

Briefly

INTERNATIONAL

Corals in the freezer

Evidence from coral reef experts, presented at a meeting organized by the Global Legislators Organization for a Balanced Environment, suggests that even if tough regulations on greenhouse gases are put in place, the prospects of saving reefs now appear bleak. Plans are therefore being made to freeze samples of coral species in liquid nitrogen to preserve them for the future. This will allow them to be reintroduced to the seas in the future if global temperatures can be stabilized. Coral reefs make up < 0.25% of the ocean's floor yet are a key source of food, income and coastal protection for c. 500 million people. Recent research shows that one of the most important concentrations of coral, the so-called Coral Triangle in Southeast Asia, could be destroyed by climate change before the end of this century, with significant impacts on food security and livelihoods.

Source: *BBC News* (2009), <http://news.bbc.co.uk/2/hi/science/nature/8324954.stm>

Deep-dwellers brought to light

The Census of Marine Life, a 10-year project that aims to document and explain the diversity, distribution and abundance of marine life has been busy during 2009, its penultimate year. Five of the 14 field projects instigated under the Census focus on deep-sea life, and research in these sunless zones has resulted in the discovery of numerous new species. Some of the 17,650 recorded deep sea species have adapted to feed on particles that fall from above, whereas others feed on the bacteria that break down oil, sulphur and methane. Some have even more elaborate eating habits: this year researchers discovered the Antarctic's first recorded whalebone-eating worm, c. 500 m below the ocean's surface. Other discoveries from 2009 include a new genus of sea cucumber and > 650 species of copepod, collected in the south-eastern Atlantic that appear to be hitherto unknown.

Source: *Census of Marine Life press release* (2009), http://coml.org/comlfiles/press/CoML_Beyond_Sunlight_11.17.2009_Public.pdf

Skate split

Differences in a number of features including eye colour, tooth shape and, crucially, body size at maturity, have proved sufficient to separate the Critically Endan-

gered common skate into two distinct species. Furthermore, genetic analyses have shown that the two species are not even each other's nearest relatives. This taxonomic revelation has solved a mystery surrounding the skate: namely, how a large, slowly reproducing fish could sustain catches of several hundred tonnes a year. It now transpires that majority of the catches were of the smaller skate, which matures at c. 120 cm. An examination of skate landings from 2005 showed that only 140 were adults belonging to the larger species, which matures at 200 cm, compared to 8,300 adults of the smaller species. Not only does this finding increase the urgent need for more effective conservation measures for the skate, it also illustrates the extent of cryptic biodiversity still to be discovered.

Source: *Nature* (2009), 462(7272), 417

Relationship between diversity and stability of ecosystems

The more diverse an ecosystem the more ecologically stable it is, because the greater number of interactions between members of the ecosystem cause increases in resilience and robustness. This diversity–stability relationship has now been examined across evolutionary timescales in six reef-building metazoan taxa. The researchers hypothesized that the extinction of community members would destabilize the community as a whole unless the community contained sufficient diversity to act as a buffer against stochastic events. Thus the diversity–stability relationship should be strongest when the extinction rate is high. Evidence from the reef-building communities examined in this study showed that the diversity–stability relationship was indeed strongest during times of high extinction rates, and lower during times of low extinction.

Source: *Proceedings of the Royal Society B* (2009), <http://dx.doi.org/10.1098/rspb.2009.2062>

Climate change flagship species identified

The IUCN has published a report detailing the potential effects of climate change on 10 species, to illustrate the various effects of climate change on different ecosystems. Koala bears, for example, are declining in number because the nutritional value of eucalyptus leaves falls as atmospheric CO₂ levels rise, and droughts in southern Africa are causing the deaths of quiver trees in the

Namib desert. The four polar species on the list are all expected to suffer as polar ice melts, as well as experiencing other consequences such as the influx of competitors and predatory species. Two aquatic species on the list, staghorn coral and clownfish, are at risk of extinction because of ocean acidification and higher ocean temperatures. These 10 species have been chosen to act as climate change flagships to represent the effects of climate change on the natural world.

Source: *Species and Climate Change: More Than Just the Polar Bear* (2009), http://cmsdata.iucn.org/downloads/species_and_climate_change.pdf

Underestimate of number of individuals needed for survival

An investigation into the minimum number of individuals required for a species' long-term survival suggests that the number is generally higher than the targets proposed by conservationists. The minimum viable population size of a species is the number of individuals required to give a species a 90% chance of surviving for the next 100 years, and needs to be high enough for the population to survive environmental fluctuation and catastrophic events, as well as to ensure that evolutionary processes can continue. The researchers found that the minimum viable population size was usually thousands of individuals but that conservation policy often does not reflect this evidence, which the researchers believe is because conservationists allow pragmatic concerns about feasibility to bear more weight than biological risk assessments.

Source: *Biological Conservation* (2010), 143, 28–34, and *New Scientist* (2009), 204(2730), 7

Caviar tagging

A 2009 ruling preventing trade in wild caviar is gaining teeth with the development of a technique that will allow the differentiation between farmed and wild caviar. Researchers have found that adding a fatty acid to the food of female sturgeons resulted in the appearance of this tracer in the sturgeons' eggs after 10 days, but at levels that were too low to be tasted in the caviar. The development of a simple technique to determine whether caviar has been farmed or not is significant because until now CITES has had to rely on labelling to determine where caviar comes from. Overfishing of sturgeon in the Caspian Sea, where until recently 90% of the world's caviar came

from, has reduced the populations of these fish by 90% in the last 20 years.

Source: *New Scientist* (2009), 204(2733), 24

Soya bean to become fishes' knight in shining armour?

A ruling by the US Food and Drug Administration conjures up an unlikely vision of soya beans saving fish. The Administration has ruled that oil containing omega-3 fatty acids, derived from a soya bean developed by the company Monsanto, is safe to eat, meaning that food companies can start to test this oil in foods. Omega-3 fatty acids, mainly derived from fish oils, play a significant role in reducing the risk of heart attack, strokes and sudden cardiac death. Monsanto claims that < half a hectare of soya bean would provide the same amount of eicosapentaenoic acid, important in cardiovascular health, as 10,000 servings of salmon. Furthermore, the soya beans are best suited to growing in the temperate climate of North America, thus allaying fears that tropical rainforest may be cleared to grow these soya beans.

Source: *New Scientist* (2009), 204(2732), 14

Frogs tougher than previously thought...

Some of the characteristics of amphibians, such as their permeable skin, dependence on both aquatic and terrestrial habitats and relatively rudimentary immune system, have led to their being viewed as a proverbial canary in a coal mine for environmental change. However, analysis of 23,942 toxicity tests that looked at the response of amphibians compared to other taxonomic groups has found that, on the whole, amphibians only exhibit moderate relative responses to water-borne toxins. The authors point out that, just as canaries in coalmines were only used to detect carbon monoxide gas, there is a danger in viewing amphibians as global detectors of environmental change. However, the research does show that certain species of amphibian are highly sensitive to particular chemicals or chemical groups, so there is still scope for individual species to act as indicators for their environments.

Source: *Ecology Letters* (2010), 13, 60–67

... but fatal disease affects permeability of amphibian skin

Although chytridiomycosis, the amphibian disease caused by the pathogen *Batrachochytrium dendrobatidis*, is known to be fatal to amphibians, it is only now that the mechanisms of the disease are understood. Chytridiomycosis infection in green tree frogs was found to inhibit the move-

ment of electrolytes across the epidermis by 50%, with the result that sodium and potassium concentrations in the frogs' blood were reduced by c. 20 and 50%, respectively. The frogs subsequently suffered cardiac arrest, resulting in death. The researchers found that giving diseased frogs an oral-electrolyte solution delayed their death, and suggest this may be a first step towards a treatment for the disease, which is currently wiping out amphibian populations around the world.

Source: *Science* (2009), 326(5952), 582–585, and *New Scientist* (2009), 204(2732), 18

Species need to get their skates on

Researchers have created an index of the velocity of temperature change, based on spatial gradients combined with forecasts of the rates of temperature increase during the 21st century, which shows that the mean global velocity is 0.42 km yr⁻¹. However, different biomes show marked differences, with tropical and subtropical coniferous forests requiring the slowest velocities to keep pace with climate change (0.08 km yr⁻¹), whereas flatter biomes, such as flooded grasslands, require greater velocities (1.26 km yr⁻¹). The researchers also examined residence times for biomes in protected areas, and found that in only 8% of protected areas do residence times of biomes exceed 100 years. The study's authors suggest that in landscapes where small velocities are required moderate-sized protected areas may help, but elsewhere increasing the size of protected areas needs to be considered.

Source: *Nature* (2009), 462(7276), 1052–1055

Good (g)reef

Researchers examining fossil evidence of 6,615 sea-floor invertebrate genera in an attempt to trace where they first arose found that nearly 60% originated close to or on coral reefs. This figure is considerably higher than the rate of origination from other marine habitats. The researchers suspect that the high rate of speciation on coral reefs is related to a number of factors. The complex habitat structure of reefs means they can support a greater variety of different species, a frequent rate of extinction provides opportunities for new species, and the low-nutrient quality around reefs keeps populations small and isolated from one another. Furthermore, the evidence revealed that coral reefs also exported diversity to other habitat types.

Source: *New Scientist* (2010), 205(2743), 13, and *Science* (2010), 327(5962), 196–198

Big fish get tagged

It has, until now, been difficult to track long-term movements of big fish to a satis-

factory degree of accuracy, with the two commonly used techniques only accurate to hundreds of metres at best. Now researchers have attached a global positioning system tag to the world's largest bony fish, the ocean sunfish, and obtained data with a positional accuracy of < 70 m. The tag was towed behind the fish on a 1.5-m long monofilament tether attached to the fish's dorsal surface, and transmitted data when on the ocean's surface. The data obtained from the tag showed that the fishes spent time in localized areas, with fast, straight movements between these areas, suggesting that the species finds and exploits food patches within the ocean.

Source: *PLoS One* (2009), 4(10), e7351. [Http://dx.doi.org/10.1371/journal.pone.0007351](http://dx.doi.org/10.1371/journal.pone.0007351)

Extinction rate keeps rising

The publication of the newest update of the IUCN Red List shows that 17,291 species of the 47,677 assessed are threatened with extinction. Some groups are faring particularly badly, with, for example, 30% of all known amphibians at risk of extinction. A newcomer to the list this year is Rabb's fringe-limbed tree frog, native to central Panama and categorized as Critically Endangered, the story of which is representative of many amphibians: in 2006 the chytrid fungus was found in its habitat, and since then only a single male has been heard calling. The few bright spots in the list underline the importance of conservation actions, however. For example, the Australian grayling, a freshwater fish, has been downgraded to Near Threatened thanks to the creation of fishladders within dams, an improvement in riverside vegetation and education of fishermen.

Source: *IUCN press release* (2009), <http://www.iucn.org/?4143/Extinction-crisis-continues-apace>

Afforestation may not be great for soils

Afforestation, whereby non-forested lands are planted with trees, is widely viewed as one of a suite of techniques to absorb atmospheric CO₂. However, an examination of 153 sites where afforestation has occurred has shown that, unless newly planted sites are managed sustainably, plantations may degrade soils and deplete them of their nutrients. Across the dataset soil concentrations of calcium, potassium and magnesium decreased significantly, and sodium concentrations rose. In addition, the mean pH of the soil decreased 0.3 units with afforestation. The findings of this study indicate that the rapid growth

and harvesting of biomass in plantations could impair soil fertility and productivity in the long-term. The authors therefore recommend that proper site preparation and sustainable harvest practices, such as avoiding the removal of harvest residue, may be ways of avoiding excessive nutrient loss.

Source: *Ecological Applications* (2009), 19, 2228–2241

Push for vegetation bioshields risks destabilizing ecosystems

A number of high-profile natural disasters in recent years has led to the promotion of coastal vegetation as a 'bioshield' to reduce the impacts of tsunamis and storm surges on coastal communities. However, an examination of case studies, in particular those published after the Indian Ocean Tsunami in 2004, suggests that vegetation bioshields may not mitigate coastal natural disasters to the extent initially thought. Additionally, in some cases exotic plants are used as bioshields, which can have a negative effect on natural coastal ecosystems. Although coastal vegetation, such as mangroves, is vital to local communities and should be conserved, the authors suggest that enhancing adaptive capacity in coastal communities is also key to mitigating the effects of natural disasters.

Source: *Conservation Letters* (2009), <http://dx.doi.org/10.1111/j.1755-263X.2009.00087.x>

Bias revealed in protected area locations

A study looking at the location of protected areas in 147 countries has found that networks are biased towards areas of land that, even unprotected, are unlikely to face land conversion pressures. The study's results showed that a significant majority of national protected area networks are biased towards higher elevations and steeper slopes, and are located at greater distances to roads and cities. This bias can affect the measurement of protected area effectiveness. For example, in the case of deforestation, rates of tree loss within protected areas are compared to deforestation rates beyond their boundaries but the steep topography and remote locations of some protected areas means they are less likely to suffer deforestation anyway. On a positive note the authors point to the growing trend for creating protected areas using consistent and locally contextualized frameworks, as well as systematic conservation planning, as indications that a more representative protected area network may be forthcoming.

Source: *PLoS One* (2009), 4(12), e8273. [Http://dx.doi.org/doi:10.1371/journal.pone.0008273](http://dx.doi.org/doi:10.1371/journal.pone.0008273)

Microclimate variation to the rescue

One of the myriad concerns about climate change involves alpine species, with fears that they will be unable to move to higher elevations at a fast enough rate to escape the warming of their current habitats. A newly published study, which examined temperatures in six alpine and arctic-alpine slopes, goes some way towards allaying these fears, indicating that significant microclimatic variation occurs across horizontal transects. The researchers measured both the surface temperature, using infrared imagery, and root zone temperatures, using miniature data loggers buried at a depth of 3 cm. The presence of these thermal microhabitat mosaics means that species may be able to move just a few metres horizontally to escape localized warming, as opposed to several hundred metres.

Source: *Global Change Biology* (2009), <http://dx.doi.org/10.1111/j.1365-2486.2009.02122.x>

Nutrient enrichment of a stream has unexpected consequence

A 5-year experiment in which nitrogen and phosphorus were added to a stream has produced a surprising result. It had been thought that nutrient enrichment of aquatic ecosystems would lead to increased productivity among both predators and prey. In the first years of this experiment this was indeed the case but during the fourth and fifth years predator production reduced and prey production continued to increase. The authors hypothesize that this is because nutrient enrichment increased the dominance of larger prey. Predators were more likely to consume small prey, so the preponderance of larger-bodied prey prevented some of the increased energy from the nutrients reaching the predators. This study indicates that nutrient enrichment, already perceived as a threat to aquatic ecosystems, can have unforeseen consequences on ecosystem structure and productivity.

Source: *Proceedings of the National Academy of Sciences of the USA* (2009), <http://dx.doi.org/10.1073/pnas.0908497107>, and *Journal Watch Online* (2009), <http://journalwatch.conservationmagazine.org/2009/12/21/broken-links/>

Asocial fish invade further

A series of experiments on the invasive mosquitofish support the idea that individuals dispersing from a source population tend to have a different personality type than the average fish in the population. In the experiments researchers measured the following fishy personality traits: tendency to disperse in experimental streams, sociability (tendency to shoal), boldness (length of time it takes for the fish to emerge into

a new environment from a refuge), and exploration tendency and activity (movement of the fish in a new environment). Not only were these traits correlated, indicating the existence of an overall behaviour syndrome, but more asocial individuals were found to disperse further in the experimental stream. This finding is significant, because invasion of a new environment by a biased subset of individuals will have different ecological impacts than invasion by a random collection of individuals.

Source: *Proceedings of the Royal Society* (2010), <http://dx.doi.org/10.1098/rspb.2009.2128>

Overlap between carbon stocks and biodiversity richness

An analysis that compared data sets of global mammal, amphibian and bird species distribution with a global carbon data set found a good overlap between areas of high carbon storage and high biodiversity. Furthermore, the protection of particular areas would bring co-benefits for the conservation of both biomass carbon and biodiversity, including the Amazon (high levels of overall species richness), Indonesia (large numbers of threatened species) and New Guinea (home to many endemic species). However, the authors warn that some biodiversity-rich but carbon-poor areas such as the Brazilian Cerrado and the Succulent Karoo, may suffer, particularly if a global carbon-focused REDD mechanism is implemented. These areas may in fact suffer twice, as conservation funding may be directed elsewhere and human pressure may increase as conservation efforts shift to more carbon-rich areas.

Source: *Conservation Letters* (2009), <http://dx.doi.org/10.1111/j.1755-263X.2009.00092.x>

EUROPE

Protected areas for seabirds expanded in Scotland

The Scottish government has announced that 31 Special Protected Areas that are home to breeding seabirds will be expanded to protect the marine habitats surrounding these terrestrial sites. Depending on the species breeding at the site, the Special Protected Areas will extend by either 1, 2 or 4 km into the adjacent marine habitats. Although a number of Special Protected Areas have a marine component, these 31 sites are the first seabird Special Protected Areas in Scotland to extend below the low mean water springs mark. The ruling, which came into force on 25 September

2009, means that the seabirds for which the Special Protected Areas are designated, which include common guillemots, northern gannets and Atlantic puffins, are protected from activities that would cause significant disturbance, and that their marine habitats are safeguarded.

Source: *JNCC Nature News* (2009), 22, 14

Bird feeding creates schism

The British habit of providing food for birds in winter appears to be dividing a population of birds in two. European blackcaps that spend the summers in southern Germany and Austria used to migrate in a south-west direction to Spain to overwinter. In the 1960s, however, some blackcaps started heading north-east on their migration, ending up in the UK. Researchers believe that c. 10% of blackcaps now overwinter in the UK, dining on food left out by British bird lovers. Furthermore, because the British wintering grounds are closer to their breeding sites, the birds migrating from Britain arrive c. 10 days before their Spanish counterparts, and are therefore mating among themselves. Comparisons of microsatellites in the birds' genomes showed small but significant differences between the two groups, and there are also physiological differences: south-west migrating birds had more pointed wings, enabling faster flight, and wider beaks more suited to swallowing olives.

Source: *ScienceNow Daily News* (2009), <http://sciencenow.sciencemag.org/cgi/content/full/2009/1203/2>

Via Baltica to be rerouted

A 7-year campaign to halt the destruction of a number of important wildlife sites in Poland has finally paid off with the Polish government having decided to reroute the highway that was due to pass through these sites. The original route of the Via Baltica, part of a road that will link Helsinki to Warsaw, would have had an impact on areas that are home to a number of threatened species, including lynx, wolf and large populations of the aquatic warbler and greater spotted eagle, both of which are categorized as Vulnerable on the IUCN Red List. Many of these areas are Natura 2000 sites, and are thus supposedly protected under European environmental laws. Despite this victory, conservationists warn that sites in this part of north-east Poland are still threatened by other road-construction plans in the area.

Source: *RSPB press release* (2009), <http://www.rspb.org.uk/news/details.asp?id=tc:9-232944>

Red kite numbers plummeting across Europe

Since 1994 the numbers of red kites at their wintering grounds has fallen by 50% and the number of breeding pairs has declined by 40% in Spain and 30% in France and Germany. The main reason for this decline is poisoning, both accidental and deliberate. Red kites are particularly susceptible to poisoning because of their scavenging nature. In Britain, however, red kites are making a successful comeback; the recovery of the Welsh population means that Wales is now home to 3% of the world's red kites. A Red Kite Action Plan, drawn up by the RSPB on behalf of BirdLife International, provides guidelines for countries on how to stop the use of poison baits, reduce the risk of red kites eating poisoned rodents, and maintain and improve the feeding and breeding sites of red kites.

Source: *RSPB press release* (2009), <http://www.rspb.org.uk/media/releases/details.asp?id=tc:9-235416>

Cold War put a freeze on bird movements

A new study reveals that the Cold War and its resulting commercial alliances had an effect on the bird fauna of Eastern and Western Europe. The number of exotic bird species introduced into Eastern Europe, and the number of species that became established in this bloc, declined during the Cold War because of the isolation of these countries and, in particular the restrictions on foreign trade. This study sheds light on how socio-economic, historical and political factors have played a role in the movement of exotic bird species through Europe, and the authors suggest that these factors should be taken into account in studies of invasive species management. Furthermore, the ongoing increase in movement and trade throughout Europe warrants the establishment of policies to prevent the encroachment of exotic species into hitherto isolated regions of Europe.

Source: *Biological Conservation* (2010), 143, 351–356

Hanging on by a whisker (but not for much longer)

Researchers working to eradicate mink from the UK's Outer Hebrides have analysed the whiskers of mink killed during the eradication programme to determine where the last feral mink are located on the islands. The ratios of carbon and nitrogen isotopes in the whiskers indicate on what, and thus where, the mink are feeding. As the cull progressed, the whiskers were found to contain a smaller proportion of the lighter carbon-12 isotope,

which indicates the mink were moving towards the coastal areas of the archipelago and eating more seafood. Locating the traps along the coast should therefore ensure that the maximum number of mink are caught as quickly as possible. Mink originally became established in the area after escaping from fur farms and have been implicated in the extirpation of seabird colonies along Scotland's west coast.

Source: *Planet Earth Online* (2009), <http://planetearth.nerc.ac.uk/news/story.aspx?id=632>, and *Journal of Applied Ecology* (2009), <http://dx.doi.org/10.1111/j.1365-2664.2009.01739.x>

Eel populations take a downwards slither

Researchers who monitor the number of eels in the Thames every year have reported that numbers have fallen by 98% since 2005. The reasons for this decline are currently unknown, with a number of possible factors including the presence of man-made structures such as dams blocking the route of the eels as they move upstream, the presence of diseases and parasites, and/or climate-change induced alterations in ocean currents. European eels hatch in the Sargasso Sea, and travel as larvae to European rivers, a migration thought to take up to 3 years. There are fears that the disappearance of this species will affect other species that live in the Thames estuary, not least the birds that feed on the eels.

Source: *BBC News* (2010), <http://news.bbc.co.uk/1/hi/england/london/8473965.stm>

NORTH EURASIA

Saiga secrets to be revealed through tracking

Twenty Critically Endangered saiga antelopes have been fitted with global positioning satellite tags in Kazakhstan in a bid to find out more about their migratory movements. The saiga population in Kazakhstan numbered c. 1 million in the 1970s but poaching reduced the population to 81,000 following the collapse of the Soviet Union. The Kazakh population is now on the increase as the result of a number of factors, including effective anti-poaching units and the development of a large-scale landscape conservation project. The Altyn Dala Conservation Initiative aims to create a network of protected grassland habitats throughout central Kazakhstan, with > 5.2 million ha already protected. The Initiative intends to increase the area of grassland protected by up to 5 million ha, thus

providing a crucial refuge to saiga and other species that depend on these steppe habitats. *Source: Association for the Conservation of Biodiversity of Kazakhstan press release* (2009), http://acbk.kz/index.php?option=com_content&task=view&id=104&Itemid=73&lang=en

NORTH AFRICA AND MIDDLE EAST

Pamir Mountains yield information about mysterious bird

The Pamir Mountains in north-eastern Afghanistan have been identified as a breeding site of the large-billed reed warbler, a species categorized as Data Deficient on the IUCN Red List. The bird was first observed in the area in 2008, when a researcher recorded its song, assuming it to be the similar Blyth's reed warbler. Later investigation of bird skins revealed the observed birds were not Blyth's, and so a team of researchers returned to the area the following year. Using the original recording they were able to attract a number of large-billed reed warblers to the site, catching and releasing some for observation purposes, and also collecting feathers for DNA analysis. This is the first time a breeding population of large-billed reed warblers has been found, and hopes are high that these remote mountains may reveal further discoveries.

Source: BirdLife International news (2010), http://www.birdlife.org/news/news/2010/01/warbler_breeding.html

SUB-SAHARAN AFRICA

Malagasy forests being stripped of timber

A report has revealed that rosewood with a value of USD 88,000–460,000 is being harvested illegally every day from national parks in the SAVA region of Madagascar. Between 100 and 200 trees are felled every day, many of which are exported to China where there is high demand for rosewood furniture. Others are sent to the USA and Europe, where rosewood is used in the manufacture of musical instruments. In addition to felling the timber trees, loggers fell other trees to clear trails, as well as hunting wildlife for food and burning parts of the forest to create clearings for temporary settlements. The report urges the Malagasy government to place rosewood and ebony on the CITES Appendices, and governments of countries receiving hardwood shipments to police imports of timber from Madagascar.

Source: Investigation into the Illegal Felling, Transport and Export of Precious Wood in SAVA Region, Madagascar (2009), http://www.globalwitness.org/media_library_detail.php/890/en/illegal_malagasy_timber_trade_worth_up_to_460000_a_day

Peacekeepers keep an eye out for chimps in DRC

One of the two live volcanoes in Virunga National Park, in the Democratic Republic of the Congo, erupted at the beginning of 2010, raising fears for both the local communities and the threatened species that live in the area. So far the lava flow from Nyamulagira has not threatened major human settlements or the mountain gorillas that inhabit the Park, but there are concerns for the Endangered eastern chimpanzees that live on the slopes of Nyamulagira itself. In addition to the lava flow there is the problem of abrasive volcanic ash covering the plants on which the chimpanzees depend. UN peacekeepers stationed in the DRC are therefore using planes and helicopters to monitor the situation in the Park. Conservationists fear that if the eruption damages peoples' livelihoods they will exploit more resources within the forests, which may threaten wildlife.

Source: New Scientist (2010), 205(2742), 7

Disease eradication aids carbon storage

Evidence from the Serengeti has shed light on the effect of disease outbreaks on ecosystems and communities, effects hitherto less well understood than effects on population dynamics of individual species. Following the eradication of rinderpest from the Serengeti the population of the dominant grazer in the savannah, the wildebeest, grew rapidly, resulting in a tropic cascade. More wildebeest resulted in less grass, which in turn caused the number of fires in the area to decrease. The decrease in fires meant that more trees were able to survive, which the article's authors hypothesize may have caused the Serengeti to shift from being a net source of carbon to a net sink. This research indicates the close relationship between grazers and fire, as well as showing how seemingly small ecological disturbances such as disease outbreaks can affect entire ecosystems. *Source: PLoS Biology* (2009), 7(9), e1000210. [Http://dx.doi.org/10.1371/journal.pbio.1000210](http://dx.doi.org/10.1371/journal.pbio.1000210)

Type of tourist makes little difference

Interviews with 161 tourists visiting Uganda's Bwindi Impenetrable National Park have shown that the type of tourist makes little difference to the delivery of local

economic benefits. It had been thought that high-value, low-volume tourism, a frequent component of conservation interventions, may be more effective in delivering benefits to local communities but this study showed that leakage, whereby revenue is lost to the local area as, for example, profit to non-local businesses, was much higher for so-called luxury tourism. In the models created in this study, retained spending was only predicted by the length of stay by tourists, regardless of the type of tourist they were. The study's author suggests that a mix of forms of tourism might be the most effective policy for delivery of conservation outcomes.

Source: Conservation Letters (2009), <http://dx.doi.org/10.1111/j.1755-263X.2009.00085.x>

Thousands of birds poisoned in Kenya every month

It has been discovered that thousands of birds are being poisoned by an insecticide every month in Bunyala, in western Kenya. The birds are attracted to the Bunyala Rice Scheme, a heavily irrigated area that provides ideal feeding conditions for non-breeding migratory and resident birds, where they are poisoned by Carbofuran, or Furadan, which is often hidden in snail shells as bait. The birds are then sold for human consumption. Elsewhere in Africa, poachers in Botswana have poisoned over 80 vultures, with some conservationists speculating that the poachers are trying to clear the area of the birds because they alert the authorities to the poachers' illegal activity. Work is currently underway to monitor numbers of poisoned birds, as well as educating local people about the importance of birds and the risks associated with eating poisoned meat.

Source: BirdLife International news (2009), http://www.birdlife.org/news/news/2009/11/africa_furadan.html

Ethiopian coffee

An afforestation project in Ethiopia hopes to stem the loss of the country's forests, almost 43% of which have been converted into arable land over the past 10 years. The remaining forests cover an area of c. 200,000 ha, and are estimated to absorb 600,000 t of CO₂ from the atmosphere every year. In addition to their carbon storage potential the forests are rich in biodiversity, including the famous Arabica coffee, of which there are almost 5,000 varieties. The project, which is funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, aims to reforest 10,000 ha, and will adhere to principles of sustainable forest management. Additionally, infrastructure suitable for tourists will be built,

and local people will have the opportunity to work as guides.

Source: *BirdLife International news* (2009), http://www.birdlife.org/news/news/2009/12/nabu_event.html

Poachers arrested in ivory swoop

The largest international operation to target wildlife crime in Eastern Africa has resulted in the seizure of 1,099.8 kg of carved and raw ivory, as well as the arrest of many suspected illegal wildlife dealers. The six countries involved in the operation were Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda, and the operation occurred simultaneously in all six countries, to ensure that dealers trying to cross borders were intercepted. In Kenya alone 65 suspected illegal wildlife dealers were arrested, most of whom were apprehended outside national parks and reserves. The operation was initiated after African elephant range states approached INTERPOL with a request for help to deal with illegal elephant killings.

Source: *Environmental News Service* (2009), <http://www.ens-newswire.com/ens/nov2009/2009-11-30-02.asp>

SOUTH AND SOUTH-EAST ASIA

Prey species suffer as snow leopard returns to Himalayas

Following years of persecution the snow leopard population in Nepal's Sagarmatha National Park is starting to recover (see *Oryx*, 41, 89–92), but evidence suggests that the main prey of the snow leopard, the Himalayan tahr, is suffering as a consequence. Surveys in the Park revealed a high tahr birth rate in early summer but the ratio of young tahr to females decreased sharply by the autumn. Evidence from snow leopard scats showed that Himalayan tahr remains accounted for c. 50% relative frequency of occurrence in scats during the summer, with the implication that summer predation by snow leopards focused on kids. The authors voice the concern that, should the tahr population decline, snow leopards may turn their attention to livestock, which may in turn result in retaliatory killings by herders.

Source: *Animal Conservation* (2009), 12, 559–570

Oil palm plantations threaten air quality

Experiments in Borneo have revealed that oil palm plantations emit more oxides of nitrogen and volatile organic compounds

than rainforest. These chemicals react in the presence of sunlight to produce ground-level ozone (O₃), a pollutant that reduces crop productivity, damages human health and plants, and affects climate. Currently, O₃ emissions do not differ significantly over the plantations and adjacent oil palm plantations in the landscapes monitored. However, evidence from models suggests that, should the concentrations of oxides of nitrogen in Borneo reach the levels currently seen in rural North America and Europe, the ground-level O₃ concentrations will exceed levels known to be detrimental to human health. The study's authors call for the development of policies to manage nitrogen emissions to mitigate this threat.

Source: *Proceedings of the National Academy of Sciences of the USA* (2009), 106, 18447–18451

Gurney's pitta may be more plentiful

Surveys carried out in the forests of Myanmar and Thailand have suggested that the Endangered Gurney's pitta may inhabit a wider range of altitudes, slopes and forest types than indicated by previous evidence. Forest sites occupied by the pitta seemed to indicate a preference for regenerating forest, and nesting sites in Thailand were found to be in gullies that were wetter than average, suggesting that, in common with other pitta species, Gurney's pitta may rely on earthworms to feed to their nestlings. The results from Thailand are particularly encouraging, as the pitta population and its lowland forest habitat appear to be stabilising, which the paper's authors attribute, in part, to conservation actions. However, heavy snake predation on nests in Thailand, and rapid forest clearance in Malaysia, still pose threats for the species' existence.

Source: *Bird Conservation International* (2009), 19, 353–366

DNA tests reveal pure-bred Siamese crocodiles

DNA samples from 69 Critically Endangered Siamese crocodiles housed in Cambodia's Phnom Tamao Wildlife Rescue Center have confirmed that 35 are pure-bred Siamese crocodiles. Furthermore, the DNA analysis also showed that six adults from the centre could form compatible breeding pairs and the remaining 29 juvenile crocodiles may be suitable for release into the wild. The Siamese crocodile is extinct in 99% of its original range, with poaching, illegal trade and habitat loss the drivers of its decline. The Phnom Tamao Wildlife Rescue Center, run by the Government of Cambodia, looks after animals confiscated from the illegal wildlife trade, and hopes to commence a captive breeding programme for

Siamese crocodiles in 2010, with the assistance of Fauna & Flora International and the Cambodian Forestry Administration's Cambodian Crocodile Conservation Programme and Wildlife Alliance.

Source: *FFI media release* (2009), http://www.fauna-flora.org/docs/Media_Release-DNA_analysis_reveals_35_purebred_Siamese_crocodiles_at_Cambodia_Phnom_Tamao_Wildlife_Rescue_Centre.pdf

Timor-Leste's 17th IBA rich in endemic bird species

A survey of Timor-Leste's Mount Mundo Perdido has recorded 63 bird species, including 22 of the restricted-range species of the Timor and Wetar Endemic Bird Area. The topography of this mountain means that its upper slopes have been protected from agriculture: its inaccessibility gives rise to its name, which translates as Lost World. One of the species discovered during the survey, the pygmy blue-flycatcher, is of particular interest, as the nearest known populations occur at least 1,700 km away in Kalimantan and Sumatra. The flora of the mountain is also diverse, with several new orchid species having been found here. The area is not currently managed as a protected area but local people have responded positively to the idea of protected area management, which would be carried out in consultation with their communities.

Source: *BirdLife International news* (2009), http://www.birdlife.org/news/news/2009/10/timor_lost_world.html

Logging concession becomes protected area

A new protected area has been declared on Cambodia's eastern border with Vietnam, covering > 2,800 km² of forest. The Seima Protection Forest is home to a number of threatened species, including carnivores, primates and elephants. Furthermore, local hunters and farmers will maintain their access rights to the forest. The designation of the Seima Protection Forest is also significant in that it is the first protected area in Cambodia to be created with the conservation of forest carbon as one of its key aims. The Wildlife Conservation Society is working alongside Cambodian authorities to measure the amount of carbon stored in the forest, and it is hoped that the Seima Protection Forest will act as an example of how the international scheme known as REDD (Reducing Emissions from Deforestation and Degradation) can work.

Source: *WCS press release* (2009), <http://www.wcs.org/press/press-releases/seima%20cambodia.aspx>

Nepal expands tiger habitat protection

The inaugural session of the Kathmandu Global Tiger Workshop saw an announcement by the Government of Nepal to expand Bardia National Park in the Terai Arc Landscape by 900 km². The Prime Minister also announced that the government would establish a National Tiger Conservation Authority and a Wildlife Crime Control Committee. The first ever nation-wide estimate of the tiger population in Nepal, in 2009, found that the country is home to 121 breeding tigers in four protected areas. To secure these tigers' future it is vital that the Nepalese government increases its anti-poaching activities and habitat protection, so these recent announcements have been widely welcomed by conservationists. Source: *WWF news release* (2009), <http://worldwildlife.org/who/media/press/2009/WWFPresitem14175.html?news=enews0911>

Vultures threatened by another lethal drug

A non-steroidal, anti-inflammatory drug, previously thought not to affect scavenging birds, has now been found to cause death in vultures, exacerbating fears for the survival of vulture populations in South Asia. Ketoprofen, used to treat domestic livestock in South Asia, was found to cause mortality in two species of *Gyps* vulture at dose levels within the range recommended for clinical treatment. The vultures' symptoms were the same as those of vultures poisoned by diclofenac. The manufacture and use of veterinary diclofenac has been banned in South Asia but the safe alternative, meloxicam, is more expensive, with the result that diclofenac intended for human use is sometimes used to treat cattle. This fact, combined with the discovery of ketoprofen's lethal effects, does not bode well for the recovery of the three *Gyps* species whose numbers have crashed dramatically over the last few decades. Source: *Biology Letters* (2009), <http://dx.doi.org/10.1098/rsbl.2009.0818>

Potential conflict of interest for UK Government's Chief Scientific Adviser

Plans to create the world's biggest marine reserve are being opposed by a company owned by the UK Government's Chief Scientific Adviser. The Marine Resources Assessment Group (MRAG) has managed the fishing around the Chagos Islands since the creation of an exclusion zone around the Islands in 1991 but is now opposing Foreign Office plans for a marine reserve in the area. Although the MRAG is not opposing the protection of coral reefs around the Chagos Islands, they are op-

posing a ban on fishing in the area, arguing there is a lack of evidence that a ban would improve the environment, and that boats would be driven to fish in other parts of the Indian Ocean where catch regulations are less stringently enforced.

Source: *The Times* (2010), <http://www.timeonline.co.uk/tol/news/environment/article6997414.ece>

EAST ASIA

Protected minke whales sold in Japanese markets

An investigation into whale meat sold in Japanese markets has revealed that some of the meat came from a protected stock of minke whales in the North Pacific. Of 1,200 whale meat products bought between December 1997 and June 2004, 250 were identified, using mitochondrial DNA, as originating from minke whales from the North Pacific, of which 201 represented 'unique market' individuals. Further investigation suggested that 46% of all market individuals came from the depleted J-stock, which occurs primarily in the East Sea/Sea of Japan. The J-stock was classified as 'protection stock' in 1986, but J-stock whales are still caught as bycatch. The amount of meat sold in markets from J-stock whales is higher than official reports of bycatch, suggesting either large scale under-reporting, and/or that J-stock whales are being caught during scientific hunts on other North Pacific whale stocks.

Source: *Animal Conservation* (2009), 12, 385–395

Paper company commits to river protection

Japan's largest paper company, Oji Paper, has agreed to create a protected area on private timber lands around the Sarufutsu River. The newly created Sarufutsu Environmental Conservation Forest covers an area of 2,660 ha, and is the first protected area on private land in Japan dedicated to aquatic biodiversity conservation. Located on the island of Hokkaido, the Sarufutsu River is one of the last wild and free-flowing rivers in Japan and provides habitat for the Critically Endangered sea run taimen, the largest freshwater fish in Japan. Part of the protected area will include a no-cut timber zone, which will ensure that riparian areas are buffered, and at the same time protect habitat for other threatened species such as the Vulnerable Steller's sea eagle.

Source: *Wild Salmon Center press release* (2009), http://www.wildsalmoncenter.org/press/OJI_Sarufutsu.php

Chinese learn low impact road design from ancestors

The spread of infrastructure, particularly roads, in China threatens fragile habitats, including cliff ecosystems, which are rich in biodiversity but vulnerable to disturbance. Now a technique used during the Qin Dynasty has been employed to build roads in the Shennongjia region of China's Hubei Province and has been found to reduce damage to the environment. The cliff highway technique, which involves using cantilevered slab roads along cliff edges with bridge support structures where necessary, damaged an average of 11.1 m² of vegetation at each of eight locations examined, compared to 362 m² of damage at conventional sites. Furthermore, the cliff highway technique requires the moving of 97.8% less sand and soil compared to conventional road-building techniques in cliff sites, and is considerably cheaper and less pervasive in the landscape.

Source: *Landscape and Urban Planning* (2010), 94, 228–233, and *Journal Watch Online* (2009), <http://journalwatch.conservation-magazine.org/2009/11/10/road-redux/>

NORTH AMERICA

Brown pelican success story

The brown pelican is being removed from the US Endangered Species Act following a recovery in its population size. Brown pelican numbers fell dramatically when the bird suffered the effects of hunting, habitat destruction and poisoning by the pesticide DDT. According to the US Fish and Wildlife Service there are now > 650,000 brown pelicans in the USA, Caribbean and Latin America. The pelican joins 19 other species deemed to have recovered sufficiently to be removed from the lists of the US Endangered Species Act, including the bald eagle and the northern Rocky Mountain grey wolf. Nine of the recovered species have been delisted during the 21st century. Source: *Nature* (2009), 462(7271), 256

Drastic action taken to prevent invasion into the Great Lakes

Over 8,000 l of fish poison were added to a 9-km stretch of the Chicago Sanitary and Ship Canal during maintenance work on a barrier in the canal that usually repels would-be piscine invaders of the Great Lakes by electric shocks. Many thousands of fish have died in the canal, which links the Mississippi river and Lake Michigan, but the intervention was deemed necessary because of the threat posed by invasive bighead and silver carp. The Great Lakes' sport and

commercial fishery, which would suffer should the carp manage to invade the water bodies, is worth USD 7 billion a year. Only one bighead carp was found in the canal, although their bodies have a tendency to sink following poisoning.

Source: *New Scientist* (2009), 204(2738), 6

Proposal to protect polar bear habitat

The US Fish and Wildlife Service has announced a proposal to designate an area of c. 500,000 km² that would protect critical habitat for polar bears. Polar bears, listed as threatened under the US Endangered Species Act in 2008, are dependent on sea ice for hunting, as well as using it as a habitat to find mates and as a platform to travel on. Along with sea ice habitat, the area proposed for protection also includes barrier island habitat and terrestrial denning habitat. Loss of sea ice is the main reason for the listing of polar bears as threatened under the Endangered Species Act, although other threats facing the bears include impacts from oil and gas operations, subsistence harvest, shipping and tourism.

Source: *US Fish and Wildlife Service News* (2009), <http://www.fws.gov/home/feature/2009/pdf/PBCritHabPropNRFINAL.pdf>

White nose syndrome affects American and European bats differently

The fungus *Geomyces destructans*, which is causing high mortality among North America's bats, appears not to be fatal to European bats. Since the fungus first appeared in the eastern United States in 2006 researchers estimate that one million bats have died from the disease, which causes the bats to rouse from hibernation, thus using up their energy reserves, and ultimately starve to death. Some hibernation sites have lost 90–100% of their bats. Four European countries have reported *G. destructans* infection among their bat populations, but these bats remain healthy. Furthermore, a photograph from 1983 seems to show a bat from Germany infected with the disease, implying that the fungus may have been around for many years in Europe before it appeared in the USA. It is suggested that European bats may have coevolved with the fungus and developed immune resistance.

Source: *Nature* (2010), 463(7278), 144–145

Baby mountains spell trouble for species

Evidence from lava layers and oceanic rocks show that the birth of the Appalachian mountain chain may have been responsible for the second largest extinction

event in Earth's history, 450 million years ago. The evidence from the lava indicates that volcanic activity slowed down at the end of the Ordovician period and an increase in the weathering of the Appalachian rocks between 462 and 454 million years ago is indicated by changes in strontium isotope ratios in oceanic rocks. These factors combined to cause a drop in atmospheric CO₂, which in turn caused the planet to cool, with the resulting ice age wiping out many species.

Source: *New Scientist* (2009), 204(2730), 18

Differences in foraging by albatrosses affects quantities of plastic ingested by their chicks

An investigation of two Laysan albatross breeding colonies, located 2,150 km apart in the Hawaiian archipelago, has shown that chicks from Kure Atoll were fed almost 10 times as much plastic as their conspecifics on Oahu Island. Data loggers attached to adult albatrosses indicated the areas in which the birds foraged at different times of their reproductive cycle, and showed that they are able to assess resource variation within the oceans and alter their foraging strategies accordingly. Adult Laysan albatrosses from Kure Atoll were found to have a greater overlap with the Western Garbage Patch that occurs off the coast of Japan. This research also showed the extent to which albatrosses are affected by fisheries, in addition to bycatch, with chicks on Kure Atoll ingesting large amounts of fishing gear.

Source: *PLoS One* (2009), 4(10), e7623. [Http://dx.doi.org/10.1371/journal.pone.0007623](http://dx.doi.org/10.1371/journal.pone.0007623)

All 22 albatross species now covered by ACAP

Following a meeting of the Parties to the Agreement on the Conservation of Albatrosses and Petrels (ACAP), three species of albatross occurring in the North Pacific have been added to Annex 1 of the Agreement. The short-tailed, Laysan and black-footed albatrosses join the other 19 albatross species already on Annex 1. ACAP is a legally binding international treaty, whose signatory governments are required to take action to reduce albatross and petrel bycatch in fisheries. In addition to the albatross species Annex 1 also covers seven southern hemisphere petrel species. Albatross mortality in the foreign pelagic tuna fleet in South African waters fell by 85% during 2007–2008, a reduction attributed for the most part to the adoption of mitigation measures by Japanese fleets fishing in these waters.

Source: *BirdLife International news* (2009), http://www.birdlife.org/news/news/2009/11/acap_species.html

Oil sands mining continues to cause concern

Research around the Athabasca River in Alberta has revealed that oil sands development is a greater source of contamination than previously realized. Of particular concern are polycyclic aromatic compounds (PAC), high levels of which are toxic to fish embryos. Measurements of dissolved PAC concentrations in tributaries of the Athabasca River were 0.009 µg/l upstream from oil sands development, whereas downstream PAC concentrations were up to 0.023 and 0.202 µg/l, respectively, in winter and summer. PAC concentrations in melted snow were up to 4.8 µg/l, raising concerns about the unknown effects on the environment of snowmelt and heavy rainfall. The study confirms that the Regional Aquatic Monitoring Program, which monitors aquatic ecosystems near the oil sands development, has failed to detect major sources of PAC to the Athabasca watershed and the authors call for a redesign of the current monitoring system.

Source: *Proceedings of the National Academy of Sciences of the USA* (2009), <http://dx.doi.org/10.1073/pnas.0912050106>

Proposal would provide safe space for leatherbacks to laze

The National Oceanic and Atmospheric Administration's Fisheries Service has proposed the designation of 182,854 km² of marine habitat in the Pacific Ocean, off the coasts of California, Oregon and Washington, to protect the habitat of the Critically Endangered leatherback turtle. Leatherbacks have the largest range of any reptile, and occur throughout the world's oceans. They face a number of threats, including habitat destruction, the harvesting of eggs and adults from their tropical and subtropical nesting beaches, and bycatch in fishing gear. The Atlantic coastal waters adjacent to Sandy Point Beach, St Croix, US Virgin Islands, are already protected as critical habitat for leatherbacks. The Fisheries Service is currently seeking public comment on the proposed expansion of the critical habitat for the turtles.

Source: *NOAA press release* (2010), http://www.noaanews.noaa.gov/stories2010/20100105_leatherback.html

Goodbye grasslands

An analysis that compared the impact of human activities on the Janos grasslands of north-western Mexico with changes in the vertebrate community over the last 2 decades has revealed marked and rapid changes, with large declines in vertebrate abundance across all groups. These

biodiverse grasslands are home to one of the largest remaining black-tailed prairie dog colony complexes in North America but this colony was found to have declined by 73%, from an area of 55,000 ha in 1988. The population density of the prairie dogs has also decreased significantly, from an average of 25 ha⁻¹ in 1988 to 2 ha⁻¹ in 2004. The decline in prairie dog numbers, alongside anthropogenic pressures, has been responsible for some of the changes seen in this ecosystem, particularly as prairie dogs suppress the encroachment of woody plants.

Source: *PLoS One* (2010), 5(1), e8562. [Http://dx.doi.org/10.1371/journal.pone.0008562](http://dx.doi.org/10.1371/journal.pone.0008562)

CENTRAL AMERICA AND CARIBBEAN

Puerto Rican nightjar may be more widespread

The endemic, Critically Endangered Puerto Rican nightjar may have a larger geographical range than previously suspected. Past surveys estimated that the species' range outside protected areas is only 47% of its total range, centred on the south-western region of the island. However, the new study, using a patch occupancy approach, located the species in a much broader swath of southern Puerto Rico. However, many of the eastern municipalities in which the nightjar was discovered contain no protected areas, and are experiencing increasing deforestation for urban and suburban development.

Source: *Geographic Distribution of the Puerto Rican Nightjar: A Patch Occupancy Approach* (2009), http://www.avesdepuertorico.org/documentos/prnightjar_final_report.pdf

Birds get respite in Barbados

Barbados's first ever shorebird refuge has been created at an abandoned shooting swamp at Woodbourne, with the hope of providing a safe stop-over site for the thousands of Nearctic-nesting shorebirds that fly over Barbados on their way to their non-breeding grounds in South America. In the case of bad weather in the Atlantic many birds rest in Barbados before continuing their migration but 15,000–20,000 of them are shot in managed shooting swamps. In the case of Woodbourne Shorebird Refuge, shooting ceased in October 2004, and the financing of the area's lease and initial restoration has been orchestrated by two former hunters. Twenty species have already been recorded using the Refuge, five

of which are US Fish and Wildlife Service Species of Conservation Concern.

Source: *BirdLife International news* (2009), <http://www.birdlife.org/news/news/2009/11/barbados.html>

Nibbling fish help reefs to recover

An investigation into the recovery of coral reefs around the Bahamas has found that coral cover at sites within a marine reserve increased at a faster rate than at sites not located within the reserve. Bahamian corals were severely affected by the 1998 coral bleaching event and by the effects of Hurricane Francis in 2004, with the result that coral cover only averaged 7% at the beginning of the study. Two and a half years later coral cover at sites in the marine reserve averaged 19%, while unprotected sites experienced no net recovery. The increase in cover appears to be aided by the recovery of herbivorous parrotfishes, protected in the marine reserve, which graze one of the corals' main competitors, macroalgae. These results appear to justify the reduction of herbivore exploitation as part of an ecosystem-based management strategy.

Source: *PLoS One* (2010), 5(1), e8657. [Http://dx.doi.org/10.1371/journal.pone.0008657](http://dx.doi.org/10.1371/journal.pone.0008657)

Fear for Haiti's trees after earthquake

There are concerns that the number of people leaving Haiti's cities following the earthquake in January could reach one million, putting further pressure on the country's scant resources. NGOs are stressing the need to support these internally displaced people and to prevent them felling trees for fuel and shelter. In 1925 60% of Haiti was forested, but since that time 98% of the original forest cover has been removed, with the timber used as fuel. This large-scale deforestation contributed to desertification, floods and erosion. Since 2002 tree-planting schemes have been initiated in the country by the NGO Trees for the Future, with over one million trees planted recently along the Arcadine coast, and this NGO now intends to expand its tree-planting activities among communities most severely affected by the earthquake.

Source: *Environmental News Service* (2010), <http://www.ens-newswire.com/ens/jan2010/2010-01-26-01.html>

When the rats are away the birds do play

A project by the Antiguan Racer Conservation Project to eradicate Eurasian ship rats from 11 Antiguan offshore islands has proved highly successful, with populations

of all of the target bird species having increased significantly. The project, which ran from 1995 to 2006, used brodifacoum bait to remove the rats from the islands. Following the removal of the rats the populations of nesting red-billed tropicbirds, bridled and sooty terns, brown noddies, brown boobies and Caribbean brown pelicans have been monitored on five of the islands (Great Bird, Rabbit, Redhead, Lobster and Green Islands). The monitoring results indicate that all of the target species increased significantly after the eradication, with, for example, a > 500% increase in the number of red-billed tropicbird nests on Great Bird Island between 1995–2009, and a > 600% increase in Caribbean brown pelican nests on Rabbit Island between 1998–2009.

Source: *Abstracts from the 17th Regional Meeting, Society for the Conservation and Study of Caribbean Birds* (2009)

SOUTH AMERICA

New fund created to keep oil in the ground in Ecuador

A multi-donor trust fund, which will be administered by the United Nations Development Programme, has been created to offset the lost revenue from Ecuador's largest remaining oil reserve. In exchange for not extracting the estimated 850 million barrels of crude oil that lie beneath the Yasuní National Park the Ecuadorian government has asked for compensation of USD 350 million every year for 10 years. In addition to offsetting lost revenue the Yasuní Trust Fund also aims to protect indigenous groups and reduce poverty and inequality through sustainable social development. Yasuní National Park, a UNESCO Biosphere Reserve, was created in 1979 and covers > 10,000 km² of tropical rainforest. The Park is the ancestral home of the Woarani people as well as two other indigenous tribes, and also provides a habitat for numerous animal and plant species, a number of which are threatened with extinction.

Source: *Environmental News Service* (2009), <http://www.ens-newswire.com/ens/dec2009/2009-12-21-01.asp>

El Niño hits primates

An investigation into the effects of El Niño on four Neotropical primate species has raised fears that future climate change will have a serious impact on these mammals. All four species, the Endangered muriqui, the Colombian red howler monkey, the Vulnerable woolly monkey and the Endangered Geoffroy's spider monkey, declined following El

Niño events, with populations of the more frugivorous species (the miqui and the woolly and spider monkeys) declining the year after El Niño events, and the howler monkey populations declining in the same year as the event. The researchers believe that the population fluctuations are probably linked to food availability, and warn that global climate change could have serious repercussions for these and other primate species, many of which are already declining. *Source: Biology Letters* (2009), <http://dx.doi.org/10.1098/rsbl.2009.0710>

Chaco ecosystem vanishing as bulldozers advance

Conservationists warn that the chaco ecosystem, which is shared by Paraguay, Bolivia and Argentina, is disappearing at the rate of up to 1,291 ha per day to make way for agriculture. The chaco ecosystem consists of dry open forest, savannah and seasonally-flooded habitats, and is home to an abundance of birds, as well as one of the few relatively intact mammalian megafauna in South America. Many of the ranchers are armed, and financial penalties for illegal land clearance are too small to act as a de-

terrent, while a lack of resources means that protected areas are not well managed or even properly protected. Reports also suggest that land occupied by the only uncontacted indigenous tribe in South America outside the Amazon, the Ayoreo-Totobiegosode, has been bulldozed by employees of a company owned by Brazilian ranchers.

Source: BirdLife International news (2009), <http://www.birdlife.org/news/news/2009/12/chaco.html>

AUSTRALIA/ANTARCTICA/ NEW ZEALAND

Penguin DNA on the map

Compared to many other bird species, penguins are hard to study: they live in inhospitable habitats and fitting the birds with rings is not feasible. Now a team of researchers has found a way to track how penguin populations are changing and to monitor the movements of birds between colonies. Feathers collected from colonies are analysed, sampling the DNA of 30–50 individuals. This is a sufficient number for

researchers to be able to draw up a genetic signature for each colony, and thus enables them to work out whether any given penguin comes from a particular colony. Ultimately the researchers will be able to see where the more genetically distinct populations are found, and also shed light on short-term fluctuations linked to changes in the birds' distribution.

Source: Planet Earth Online news (2009), <http://planetearth.nerc.ac.uk/news/story.aspx?id=628>

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