction for their fur in the 1800s. The species' positive impact on kelp forests in this region nearly compensated for kelp losses along both northern and southern California, resulting in only a slight overall decline of 6% statewide over the century. Healthy kelp forests serve as nursery grounds for fisheries, reduce coastal erosion and contribute to carbon storage.

Sources: *PLOS Climate* (2024) doi.org/gtd4xr & *Phys.org* (2024) phys.org/news/2024-01-sea-otters-widespread-california-kelp.html

Study identifies priority areas for conservation of threatened crab

Annually between December and April, hundreds of *Johnnagarthia lagostoma* land crabs descend steep rocky trails from the upland peaks on Trindade Island to the shore, where they mate and release their brood into the ocean. The Island forms the easternmost point of Brazil, located in the Atlantic c. 1,200 km from the coast. The planktonic larvae develop into juveniles, which then undertake the journey back up in search of places in which to make their home burrows. Brazilian researchers have recently uncovered vital information on the ecology of this threatened crab species, such as their preferred hilltops and breeding beaches. The team also captured, sexed and measured individuals during the breeding season. They found more males in the population, a pattern that has also been found with other land crabs. Mortality is higher among females because of heat stress and high energy expenditure during migrations between the hillside and the shore. It is hoped that the new data will serve as a basis for an effective nationwide conservation plan for the species.

Sources: *Marine Ecology* (2023) doi.org/mfck & *Phys.org* (2023) phys.org/news/2024-01-priority-areas-endangered-crustacean-brazil.html

Sound maps predict poaching locations

The Iguazu Falls are bordered on one side by Iguazú National Park of Argentina and on the other by Iguazu National Park of Brazil. The lush landscape is home to an array of wild animals, including the charismatic jaguar. However, in the entire Atlantic Forest, there are only 300 jaguars, and up to one-third now live inside the narrow corridor protected by the Parks. They are threatened by deforestation, agricultural expansion, prey depletion and road development, which also provides easy access for poachers. To help map poaching hotspots, researchers and park staff have turned to acoustic monitoring. The team placed 20 audio recorders inside and around the Iguazu area, covering 4,637 km². After 7 months, they had captured gunshots at 43 sites out of 90. This information helped to generate a predictive map of poaching activity, which was validated with field trips to look for physical evidence and found to be 82% reliable. Practical application of this system could further improve the park rangers' efficiency.

Sources: *Biological Conservation* (2022) doi.org/gjqzt & *BBC* (2024) bbc.com/future/article/20240105-the-maps-fighting-jaguar-poaching-in-south-americas-atlantic-forest

Outcry over deforestation and agriculture plans in Suriname

Possible plans to develop large-scale agriculture in Suriname have sparked backlash from Indigenous communities, conservation groups and some members of parliament, who are concerned about deforestation of the Amazon and the fate of ancestral territories. Government documents showed that large swathes of Suriname's primary forest might be under consideration for agriculture. The area could be c. 467,000 ha, of which over 96% is primary forest. It would be a shocking amount of deforestation in a country that has had an annual deforestation rate of just 6,560 ha over the last 2 decades, among the lowest on the continent. Suriname is the only country in South America that has not formally recognized Indigenous land rights, with current legislation stalled in parliament. Communities are worried that agricultural development will mean the end of those efforts. A petition, directed to the President of the Republic of Suriname, was launched in January 2024 to raise awareness and stop agricultural development from moving forward.

Source: *Mongabay* (2024) news.mongabay.com/2024/01/outcry-over-deforestation-as-surinames-agriculture-plans-come-to-light

ASIA & OCEANIA

Saiga: a conservation triumph

In a rare and remarkable conservation success story, the saiga antelope *Saiga tatarica* has been recategorized from Critically Endangered to Near Threatened on the IUCN Red List, signifying a substantial global recovery for the species. The positive shift highlights the tremendous efforts of national and international conservation initiatives. The saiga antelope, once reduced to a population of only 48,000 in 2005, has experienced an extraordinary rebound in Kazakhstan. Current population estimates now surpass 1.9 million, showcasing a triumph attributable to nearly 2 decades of dedicated conservation work by governments, NGOs and research organizations. Such an improvement in status shows that conservation and management measures are working and must continue, to ensure the saiga has a long-term sustainable future in Kazakhstan, and that populations recover in Mongolia, Russia and Uzbekistan. Source: *Saiga Conservation Alliance* (2023) saiga-conservation.org/2023/12/11/saiga-antelope-a-conservation-triumph-and-ongoing-challenges

New species: a hedgehog in China...

A species of hedgehog not scientifically identified before has been discovered in two eastern Chinese provinces. In 2018, Kai He at Guangzhou University, China, and his colleagues stumbled across some mysterious-looking hedgehogs in the provinces of Anhui and Zhejiang. Compared with the European hedgehog *Erinaceus europaeus*, these had darker brown fur and spines, as well as slightly larger ears. After analysing seven of the animals, the researchers concluded that they belonged to a new species, named *Mesechinus orientalis*. The four other known species in the *Mesechinus* genus are mainly found > 1,000 km away in northern China, Mongolia and Russia, and one species resides in south-west China. Weighing just under 340 g and measuring 18.8 cm long on average, *M. orientalis* is slightly smaller than the other known hedgehogs in its genus, but like others, it is a nocturnal species that feeds mostly on insects and fruit. So far, the team has only found the species in two provinces, but they estimate there are probably hundreds of individuals there, and believe it is unlikely to be threatened. Source: *ZooKeys* (2023) doi.org/10.1017/S0030605324000218 & *New Scientist* (2023) [newscientist.com/article/2406815-unusual-dark-hedgehog-from-eastern-china-is-new-to-science](https://www.newscientist.com/article/2406815-unusual-dark-hedgehog-from-eastern-china-is-new-to-science)

... and nine snail species in Papua New Guinea

Nine species of tiny carnivorous land snails found in the remote forests of Papua New Guinea, a biodiversity hot spot, have been newly named. The island accounts for < 1% of the planet's land area, but contains c. 5% of its biodiversity and the largest intact rainforests in Australasia. The new species present a rare opportunity to study a group that, in many other places, is disappearing fast. The snails have very specific habitats and a limited distribution, making them exceptionally hard to find. More than 19,000 snails were collected from > 200 sites, and only 31% of the species had been previously documented. There is not yet enough data to determine the conservation status of the new species, but it is a promising sign that their habitat has not been dramatically altered by human activity. Snails are highly vulnerable to habitat disturbances because they cannot easily travel long distances and are usually adapted only to the environment in their immediate vicinity. Many past discoveries of new snail species have come once it was too late to save them.

Source: *Archiv für Molluskenkunde* (2023) doi.org/10.1017/S0030605324000218 & *Phys.org* (2024) phys.org/news/2024-01-snail-species-papua-guinea-biodiversity.html

Marine heatwaves affect penguins

Research led by The University of Western Australia has found marine heatwaves are affecting the breeding, diet and population size of little penguins along Western Australia's coast, based on data from 1986 to 2019. The study found that breeding outcomes were negatively affected but body condition was not, and that diet composition changed immediately after the marine heatwaves. Following a 2011 heatwave, the population of little penguins on Penguin Island decreased by 80%, with many more penguins than normal dying from starvation. In 2011 and 2012 penguins also died from toxoplasmosis, a parasitic infection linked to cats, in which the parasite lays its eggs. There are no cats on Penguin Island but it is thought the transmission was caused by parasite eggs moving from storm water drains into the marine environment, where they were eaten by fish which were in turn consumed by penguins. The genetically important Penguin Island colony is already near the maximum habitable temperature and critical thresholds are likely to be exceeded.

Sources: *Marine Ecology Progress Series* (2024) doi.org/10.1017/S0030605324000218 & *Phys.org* (2024) phys.org/news/2024-01-marine-affecting-penguin-population.html

Rare sighting of tiger cubs raises hopes for species in Thailand

Camera traps in Thungyai-Huai Kha Khaeng wildlife sanctuaries in Thailand captured 120 tigers during an exercise that concluded in April 2023, up from 100 the previous year. To add to the excitement, a rare sighting of a mother and her three cubs spread hope that the species is breeding in new areas. The camera-trap image is the first time that cubs have been captured on camera in the area, following 10 years of monitoring. Only 46 tigers were spotted in the sanctuaries in 2007. The growth in numbers is attributed to stronger anti-poaching patrols, as well as efforts to recover prey populations such as sambar deer. Thailand is one of the few countries in Southeast Asia that are making progress in rebuilding their tiger populations.

Source: *The Guardian* (2024) [theguardian.com/world/2024/jan/02/rare-sighting-tiger-cubs-thailand-extinction](https://www.theguardian.com/world/2024/jan/02/rare-sighting-tiger-cubs-thailand-extinction)

Turtle bonanza in Cambodia

In March 2022, Fauna & Flora and partners in Cambodia came across a green turtle nest, the first in a decade, on a remote offshore island. Hatchlings were witnessed emerging from the clutch of 93 eggs, offering renewed hope for the country's threatened sea turtles. Then, at the end of 2023, the team found a further nine nests within the space of just a few days. Fauna & Flora and partners have been scouring this particular area for signs of turtle nesting for many years, convinced it could be a perfect haven for any remaining females searching for a relatively undisturbed beach to safely lay their eggs. That confidence and persistence in the face of many disappointments was finally vindicated with the news that these nests had been found. The confirmation that sea turtles still nest in Cambodia reinforces the need to work with the government to ensure their protection. Turtles choosing a nesting site on an uninhabited island demonstrate the importance of sanctuaries free from human interference.

Source: *Fauna & Flora* (2023) fauna-flora.org/news/turtle-bonanza-in-cambodia

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