

## Briefly

### International

#### Global warming threatens Arctic tundra...

Global warming could prove fatal for the Arctic tundra, with a 10-year study showing that temperature increases will cause the death of up to 40% of the tundra's moss and lichen covering. Research has shown that change in Arctic plant communities following temperature rises of 1-3°C may occur in as little as two growing seasons, with moss and lichens replaced by invading trees, shrubs and grasses. Once trees and shrubs take hold warming will be exacerbated as snow is rapidly shed off their branches and the resulting dark surfaces absorb much more heat than the treeless tundra. The rate at which native species will be lost is expected to be much greater than the rate at which new species will colonize the area, resulting in a sizeable decrease in the region's biodiversity.

Source: *New Scientist* (2006), 189(2535), 15.

#### ... and not-so-permanent permafrost

A model of the effects of global climate change on the Arctic's permafrost has revealed that increases in atmospheric warming will cause the melting of up to 90% of permafrost across Alaska, northern Canada, Siberia and northern Scandinavia, lowering the level of the soil in these areas by at least 3 m. This will lead to the formation of new lakes and other freshwater bodies and to an increased flow of freshwater into the Arctic Ocean, which may in turn affect ocean currents such as the Gulf Stream. Estimates suggest that the thawing of the permafrost may release 400 billion tonnes of methane that is currently trapped within the frozen soil, thus exacerbating the effects of global warming still further.

Source: *New Scientist* (2006), 189(2537), 15.

#### Green turtles less threatened than their Red List status suggests

A member of the IUCN's marine turtle research group claims that the green turtle should not be categorized as

Endangered on the 2004 Red List as the world population numbers at least 2.2 million individuals. Annette Broderick and her colleagues examined the nesting population of green turtles on Ascension Island and found that this population has increased by 285% since the 1970s, while in the Atlantic Ocean as a whole 75% of the populations are increasing. The researchers suggest that the listing process used by the IUCN is not suited to long-lived species with a global distribution such as the green turtle, and that their inclusion draws attention away from species that are truly at risk of extinction.

Source: *Global Ecology & Biogeography* (2006), 15(1), 21-26.

#### Terrestrial plants produce methane under normal aerobic conditions

Until recently it was thought that plants only produce methane, an important greenhouse gas, in anaerobic environments such as swamps. Now researchers have discovered not only that plants also give off methane under normal conditions, but that global vegetation may be responsible for the release of 60-240 million tonnes of methane into the atmosphere a year, about a third of the total amount of methane released annually. The production of methane by plants in aerobic conditions is surprising, given that much more energy is required to produce methane under these conditions; the reasons for methane production are as yet unknown. A further concern is that methane emissions from plants increase with temperature, which bodes ill for predicted global warming scenarios.

Source: *Nature* (2006), 439(7073), 128 & 187-194.

#### 70% of world's oceans are shark-free

Shark biologists who had been hoping that new species would be discovered as more of the deep ocean is explored have had their hopes dashed, as it has now been shown that sharks do not generally live below 3,000 m. It has been suggested that sharks cannot live in the abyss because of their high-energy demands, including an oil-rich liver for buoyancy, which cannot be sustained in extreme oligotrophic conditions. Sharks are therefore apparently confined to the 30% of the total oceans above 3,000 m. This means that all populations are within reach of fisheries, and there is no hidden reserve of chondrichthyan

biomass or biodiversity in the deep sea. Sharks may therefore be more vulnerable to overexploitation than previously thought.

Source: *Proceedings of the Royal Society B: Biological Sciences* (2006), <http://www.journals.royalsoc.ac.uk/openurl.asp?genre=article&id=doi:10.1098/rspb.2005.3461>

#### Positive effect of reduced snowpack in forests

Seasonal, montane forests in the Northern hemisphere play an important role in carbon sequestration through photosynthesis during summer months. However, winter respiratory CO<sub>2</sub> losses from these ecosystems are significant, in some situations equating to over half the CO<sub>2</sub> assimilated during the summer months. A 6-year study has revealed that a reduced winter snowpack, associated with higher temperatures, significantly reduces the amount of CO<sub>2</sub> released through soil respiration, as a shallow snow layer has less of an insulating effect on the temperature-sensitive soil microbial community responsible for respiration during winter months.

Source: *Nature* (2006), 439(7077), 711.

#### Report reveals risks to small cetaceans

A report by the United Nations Environment Programme and the Convention of Migratory Species indicates that dolphins and porpoises face diverse threats and that many species are in need of better protection. Threats to small cetaceans include entanglement in fishing nets (70% of species), pollution (56%) and dams and other forms of environmental degradation (24%). The situation facing eight small cetacean species is so serious that the report recommends that they be added to the Convention on Migratory Species Appendix, an international legally-binding agreement requiring states to protect migratory species that live in or travel through their lands.

Source: *New Scientist* (2005), 188(2528), 4.

#### Caviar trade banned

Based on information provided by sturgeon-exporting countries about serious declines in the sturgeon population CITES has imposed a ban on caviar and other products derived from wild, threatened sturgeons. Whereas in recent years about 110-150 tonnes of caviar have been exported yearly from the region around the Caspian Sea under a quota system, countries that wish to export sturgeon products from shared

stocks in the future must demonstrate that their proposed quotas are sustainable and in line with sturgeon population trends. Importers of caviar, such as the European Union, must ensure that imported caviar comes from legal stocks. Illegal caviar smuggling is thought to have contributed greatly to the demise of these fish.

Source: *BBC News* (2006), 3 January; <http://news.bbc.co.uk/2/hi/business/4577100.stm>

### **Killer whales gain dubious distinction of being the Arctic's most toxic animals**

Polar bears were previously considered the most contaminated animals in the Arctic, but analyses of killer whale blubber indicate that whales are even more toxic. The toxins, which include polychlorinated biphenyls (PCBs), pesticides and flame-retardants travel by sea or wind currents to the Arctic, where they break down slowly in the absence of sunlight and warmth. When these chemicals are ingested by animals they do not break down but bind with fatty tissue. The process of bioaccumulation and their large quantities of blubber means that killer whales build up high levels of contaminants in their bodies. A study into the effects of these toxins on the whales is planned, but evidence from other marine mammals such as polar bears and seals suggests that the toxins may well affect the hormonal and reproductive systems of the whales.

Source: *National Geographic News* (2006), 13 December; [http://news.nationalgeographic.com/news/2005/12/1213\\_051213\\_killer\\_whales.html](http://news.nationalgeographic.com/news/2005/12/1213_051213_killer_whales.html)

## **Europe**

### **Engine noise causes stress in freshwater fish**

A study on three fish species occurring in the Danube River and two Austrian lakes has shown that engine noise causes increased secretion of cortisol, a commonly used indicator of stress. In one experiment underwater recordings of engine noise were played back to fish at the levels at which they occur in the field (c. 153 dB), while another experiment exposed the fish to continuous Gaussian noise at a volume of 156 dB. The effects on the fish were the same regardless of whether the fish had

excellent or poor hearing abilities, with increased cortisol excretions following exposure to ship noise and normal cortisol levels following Gaussian noise exposure. This suggests that the fluctuations inherent in ship noise are more stressful than continuous noise.

Source: *Biological Conservation* (2006), 128(4), 501–508.

### **EU fisheries ministers ignore warnings on cod**

The International Council for the Exploration of the Sea advised EU fisheries ministers meeting in Brussels at the end of last year that the only way to protect North Sea cod populations was to ban cod fishing entirely. Despite this warning, ministers reduced the cod quota by a mere 15%, while actually increasing the quota for other fisheries where cod forms a large portion of the bycatch. The apparent disregard for scientific advice demonstrated by this decision is causing some to question how such advice is regarded within the EU in general.

Source: *New Scientist* (2006), 189(2533), 4.

### **Major shipping company fined**

The international shipping company A.P. Moller-Maersk, which is based in Denmark, has been fined USD 500,000 by the US District Court of the Northern District of California. A routine inspection found waste oil in the overboard pipes of a Moller-Maersk vessel, which led to the discovery that the ship's engineers has falsified and, in some cases, destroyed entries in the ship's Oil Record Book prior to the Coast Guard's inspection. Failing to properly maintain an Oil Record Book contravenes the MARPOL Treaty, which exists to prevent pollution that may threaten marine life. A.P. Moller-Maersk was also ordered to develop an environmental compliance programme for its entire fleet.

Source: *Marine Pollution Bulletin* (2005), 50, 1461–1462.

### **Badger culling increases spread of TB in adjacent areas**

Badgers have been culled for 3 decades in Britain, in a number of attempts to limit the spread of tuberculosis to cattle. Experiments that examined the relationship between badger-culling and TB infection in cattle have in the past produced contrasting results, but new data from a large-scale, randomized field experiment have shown that while culling reduces the incidence of bovine TB in culled areas, TB incidence increases in

areas adjacent to the culled areas. TB incidence outside culled areas probably arises because badgers range more widely when their population density is artificially decreased, thus altering the probability of badgers coming into contact with cattle. While these results are consistent with previous studies, they present a serious challenge to policy makers.

Source: *Nature* (2006), 439(7078), 843–846.

### **Britain's moths in serious decline**

A report examining the status of larger moths in Britain has found evidence of a serious decline, with the number of moths having decreased by 32% overall since 1968. The decline is more serious in southern Britain, with a species decline of 75%, compared to 55% in northern Britain. It is not known why moth numbers are falling so rapidly, but it is suspected that habitat destruction, pesticides and climate change may be largely to blame. What is certain is that moths play a vital role in many food chains, being an important food source for bats and birds, and that a decrease in moth numbers is bad news for Britain's biodiversity as a whole.

Source: *BBC News* (2006), 20 February; <http://news.bbc.co.uk/1/hi/sci/tech/4720864.stm>

### **New website highlights need to protect Finland's forests**

BirdLife Finland, in conjunction with other environmental organizations, have set up a website containing information about southern Finland's last remaining natural forests. The website provides information about the location and natural history of the forests, as well as information on how to get involved in campaigning for more protection for these species-rich habitats. Many of the forests featured on the website are unprotected, and are therefore at risk of being clear-felled in the next few decades. The website is in Finnish, English and Swedish at <http://www.etelasuomenmetsat.fi/>

Source: *BirdLife International News* (2006), 14 February; [http://www.birdlife.org/news/news/2006/02/finland\\_forest.html](http://www.birdlife.org/news/news/2006/02/finland_forest.html)

### **Population estimates based on peak activity by male anurans are inaccurate**

A study examining the activity of male European tree frogs *Hyla arborea* has found that only a fraction of the males

sampled called on any one night. Even on the night of peak activity, only 25 of the 44 marked frogs in the survey attended a chorus. The number of males present in choruses on peak activity nights is often used to estimate population density of anuran species, but these findings suggest that this may not yield accurate results.

Source: *Amphibia-Reptilia* (2005), 26(4), 437–444.

#### **Bird song affected by habitat fragmentation**

Analysis of the song of the Near Threatened Dupont's lark *Chersophilus duponti* has revealed that neighbouring larks in fragmented habitats mimic each other's songs more closely than in non-fragmented habitats. Song mimicry is a common occurrence among birds and appears to act as a threat signal between males. It is thought that male larks in fragmented habitats only perceive close neighbours with which they engage in counter-singing as rivals. The study's authors raise the possibility of using this finding as an early warning system for habitat fragmentation.

Source: *Journal of Applied Ecology* (2005), 42, 1183–1193.

#### **Committee calls for underwater noise map for UK waters**

The UK government's inter-agency committee on marine science and technology has called for underwater noise to be mapped and monitored to protect marine life, as well as the introduction of permits for noisy underwater activities and greater cooperation and clarity between relevant groups. The effects of underwater sounds, particularly sonar, on cetaceans and other forms of marine life are contentious (see other Briefly articles in this issue), and thus the committee also recommends carrying out controlled exposure experiments to assess the effects of noise on cetaceans.

Source: *The Guardian* (2006), 13 February.

### **North Africa and Middle East**

#### **Northern bald ibis stars in exhibition**

The Critically Endangered northern bald ibis *Geronticus eremita* was the subject of an exhibition of photographs in the Old Town of Damascus in February 2006, in

an attempt to promote the conservation of the species. In addition, it was hoped that the exhibition would instil a sense of ownership of ibis conservation projects. The 3-day event, organized by the Syrian Ministry of Agriculture and Agrarian Reform in conjunction with a number of national and international conservation organizations, was well attended, attracting over 1,000 people.

Source: *BirdLife International News* (2006), 17 February;

[http://www.birdlife.org/news/news/2006/02/bald\\_ibis.html](http://www.birdlife.org/news/news/2006/02/bald_ibis.html)

### **Sub-Saharan Africa**

#### **Ugandan hydropower schemes threaten Lake Victoria**

The world's second largest freshwater lake, Lake Victoria, has lost 75 km<sup>3</sup> of water, c. 3% of its volume, since 2003 as the result of a Ugandan hydropower scheme. Lake Victoria has been dammed since 1954, but water removal has remained within acceptable limits thanks to a treaty with Egypt, the primary user of most of the lake's output. In 2002, however, water levels started to fall following the construction of a second hydropower complex. The operator of the two dams, the Uganda Electricity Generating Company claims that the 80-year low in water levels is the result of low rainfall, but UN hydrologists have calculated that, despite drought conditions water levels should be 45 cm higher than they currently are. The hydrologists believe that, for the past two years, the dams have been releasing 55% more water than is permitted under the 1954 treaty.

Source: *New Scientist* (2006), 189(2538), 12.

#### **Fruit bats harbour Ebola virus**

The Ebola virus can devastate great ape populations, as evidenced during outbreaks of the virus in the Republic of the Congo and Gabon during 2001–2005. In an attempt to discover the wild reservoir of the disease, tests were carried out on a number of different animal species caught in areas close to infected gorilla and chimpanzee carcasses. The virus was detected in three fruit bat species, although the bats displayed no outward symptoms. Supporting evidence for bats acting as the disease's wild host comes from the episodic nature of Ebola outbreaks among great apes; these occur mainly during the dry season when fruit

is scarce and competed for by different species.

Source: *Nature* (2005), 438(7068), 575.

#### **British decision to refuse Ascension islanders the right to stay puts island's biodiversity at risk**

The decision by the British government to refuse the inhabitants of Ascension Island the right to remain there permanently may be a serious blow to the island's wildlife, which includes 500,000 seabirds and large numbers of green turtles. Initiatives by the islanders have so far prevented invasive species, including cats, rats and a Mexican thorn bush, from gaining too great a foothold on the island. As recently as 4 years ago the British government announced that the islanders, mainly contract workers from St Helena, would be allowed to stay. In January 2006, however, the Foreign Office announced that Ascension islanders may be expelled if they retire or pose a security risk. Ascension Island contains an important airbase used by both British and American forces, as well as a missile firing range and an electronic eavesdropping station.

Source: *New Scientist* (2006), 189(2536), 9.

#### **Tail hairs used to track elephant diet**

Stable isotopes found in elephant tail hairs have been used to determine what the elephants have been eating. For example, the ratio of the rare isotope carbon-13 to common carbon-12 can indicate whether elephants have been eating C3 plants such as trees and shrubs (that have a low carbon-13: carbon-12 ratio) or C4 plants such as corn and millet (with a high carbon-12: carbon-13 ratio). Likewise, the ratio of nitrogen isotopes 14 and 15 can yield geographical information, as plants have different ratios according to whether they grow in wet or dry environments. The Kenyan elephants in the study were also fitted with GPS collars, thus enabling researchers to monitor where the animals were eating particular plants. It is hoped that this information can be used to reduce human-elephant conflicts and earmark areas that are most suitable as designated elephant sanctuaries.

Source: *Press release from Kohn Public Relations*.

#### **Tanzanian government backs conservation projects**

The Critical Ecosystem Partnership Fund (CEPF) and four East African

organizations have launched a portfolio of 64 conservation projects involving over 100 institutions that are helping to conserve over 46 priority sites within the eastern Arc Mountains and the coastal forests of Tanzania and Kenya. These forests once covered over 23,000 km<sup>2</sup>, but agricultural clearance, bush fires and timber harvesting have reduced them to 5,340 km<sup>2</sup>. At the launch of the portfolio, the Tanzanian government signed a Memorandum of Understanding with Conservation International, the administering organization of the CEPF. This agreement should ensure that the work of the CEPF is properly integrated into the management of the many forest reserves owned by the government.  
 Source: *BirdLife International News* (2006), 23 February;  
[http://www.birdlife.org/news/pr/2006/02/eastern\\_arc.html](http://www.birdlife.org/news/pr/2006/02/eastern_arc.html)

#### **Niger hunting season closed for 2006**

Pressure from both national and international sources, in large part galvanized by the Sahara Conservation Fund (SCF), has resulted in the 2006 hunting season remaining closed in Niger. Foreign hunting parties have been turned away from both Chad and Niger. Although the SCF does not have an official policy for or against sport hunting, the organization is strongly opposed to the unsustainable and indiscriminate hunting carried out in the Sahel and Sahara since the 1970s.  
 Source: *Sahara Conservation Fund Annual Report 2006*.

### **South and South-east Asia**

#### **Meloxicam may halt Indian vultures' demise**

Experiments on captive vultures have shown that the nonsteroidal anti-inflammatory (NSAID) drug Meloxicam has no toxic side-effects on the birds, unlike the NSAID Diclofenac. Meloxicam was tested on members of the *Gyps* genus, including two of the affected species from the subcontinent. Even levels that exceeded the likely maximum level of exposure had no clinical effects on the vultures. Meloxicam is approved for both human and veterinary use in many countries, including India. Meanwhile, individuals of the rarest of the vultures affected by Diclofenac, the slender-billed

*Gyps tenuirostris*, have been taken into Indian vulture conservation breeding centres run by the Bombay Natural History Society and the RSPB. Once their wild habitat is Diclofenac-free the vultures will be reintroduced.  
 Source: *PloS Biology* (2006), 4(3), e66.

#### **India launches tiger census**

Following criticism that it was failing to tackle the poaching crisis, the Indian government has launched its biggest ever survey of the tiger population, with the aim of creating a database of photographs and other information about the surviving individuals. The first part of the survey, which is being conducted by the Wildlife Institute of India, will involve estimating the population at various sites, as well as looking at the state of these areas themselves. Once the data has been collected it will be analysed to assess the density of the remaining tiger population in India, which is thought to harbour 40% of the world's tigers. Some conservationists, however, believe that the money being spent on the survey could be put to more effective use if it was used to protect national parks and sanctuaries.  
 Source: *BBC News* (2006), 16 January;  
[http://news.bbc.co.uk/1/hi/world/south\\_asia/4615894.stm](http://news.bbc.co.uk/1/hi/world/south_asia/4615894.stm)

#### **Record numbers of white-shouldered ibis at Western Siem Pang IBA**

The discovery of up to 70 white-shouldered ibis *Pseudibis davisoni* at Cambodia's Western Siem Pang IBA in November 2005 is highly significant, considering that estimates of the world population of this Critically Endangered species number 250 at most. The previous highest count at this IBA was 33 birds, in November 2004. The ibis's decline has been linked to habitat loss, mainly through logging and drainage of wetlands for agriculture. Western Siem Pang IBA is one of Cambodia's most important sites for the conservation of threatened bird species, with four Critically Endangered species occurring here.  
 Source: *BirdLife International News* (2006), 5 January;  
[http://www.birdlife.org/news/news/2006/01/white-shouldered\\_ibis.html](http://www.birdlife.org/news/news/2006/01/white-shouldered_ibis.html)

#### **New reef discovered**

WWF divers have discovered a previously undocumented coral reef in the Phang-nga Province of Thailand. The divers found the reef, which covers an

area of at least 270 ha, using information provided by local fishermen, and WWF-Thailand hopes that future discussions with local fishermen may yield further such discoveries. Initial surveys of the reef revealed the presence of over 30 types of hard corals, and 112 fish species from 56 families. One of the fishes, the parrot fish *Chlorurus rakaura*, has hitherto not been recorded in Thailand. WWF is working with the Department of Marine and Coastal Resources, the Department of National Parks, diver operators and local communities to achieve effective management of the newly discovered reef.  
 Source: *WWF News* (2006), 22 February;  
[http://www.wwf.org.uk/news/n\\_0000002328.asp](http://www.wwf.org.uk/news/n_0000002328.asp)

### **East Asia**

#### **Illegal trade in CFCs thrives in China despite Montreal protocol**

An undercover investigation by the Environmental Investigation Agency has revealed a flourishing illegal trade in chlorofluorocarbons (CFCs) in China. Production of CFCs is being phased out under the terms of the Montreal protocol, with developing countries, including China, having until 2010 to halt production of these chemicals, which are used in equipment such as car air-conditioning units and as refrigerants. China seems to be responding to the phase-out, closing 31 of their 37 official CFC plants since 1997, and even announcing they are bringing the deadline forward to 2007. However, the report (*Under the Counter: China's Booming Illegal Trade in Ozone Depleting Substances* at <http://www.eia-international.org/files/reports/116-1.pdf>) found that there has been an inadequate clamp-down on CFC trade, with the result that hundreds of tonnes of illegal CFCs are being traded on the black market.  
 Source: *New Scientist* (2005), 188(2530), 16.

#### **Chinese wetlands imperilled by development**

More than four-fifths of the wetlands along the Haihe river system in northern China have dried up because of excessive pollution and the damming of major tributaries. Fifty years ago the wetlands surrounding the Haihe and its tributaries covered 3,794 km<sup>2</sup>, but this has now

shrunk to a mere 336 km<sup>2</sup>. Similar problems exist in other parts of China, a country where water shortages are already a serious problem. So much water is extracted annually that 90 rivers run dry for part of the year, and 70% of water supplies are contaminated. With the dessication of previously marshy areas come other problems; last spring a fire destroyed 6,667 ha of wetland in the Zhalong nature reserve.

Source: *The Guardian* (2006), 13 February.

### Three Gorges dam threatens fishery

Although China's Three Gorges dam is not yet complete it is already having a serious effect on one of the world's largest fisheries in the East China Sea. In June 2003 the dam was partially filled for the first time, and by August 2003 the high productivity zone of the East China Sea had shrunk by 86%, probably because of the reduction in quantities of fresh water flowing down the Yangtze river. There also seems to be a shift occurring in the dominant species of phytoplankton from silicate diatoms to flagellate species. Flagellates are bad news for fisheries, as they may deplete water of oxygen or release toxins, and they are less nutritious than diatoms. It is projected that the annual catch from the East China Sea fisheries will be reduced by *c.* 1 million tonnes compared to the catches before the dam's construction.

Source: *New Scientist* (2006), 189(2540), 18–19.

### Russia and China sign river monitoring agreement

A chemical spill in north-eastern China's Songhua River last November has prompted China and Russia to sign a formal agreement to monitor the water quality in cross-border rivers. Approximately 100 tonnes of nitrobenzene entered the river in Jilin province following an explosion at a petrochemical plant, and by the end of December the chemicals were detected in the Amur River in Russia's Far East. The new agreement will include regular information exchange between Russia and China, as well as joint surveillance of a number of water bodies located on the boundary between the countries and joint plans to deal with any future incidents.

Source: *Environmental News Service* (2006), 21 February;

<http://www.ens-newswire.com/ens/feb2006/2006-02-21-02.asp>

## North America

### Pikas face homelessness

The American pika *Ochotona princeps*, a mountain-dwelling mammal related to the rabbit, is being pushed further and further upwards in the Great Basin to reach cooler temperatures and avoid encroaching human activities. Fossil evidence reveals that between 40,000–7,500 years ago the 25 pika populations inhabiting the Great Basin lived at an average elevation of 1,140 m. Since that time, seven of these populations have become extinct, while the remaining populations now live at an average minimum elevation of 2,533 m. These populations are becoming isolated from one another, and, most worryingly, there is little upslope left for the pikas to move to during future warming events.

Source: *Environmental News Service* (2006), 4 January;

<http://www.ens-newswire.com/ens/jan2006/2006-01-04-02.asp>

### Deep-sea fish should be categorized as Critically Endangered

IUCN criteria have been applied to marine fish since 1996, but deep-sea fish have not yet been evaluated, despite having life-history traits such as late maturation and low fecundity that make them particularly vulnerable to over-fishing. Catch data from 1978–1994 for five deep-sea fish species inhabiting the North Atlantic Ocean showed declines in relative abundance of 87–98% during this period, and it was estimated that declines over 3 generations (the benchmark used in IUCN criteria) would be 99–100%. The findings indicate that these deep-sea fish should be categorized as Critically Endangered and that initiatives such as the creation of deep-sea protected areas should be implemented as swiftly as possible to protect rapidly dwindling populations.

Source: *Nature* (2006), 439(7072), 29.

### Senator brings about closure of salmon monitoring centre

A Senator from Idaho, named as Legislator of the Year by the National Hydropower Association, has successfully amended an energy and water spending bill to cut all funding to Portland's Fish Passage Center. The Center, which has 12 employees and a budget of USD 1.3 million, monitors the survival of salmon as they travel through hydropower dams

in the Columbia and Snake Rivers. In 2005 the Center's findings led a federal judge in Portland to order that water should be spilled over dams, rather than through electrical turbines, in the Snake River as a means of increasing fish survival. It was shortly after this decision that the Senator, who received more money during his last election from the electric utilities industry than from any other, began to push for the closure of the Fish Passage Center.

Source: *Washington Post* (2005), 30 November.

### Recycled oyster shells used to make artificial reefs

Following a 3-year pilot scheme, the state of North Carolina is to fund a long-term project to create oyster-shell reefs for the Eastern oyster *Crassostrea virginicus*. These shellfish suffered a serious decline over the last century, with pollutants and over-fishing reducing the oyster harvest by 97%. This has implications for the coastal ecosystems as a whole, because oysters create cleaner sea water by filtering out particulates and pollutants as they feed. Artificial reefs, made using oyster shells collected from restaurants and shucking houses, provide the ideal substrate for oyster larvae to settle on and develop into adults.

Source: *National Geographic News* (2005), 28 December;

[http://news.nationalgeographic.com/news/2005/12/1228\\_051228\\_oyster\\_recycle.html](http://news.nationalgeographic.com/news/2005/12/1228_051228_oyster_recycle.html)

### Greenland melting twice as fast as 10 years ago

Greenland is losing 1 km<sup>3</sup> of water every 40 hours, which equates to 220 km<sup>3</sup> of water every year. The increased rate of ice-flow seen in Greenland is not an isolated incident; many glaciers south of the Arctic circle have increased the rate at which they discharge into the oceans as the result of a regional temperature increase of 3°C. Melt-water percolating through crevasses exacerbates melting by lubricating the glaciers' movement. Models currently used to predict sea-level rise do not allow for physical processes such as these, leading to fears that they are not accurate predictions of future sea-level rise.

Source: *New Scientist* (2006), 189(2540), 20.

### Marine Mammal Commission collapses amid disagreements about the risks of sonar

The US Marine Mammal Commission, a panel of leaders from scientific, military

and industrial fields, has collapsed without achieving its aim of developing a consensus-based plan for future research and management into the effects of sonar on marine life. It has been suggested that the Navy and other groups that use sonar, such as geophysicists and members of the oil and gas industry, blocked a consensus, while mammalogists from the panel claim that the Navy and others did not want Congress to gain a clear picture of the risks posed by sonar. Meanwhile, the current US research programme into the effects of sonar, mainly funded by the Navy, has been dogged by allegations of military pressure on marine biologists and the suppression of evidence for sonar damage to stranded whales.

Source: *Nature* (2006), 439(7075), 376–377.

#### **Snails demolish cordgrass in wake of drought**

Over 100,000 ha of cordgrass have vanished from salt marshes along the Gulf of Mexico over the past 6 years. Initially a severe drought that occurred during 1999–2001 was held responsible for the demise of the cordgrass, the marshes' dominant plant species, but it now seems that unnaturally high numbers of periwinkle snails are also partly responsible. The snails graze fungi off the grass blades, damaging them in the process and thus enabling fungi to infect the plants. On a healthy marsh snails occur in densities of 100–400 per m<sup>2</sup>, but in the denuded salt marshes of the Mexican Gulf snail densities reach 2000 individuals per m<sup>2</sup>. It is thought that the drought killed off patches of cordgrass, causing the snails from drought-stricken plants to congregate in the remaining clumps of healthy plants.

Source: *New Scientist* (2005), 188(2531/2532), 6.

#### **US government considering placing polar bears on list of threatened species**

The US government is considering placing polar bears on its list of endangered species, which would see the bears protected under the Endangered Species Act. While most species protected by the Act are threatened by anthropogenic habitat destruction, the polar bear risks losing its Arctic sea ice habitat through global warming. The environmental group Center for Biological Diversity believes that once the polar bear is listed, the US government will have to curb CO<sub>2</sub> emissions to confirm with the

Act's requirement that agencies are prohibited from taking any actions that might adversely affect a listed species.

Source: *Nature* (2006), 439(7078), 775.

#### **Hunting depletes Greenland's bird species**

A study of Greenland's seabird populations has revealed that they have undergone a severe decline in the last 100 years. The birds were counted at over 207 sites in the Ummannaq area of Greenland previously visited by a Danish ornithologist almost 100 years ago, and the results compared. Eight species common a century ago have fallen sharply in numbers, with the thick-billed murre *Uria lomvia* having gone from over 500,000 pairs to none. That the remaining birds are located at the maximum distance from human settlements lends weight to the idea that hunting is to blame for the decline. The human population in this part of Greenland increased four-fold during the 20th century, and hunters now often use speedboats when hunting, making it easier for them to reach previously inaccessible seabird cliffs.

Source: *BirdLife International News* (2006), 26 January;

<http://www.birdlife.org/news/news/2006/01/greenland.html>

#### **Canada's Great Bear Rainforest gets protection from logging**

An unexpected alliance of environmental organizations, industry leaders and indigenous groups are celebrating after their campaign to protect the Great Bear Rainforest has finally borne fruit, 10 years after its conception. The Canadian government has agreed to legislation that will protect one third of the forest from logging, and ensure that the remaining two thirds are logged using sustainable practices. The total area of rainforest to be protected from logging is 2 million hectares, more than twice the size of Yellowstone National Park. The agreement to protect the Great Bear Rainforest will also set a new precedent for decision making by local indigenous groups, as the forest's First Nations group will be given the right to define what happens on their land.

Source: *Rainforest Action Network press release* (2006)

#### **Hurricanes transform wetlands to open water**

The USGS have used Landsat satellite data to determine the damage wrought to south-east Louisiana by hurricanes

*Katrina* and *Rita*. It is estimated that approximately 260 km<sup>2</sup> of wetland have been transformed to open water, with early indications suggesting that much of the loss will be permanent. The storm surge that accompanied *Katrina* transformed marsh areas east of the Mississippi by tearing up wetlands or by submerging them. Around Breton Sound, the Landsat data revealed compressed marsh features several thousand metres long. The storm surge generated by *Rita* rearranged some of the marsh debris left behind by *Katrina*. Landsat data and aerial photography will be used in the future to determine the recovery, if any, of the marshes over time.

Source: *Marine Pollution Bulletin* (2006), 52, 6.

#### **Laysan ducks translocated to Midway Atoll**

One of the northern hemisphere's rarest waterfowl, the Laysan duck, is being restored to rat-free islands within the Hawaiian archipelago. The ducks, categorized as Critically Endangered on the IUCN's 2004 Red List, were transported from Laysan Island to two islands within Midway Atoll National Wildlife Refuge. The relocated birds join an existing population of Laysan ducks on Midway Atoll, which were successfully translocated last year. For the first time in hundreds of years there are now Laysan duck populations on three Hawaiian islands, and it is hoped that this will provide an insurance against any stochastic events that may befall the ducks on Laysan island.

Source: 'Elepaio – *Journal of the Hawaii Audubon Society* (2006), 66(1), 1–2.

#### **Reefs yield their secrets through sound**

Reefs are difficult ecosystems to monitor, as they are often found in remote locations. Now use of a listening device, Ecological Acoustic Recorders (EARs), has made the monitoring of these ecosystems easier. Reef sounds, such as the crackling of snapping shrimp, indicates the activity of the reef, and studies are under way to identify whether unhealthy reefs, such as those undergoing bleaching, sound different to healthy reefs. Reef noise will also be correlated with other data, such as ocean temperatures. In addition to monitoring reef activity, EARs can also detect ships, and may therefore be useful in detecting illegal fishing on unprotected reefs.

Source: *New Scientist* (2006), 189(2540), 19.

### Power lines provide refuge for bees

Researchers have found that the land beneath the power lines that cross the USA for thousands of kilometres can provide a valuable habitat for bees, provided the utility companies responsible for the land allow shrubs and flowers to grow there. In the past, this land was heavily trimmed, to prevent vegetation affecting the transfer of electricity along the lines. A study comparing bee communities under power lines and in nearby grassy fields found that, while each habitat contained similar numbers of bees, the land beneath power lines harboured a more diverse range of bee species. In theory, leaving the land beneath power lines to become scrubby should benefit utility companies, as their maintenance costs for these areas should decrease.

Source: *National Geographic News* (2005), 14 December;  
[http://news.nationalgeographic.com/news/2005/12/1214\\_051214\\_bees.html](http://news.nationalgeographic.com/news/2005/12/1214_051214_bees.html)

### Salvage logging slows post-fire recovery of forests

New research from Oregon State University has shown that salvage logging, where the remaining trees in a burned area are removed and the wood sold, hampers post-fire natural regeneration of evergreen forests. An investigation into conifer regeneration in Oregon's Rogue River-Siskiyou National Forest following the 2002 fire found that salvage logging reduced regeneration by >70%. The low rate of regeneration in logged areas is blamed on disturbance of the soil by logging equipment and the dragging of logs. In addition, the woody debris left behind by loggers buries new growth, and may become a fuel source for future fires.

Source: *National Geographic News* (2006), 5 January;  
[http://news.nationalgeographic.com/news/2006/01/0105\\_060105\\_wildfires.html](http://news.nationalgeographic.com/news/2006/01/0105_060105_wildfires.html)

## Central America and Caribbean

### No-fishing zones bring benefits to coral

The cessation of fishing in marine reserves raises the fear that some fish populations may dwindle as the number

of large piscivorous fish within reserves increases. In the case of protected Bahamian reefs, however, enhanced predation of parrotfish by Nassau grouper is counterbalanced by an increase in the survival rate of larger-bodied parrotfish, as these individuals are better at avoiding predation by the grouper. Parrotfish are important grazers of the macroalgae that grow on coral in these reefs, and the increase in large-bodied parrotfish has led to a doubling of macroalgae grazing, thereby significantly reducing the cover of macroalgae on the corals.

Source: *Science* (2006), 311(5757), 98–101.

### Cuban rice paddies proposed as IBAs

IBAs are normally situated in natural areas, making the listing of two rice paddies with neighbouring coastal areas as candidate IBAs unusual. However, rice cultivation in Cuba goes through a wet and dry cycle, and because the rice is grown over large areas, paddies always contain fields in various states of flooding and draining. The last 15 years have seen a 50% decrease in the use of chemicals on the fields, with the result that the paddies are important feeding sites for birds, while nearby wetlands act as resting and nesting sites. The two candidate IBAs both contain coastal wetlands with important lagoons and mangrove swamps, and are used by numerous bird species, including many migratory species.

Source: *BirdLife International News* (2006), 5 January;  
[http://www.birdlife.org/news/news/2006/01/cuba\\_ibas.html](http://www.birdlife.org/news/news/2006/01/cuba_ibas.html)

### Indigenous people in Nicaraguan reserve clear less land than non-indigenous neighbours

A study carried out by the University of Idaho used surveys and satellite images in an attempt to resolve the debate as to whether indigenous groups are more environmentally friendly than other groups. The study revealed that the native Mayangnas and Miskitus of the Bosawas Biosphere reserve in Nicaragua clear 17 times less forest than the non-indigenous colonists also inhabiting the reserve. Unlike the native tribes, the colonists reuse the land immediately after growing crops, and also claim the land as their private property, whereas the Mayangnas and Miskitus manage their land communally.

Source: *Center for International Forestry Research* (2006)

## South America

### Use of GPS generates lower population density estimates of big cats than conventional camera trapping techniques

A study carried out in Brazil's Pantanal wetlands has revealed that current methods used to sample big cats may result in the overestimation of their numbers by as much as 75%. A common technique to estimate the population density of big cats involves generating photographs of individuals by using automated cameras, and then using the average maximum distance between photographs of each cat to estimate population density for a given area. However, data retrieved from jaguars in the Pantanal using global positioning devices attached to the animals has shown that these cats roam far more widely than standard camera trap surveys suggest. Using global positioning devices the estimated jaguar population density in the Pantanal was 6.7 per 100 km<sup>2</sup>, as opposed to 11.7 per 100 km<sup>2</sup> using conventional camera trap techniques.

Source: *New Scientist* (2006), 189(2539), 12.

### New nature reserve in Paraguay will protect rare mammals

A new 3,600 ha nature reserve in Paraguay looks set to become one of the most important in the world for armadillos, five species of which occur in the area. One of these is the giant armadillo. This armadillo is one of three giant mammal species that occur in the region, the others being the giant otter and the giant anteater. In addition to large and unusual mammals, the reserve also harbours many other species of interest, such as the hyacinth macaw, and will be the first protected area to contain pantanal (wetland) habitats. Given that the reserve is located in a little-known part of Paraguay, close to the border of Brazil and Bolivia, it is hoped that there are other discoveries waiting to be made.

Source: *World Land Trust press release* (2006)

### A quarter of Bolivian forests now certified

The Bolivian timber company CIMAL/IMR has recently agreed to certify 300,000 ha of its forests, bringing the total of Forestry Stewardship Council (FSC)-certified managed forests in the country to over 2 million ha. The 16 FSC-certified

forestry operations are mainly located in the south-west Amazon. Certification has caused the Bolivian forestry industry to become highly profitable; the industry generates c. USD 16 million annually in exports and has access to lucrative US and EU markets. In addition to enhanced economic success, FSC certification also has beneficial social impacts, as FSC standards promote better labour conditions for forestry workers, as well as protecting their rights.

Source: *Arborvitae* (2005), 29, 2.

### New protected areas for Brazil

In February 2006 the Brazilian President Luiz Inácio Lula da Silva signed decrees that will expand the Amazon National Park by a further 150,000 ha and create seven new protected areas in Pará State. Furthermore, one of the decrees establishes Brazil's first Sustainable Forest District, which aims to further sustainable development in the country. In total the decrees will increase the size of western Pará's protected areas to 6.4 million ha, while the Amazon region as a whole will include 45.8 million ha of protected area, an increase of one third compared to 2003. The seven new protected areas lie alongside the planned route of the new BR-163 highway, and it is hoped that by protecting these areas there will be none of the uncontrolled increase in logging that frequently accompanies the creation of new roads in Amazonia.

Source: *Environmental News Service* (2006), 15 February;  
<http://www.ens-newswire.com/ens/feb2006/2006-02-15-03.asp>

### Amphibian extinctions exacerbated by higher temperatures

The chytrid fungus *Batrachochytrium dendrobatidis* has been implicated in amphibian extinctions in the American tropics (and declines elsewhere, see *Oryx* 40(1), 84–89). A study on harlequin frog extinctions (*Atelopus* spp.) in south America provides evidence that higher night time temperatures are creating optimum conditions for *B. dendrobatidis* growth, with 78–83% of extinctions occurring during unusually warm years in the tropics. Additionally, increased cloudiness, a spin-off from global warming, will also benefit the fungus as cloud-cover promotes moist conditions and shield the fungus from excess heat.

Source: *Nature* (2006), 439(7073), 143–144 & 161–167.

### Photo-identification study links climate change and whale birth decline

A study of 1,800 right whales in the Southern Ocean using photographic identification techniques has found that a relatively high number of females are experiencing 5-year calving intervals, an indication that whales are aborting or losing new born calves. Furthermore, there is a strong correlation between the number of right whales born and changes in sea-surface temperature during the autumn. The authors hypothesize that higher sea-surface temperatures during the summer feeding seasons reduce the amount of krill available to whales, which in turn increases the rate of whale abortions and calf deaths among pregnant females.

Source: *National Geographic News* (2006), 18 January;  
[http://news.nationalgeographic.com/news/2006/01/0118-060118\\_right\\_whales.html](http://news.nationalgeographic.com/news/2006/01/0118-060118_right_whales.html)

## Pacific

### Entire island to be sequenced

A group of ecologists have set up the Moorea Biocode Project with the aim of collecting multiple genetic and ecological data about all of the species that inhabit the island of Moorea, located in the South Pacific. It is hoped that this data will provide researchers with more information than can be obtained from a single DNA sequence; for example, having a visual key in addition to a DNA sequence will make it easier to identify tropical reef fishes. Ultimately the project's coordinators hope to turn Moorea into a model system for tropical ecology, as well as a reference site for more diverse islands within the same region.

Source: *Nature* (2006), 439(7075), 378–379.

### Expedition team finds riches in isolated jungle

A team led by Conservation International to one of the most isolated jungles in Asia, the Foya Mountains of western New Guinea, has found dozens of new species, including a honeyeater, 20 frog species and four butterfly species. The expedition also obtained the first photographs of the spectacular Berlepsch six-wired bird of paradise, thereby confirming the location of the range of this remarkable species. The interior of the

Foya Mountain range, which consists of >300,000 ha of old growth tropical forest, forms part of BirdLife's North Papuan mountains Endemic Bird Area (EBA).

Source: *BirdLife International News* (2006), 7 February;  
[http://www.birdlife.org/news/news/2006/02/new\\_guinea.html](http://www.birdlife.org/news/news/2006/02/new_guinea.html)

## Australia/Antarctica/New Zealand

### Glimmer of hope for infected Tasmanian devils

First recognized in 1996, devil facial-tumour disease has had a devastating effect on the population of the Tasmanian devil, a marsupial found only on Tasmania. Up to 80% of devils in the affected areas of eastern Tasmania are killed by the cancer, and death is slow; tumours reduce the ability of devils to feed, ultimately causing starvation. The recent discovery of animals displaying partial resistance to the disease should enable researchers to identify the genetic and immunological factors involved in resistance. In the short-term, hope for the survival of the Tasmanian devil has also come from experiments on an isolated peninsular population, where the removal of infected individuals resulted in no new cases of the disease being reported. This finding confirms that infected devils themselves are responsible for the disease's transmission within populations.

Source: *Nature* (2006), 439(7076), 530.

### Knitted jumpers back in fashion ... especially for penguins

The Tasmanian Conservation Trust has collected over 15,000 tiny jumpers for little penguins *Eudyptula minor*, also known as fairy penguins, following their highly successful Penguin Jumpers Project, which had people all over the world knitting sweaters for penguins. The jumpers will be kept in Oil Spill Response Kits throughout Tasmania in readiness for future major oil spills. Oil reduces the insulating properties of the penguins' feathers, so the jumpers will help to keep the birds warm. Additionally, the jumpers should prevent the birds from ingesting the toxic oil as they preen.

Source: *The Tasmanian Conservation Trust* (2005)



**Leggier toads make for more effective invaders**

Cane toads *Bufo marinus* were introduced into Queensland in 1935 as a means of controlling pests in sugar-cane fields. Since then, they have spread over more than 1 million km<sup>2</sup> and now pose a serious threat to native species. Worse still, new research shows that the toads are becoming more effective at dispersing; the rate of progress by the toad invasion front has increased five-fold since the 1960s. The reason for this is that toads at the front of the invasion have longer legs than toads in longer-established populations, enabling them to move at a rate of 1.8 km per night during the rainy season, a record for anurans. This change in toad morphology indicates that the possibility of rapid adaptive change in invading species needs to be considered by conservation biologists and managers.

Source: *Nature* (2006), 439(7078), 803.

**Smelly seas reduce seabird deaths at fishing vessels**

Dripping shark liver oil on the ocean surface behind fishing vessels reduces both

the number of birds attending longline fishing vessels and the number of dives carried out by birds in pursuit of bait. The technique was suggested by a New Zealand longline fisherman, and trials were conducted in the north of the country, where seabird assemblages include the Vulnerable black petrel *Procellaria parkinsoni*. These findings and comparisons of seabird responses to shark liver oil and vegetable oil suggest that shark oil acts as an olfactory deterrent to seabirds, and may therefore be suitable for use to reduce the seabird bycatch.

Source: *Biological Conservation* (2006), article in press.

**New Zealand to ban bottom trawling**

Following a fisheries conference attended by delegates from 20 countries, the New Zealand Fisheries minister has announced that one third of its offshore waters will be out of bounds to bottom trawlers. In a deal with major fishing companies nearly 1.2 million km<sup>2</sup> of the ocean floor around New Zealand will become a Benthic Protection Area, in which bottom trawling and other

destructive fishing methods will be banned. It is hoped that the agreement to establish these protected areas will be ratified in October 2006. Some environmental groups were not satisfied with the announcement, however, with WWF criticizing the agreement for not adopting a more ecosystem-based management approach, and Greenpeace calling for an immediate ban on bottom trawling in southern oceans.

Source: *BBC News* (2006), 21 February; <http://news.bbc.co.uk/1/hi/sci/tech/4735474.stm>

The *Briefly* section in this issue was written and compiled by Elizabeth Allen and Martin Fisher. Contributions from authoritative published sources (including web sites) are always welcome. Please send contributions to Martin Fisher, Fauna & Flora International, Great Eastern House, Tenison Road, Cambridge, CB1 2TT, UK, or by e-mail to [oryx@fauna-flora.org](mailto:oryx@fauna-flora.org)