

International

Ecological consequences of recent climate change

Global climate change is frequently considered a major conservation threat. The earth's climate has already warmed by 0.5 °C over the past century, and recent studies show that it is possible to detect the effects of a changing climate on ecological systems. Changes in recent decades can be seen at all levels of ecological organization: population and life-history changes, shifts in geographical range, changes in species composition of communities, and changes in the structure and functioning of ecosystems. These ecological effects can be linked to recent population declines and to both local and global extinctions of species. Although it is impossible to prove that climate change is the cause of these ecological effects, these findings have important implications for conservation biology. It is no longer safe to assume that all of a species' historic range remains suitable.

Source: McCarty, J. (2001) Ecological consequences of recent climate change. *Conservation Biology*, 15, 320–331.

NGOs highlight plight of deep-water fish

Four NGOs, Seas At Risk, Greenpeace, BirdLife International and the World Wide Fund for Nature, are highlighting concerns over deep-water fish species. The groups are urging the North-East Atlantic Fisheries Commission to apply the precautionary principle and take immediate action to reduce fishing intensity and regulate deep-water fisheries in the area. Deep-water fisheries remain unregulated and with the loss of more traditional stocks, fishers are moving into deeper waters. A recent report by the International Council for the Exploration of the Sea considered most deep-water species to be outside safe biological limits because of unregulated fisheries, indicating that stocks

are overfished and severely depleted, or in danger of becoming so.

Source: *Marine Pollution Bulletin* (2001), 42(1), 3.

New UN Forum on Forests

After protracted deliberations, the United Nations Forum on Forests (UNFF) and the Collaborative Partnership on Forests (CPF) have been established. Amongst its functions, the UNFF is to implement proposals for action from its predecessors, the Intergovernmental Panel on Forests and the Intergovernmental Forum on Forests. The CPF will act as the general co-ordination and co-operation mechanism. Core issues such as conservation, sustainable management and restoration will continue to underpin the UNFF mandate. Monitoring and assessment of policy implementation will be an important function of the UNFF.

Source: *Taiga News* (2001), 34, 10.

Edges affect which species enter forest interiors

As the boundary between forests and other communities, edges may affect the magnitude and direction of movement of organisms and material between the two habitats, and may influence the dynamics of the forest interior. One potential influence of edges on interior dynamics was demonstrated by quantifying the movement of seeds through intact and experimentally thinned forest edge. It was found that more seeds infiltrated through the experimentally thinned edge and that seeds entering the forest through the thinned edge travelled deeper into the interior than those entering the intact edge. The results demonstrate that an edge with intact vegetation can function as a physical barrier to seed dispersal, and have implications for the prevention of the spread of exotic species to forest interiors.

Source: Candenasso, M.L. & Pickett, S.T.A. (2000) Effects of edge structure on the flux of species into forest interiors. *Conservation Biology*, 15, 91–97.

Increased biodiversity makes plants better at soaking up CO₂

Human actions are causing declines in plant biodiversity, increases in atmospheric CO₂ concentrations and increases in nitrogen deposition; however, the interactive effects of these factors on ecosystem processes are unknown. A grassland field experiment in Minnesota, USA, tested the hypothesis that plant diversity and composition influence the enhancement of biomass and carbon acquisition in ecosystems subjected to elevated atmospheric CO₂ concentrations and nitrogen deposition. The study experimentally controlled plant diversity, soil nitrogen and atmospheric CO₂ concentrations. The results were clear – enhanced biomass accumulation in response to elevated levels of CO₂ or nitrogen was less in species-poor than in species-rich assemblages.

Source: Reich, P.B., Knops, J., Tilman, D., Craine, J., Ellsworth, D., Tjoelker, M., Lee, T., Wedin, D., Naeem, S., Bahauddin, D., Hendrey, G., Jose, S., Wrage, K., Goth, J. & Bengtson, W. (2001) Plant diversity enhances ecosystem responses to elevated CO₂ and nitrogen deposition. *Nature*, 410, 809–812.

Military technology threatens whales

The US Navy and other NATO forces are planning to deploy Low Frequency Active Sonar (LFAS) systems to locate silent submarines. The systems, if implemented, will periodically emit sound pulses of up to 235 decibels throughout 80 per cent of the world's oceans. Tests of similar systems have, however, been linked to mixed mass strandings of cetaceans. Mixed mass strandings are rare events otherwise, and concern has been raised that the LFAS system will cause more such strandings. The US Navy has stated that noise levels will not be above 180 decibels, which is deemed safe for cetaceans, and that the system will not be used when whales are detected within a 1000-yard radius of the sound field. The Navy also stated that they would not deploy LFAS within 12 miles of any

coast, where research shows that lower sound levels can cause problems. However, sonar at under 160 decibels resulted in stranded whales in the Bahamas and Mediterranean and the proposed system can produce a sound field of 150–160 decibels up to 100 miles from the transmitting vessel.

Source: *Wildlife Conservation*, March/April 2001, 13.

Europe

Europe fishing for increases in quotas

The European Union is demanding an increase of up to 60 per cent in the amount of fish its trawlers are allowed to catch off West Africa. Atlantic waters off West Africa are one of the world's last great fisheries. But in the past decade since the arrival of foreign trawlers, particularly from the EU, the fish stocks have crashed. The three largest licences, covering waters controlled by Mauritania, Senegal and Guinea-Bissau, are up for renewal this year and Europe is pushing for big increases. This action flies in the face of the European Union's policy of supporting sustainable fisheries, coming just after its announcement of plans to cut the EU fleet by 40 per cent and radically overhaul its fisheries policy. Source: Reported in *New Scientist*, 2284, 19.

Recovery plan for North Sea cod

Norway and the UK have agreed in principle to the emergency closure of large areas of the North Sea to protect cod at spawning time. This is the first stage of the North Sea Cod Recovery Plan implemented by the European Union. All EU states with North Sea interests will share the burden of reduced fishing effort and increased protection for spawning cod. One of the next stages will be negotiations on technical conservation measures to protect juvenile fish through improved fishing gear that allows small fish to escape. Source: *Marine Pollution Bulletin* (2001), 42(3), 165–166.

New landscape convention in Europe

On 20 October 2000 in Florence, Italy, the European Landscape Convention

was opened for signature. The Convention was signed by 18 European states. However, it needs 10 states to ratify the Convention before it comes into force. It is thought this will take 1 or 2 years. The Convention is the first international treaty devoted exclusively to the protection, management and planning of landscapes. The Council of Europe is responsible for following and monitoring the implementation of the Convention. The new Department of Cultural and Natural Heritage will be responsible, with others, for carrying out a common programme of activities on European landscapes.

Source: *Naturopa* (2000), 94, 28–29.

Trade in beetles and butterflies in Europe

A report of a study carried out on the trade in insects in Europe highlights a growing problem. The study showed that some of the world's most threatened insects are openly being offered for sale. These included Queen Alexandra's birdwing butterfly *Ornithoptera alexandrae*, Sri Lankan rose *Atrophaneura jophon* and the Cape stag beetle *Colophon primosi*, all considered threatened with extinction. The Cape stag beetle is one of the most highly prized stag beetles on the market. *Colophon* species are endemic to isolated mountain-tops of the south-western Cape Province in South Africa. It is assumed that these beetles have very low reproductive rates. All *Colophon* species are listed on the 2000 IUCN Red List of Threatened Species. In 1994, the 14 species in the genus were proposed for listing on CITES Appendix 1, but the proposal was withdrawn.

Source: *TRAFFIC Bulletin* (2000), 18(3), 91–93.

Wolf cull defies widespread opposition

A cull of wolves in Norway has proceeded despite a joint court action by WWF, the Norwegian Carnivore and Raptor Society and the Norwegian Society for the Conservation of Nature. The decision to kill the wolves contravenes the principles agreed between Norway and Sweden in 1998 on managing the Scandinavian wolf population, and does not comply with the Bern Convention. There is concern that the wolf population is not yet large enough to support hunting, and that destruction

of the wolves in the chosen areas is unjustified because livestock densities are not particularly high and the wolf is the least damaging of the four large predators present. However, the packs that will be culled occur outside the management zone for wolves and their presence is damaging for livestock, wild ungulates and the quality of life for the people of the area. The level of protest and media interest has been so intense that the hunters are currently evaluating whether to seek an injunction to prevent protestors and reporters from interfering with the hunt. The decision to kill nine wolves was a compromise of original plans to target 17 wolves. The local council in Rendalen could still issue permits to kill the additional eight wolves, but they have been granted up to 8 million kroner for damage prevention measures. The wolf controversy in Norway highlights the challenge of managing large carnivore populations in coexistence with people in Europe. Source: <http://www.large-carnivores-1cie.org>, contributed by Guillaume Chapron.

Scandal over environmental labelling

Nordic Swan, the Nordic Council's environmental label, has withdrawn its demand for credible forest certification under pressure from the Finnish forest sector. The Nordic Swan scheme had introduced new paper criteria, demanding that 15 per cent of the raw material should originate from certified sources. In December 2000 a decision was reached that scrapped the necessity to only accept certification standards developed in co-operation with social and environmental stakeholders. Producers will now be able to get Swan labels for pulp and paper produced with Pan European Forest Certification (PEFC) timber. The NGOs feel this has lowered the forest management standards within Nordic Swan. The Finnish Nature League and Greenpeace Nordic have produced a report entitled *Anything Goes?* This documents examples of logging of Finnish forests of high conservation value that have been certified through the PEFC scheme. Fifteen per cent of the world's paper and pulp supply comes from Finland, and 95 per cent of its forests are PEFC-certified.

Source: *Taiga News* (2001), 34, 3.

All Swedish species to be documented in new large-scale project

The Swedish Threatened Species Unit (ArtDatabanken) at the Agricultural University of Uppsala was commissioned in April 2001 by the Swedish Government to produce a standard work covering all Swedish animals, plants and fungi – a total of approximately 50,000 species. As a start, \$US4 million will be invested into the project over 3 years. The work will consist of two main parts: a national flora and fauna in the form of illustrated handbooks in Swedish presenting the Swedish species, and a series of scientific monographs in English providing detailed descriptions of the approximately 30,000 species currently lacking adequate documentation within the Nordic countries. It will take at least 20 years to complete this project. When finished, it will be a lasting foundation for conservation and biological research. It will also entail a substantial enhancement of the taxonomic competence within Sweden.

Source: Swedish Threatened Species Unit, April 2001, <http://dha.slu.se>

Cats to be eliminated from the Ascension Islands

The British government is to provide £500,000 for ecological restoration on Ascension Island. This British island in the tropical mid-Atlantic is a key seabird breeding-site. The main goal will be to rid the island of around 800 feral cats that, since their introduction in 1815, have devastated seabird populations, including the sooty tern. Roaming donkeys will also be permanently enclosed because their dung spreads the seeds of the introduced Mexican thorn that disrupts the nesting of green turtles if it grows on beaches.

Source: Reported in *New Scientist*, 2284, 19.

English coasts and the threat from climate change

The predicted rise in sea levels as a result of climate change will undermine flood and coastal defences in the UK. In response, English Nature, a government agency, has launched a scheme to develop Coastal Habitat Management Plans (CHaMPs) that will aim to manage coastlines so that they evolve naturally in response to climate change as well as protecting communities and wildlife.

English Nature has awarded a contract to a consortium of British consultants for the production of six pilot CHaMP schemes. They will map out the future of internationally important coastal habitats for the next 30–100 years.

Source: *Marine Pollution Bulletin* (2001), 42(2), 83.

Woodpeckers as indicators of forest bird diversity

Studies in Poland have shown a positive relationship between woodpecker species richness and the number of species of other forest birds. These results confirm the suitability of woodpeckers as part of an indicator system for assessing avian diversity, and suggest that woodpecker surveys could be used as a tool for assessing the diversity of forest birds where such data are not readily available.

Source: Mikusiński, G., Gromadzki, M. & Chylarecki, P. (2001) Woodpeckers as indicators of forest bird diversity. *Conservation Biology*, 15, 208–217.

French warm to the return of the wolf

A major study into attitudes and beliefs about wolves in two French provinces has shown a marked shift in public opinion since the wolf was eradicated 100 years ago with seemingly universal approval. More than 800 people, representing 23 interest groups, from the provinces of Savoie and Des Alpes Maritimes were questioned. The study provides a balanced assessment of attitudes towards the species and its management following the recent return of the wolf after a century-long absence. The findings of the survey show that most people now want wolf populations maintained in France for future generations. However, residents in both provinces are a long way from fully accepting the return of the wolf, now a protected species in France. When asked whether having wolves in their respective provinces was good or bad, around 30 per cent of people said it was good, nearly 50 per cent felt that it was bad and the rest were indifferent. Those questioned agreed that wolves could significantly impact large and small game animals, yet the majority opposed any form of wolf hunting. However, they were concerned about the implications for livestock, and could accept some form of wolf management. Finally,

most people greatly overestimated the current wolf population in France, which experts believe to be around 30. Source: <http://www.large-carnivores-lcie.org>, contributed by Guillaume Charon.

Bavarian vole still alive

The Bavarian vole *Microtus bavaricus* was described in 1962 from an alpine meadow in southern Germany and subsequently vanished from its type locality. It was considered extinct, and was taken as one of the few examples of recent mammalian extinctions in Europe. Consequently, the species was not included in the 1999 Atlas of European Mammals. A research group led by Friederike Spitzenberger and based at the Natural History Museum of Vienna recently discovered a new population of Bavarian voles in Northern Tyrol, just across the German–Austrian border. A comparison of the mitochondrial control region of type specimens of *M. bavaricus* with samples of the new population supports their conclusions. The Bavarian vole thus survives in the Austrian Alps and can be removed from the list of extinct mammals.

Source: *Journal of Zoological Systematics & Evolutionary Research* (2000), 38, 231–238, contributed by Rainer Hutterer.

Edge effects reduce the conservation effectiveness of traditional reserves

Investigation of mortality of the Eurasian badger *Meles meles* in the Doñana National Park, south-western Spain, revealed that distance from the border of the park strongly determined survival probability. Human-related mortality (poaching and road kills) was by far the most common cause of mortality (85 per cent of deaths recorded). Overall the effect of the reserve was positive, but edge effects reduced reserve effectiveness by 36 per cent and therefore edge effects should be considered carefully when reserves are implemented. Enlargement of reserves and control of human activities that promote edge effects are two management actions that can most effectively mitigate edge effects. Source: Revilla, E., Palomares, F. & Delibes, M. (2000) Edge-core effects and the effectiveness of traditional reserves in conservation: Eurasian badgers in Doñana National Park. *Conservation Biology*, 15, 148–158.

Dam threatens crucial habitat for Iberian lynx

Work has started on Europe's largest dam despite concerns that its creation will destroy important habitats and have negative effects on local flora and fauna. An environmental impact assessment carried out in 1996 warned that the dam could have a devastating impact on wildlife by flooding important habitats and altering living conditions in the irrigation zone. More than 1 million trees will be felled to make way for the dam. The majority of these trees are old-growth holm and cork oaks, which are favoured by females of the threatened Iberian lynx for raising their young. Campaigners believe that it is still possible to avoid disaster by operating the dam at a level of 139 m instead of the proposed 151 m. This would save the use of almost half of the surface area and over 400,000 trees, as well as diverse habitats crucial for rare animals such as the lynx.

Source: <http://www.large-carnivore-lcie.org>, contributed by Guillaume Chapron.

North Eurasia

First Forest Stewardship Council certificates for Russia

Forest Stewardship Council certificates have been awarded to two forest operations, four sawmills and one panel factory in the Arkhangelsk oblast in north-west Russia. All these operations are owned or leased by the German wood company Holz Dammers Moer. The certified area amounts to 151,803 ha of productive forest land with annual harvest levels of around 140,000 m³ of wood. The certified land includes large areas of unfragmented old-growth forests and the certification forces the forest operations to identify all old-growth area on the territory before June 2001 and have a 2-year moratorium on logging of such areas until their future is agreed.

Source: *Taiga News* (2001), 34, 2.

Concerns over Russia-China timber trade

In September 2000 the Russian and Chinese governments signed an agreement to jointly develop forest resources

in Russia. This agreement will increase the pressure on taiga habitat, especially in the border regions of Siberia and the Russian Far East. At the time of the signing, Russian and Chinese environmental groups were meeting to discuss this timber trade. Chinese imports of Russian logs have increased dramatically since China imposed restrictions on domestic logging. China now imports more than 4 million m³ of Russian logs per year. There is also thought to be a significant amount of illegal, undocumented trade. The meeting of environmental groups in Chita, Russia, discussed strategies for addressing the trade including market-based campaign strategies, halting illegal trade, forest certification and developing local wood processing than can reduce raw log exports.

Source: *Taiga News* (2001), 34, 9.

Sturgeon species face extinction

Illegal fishing and caviar production and trade could push some sturgeon species to extinction within a few years, according to the World Wide Fund for Nature. The Caspian basin accounts for 60 per cent of the world's caviar supply and catches in the area have fallen from 20,000 tonnes annually in the 1970s to 1000 tonnes in the late 1990s. Species affected include the beluga and stellate sturgeon. So far in 2001, Russian anti-poaching officials have found over 70 tonnes of sturgeon entangled in illegal nets. This is thought to be only a small proportion of the illegal catch. Over-fishing has continued to undermine conservation efforts and could herald the collapse of the stock and the international caviar market.

Source: *Marine Pollution Bulletin* (2001), 42(2), 84.

Sub-Saharan Africa

Chimpanzees trade meat for alliances

Wild chimpanzees *Pan troglodytes* frequently hunt and share meat. Three major hypotheses have been suggested. A nutritional shortfall hypothesis suggests that chimpanzees hunt to compensate for seasonal shortages in food availability. A second hypothesis argues that male chimpanzees hunt to obtain meat to swap for matings. A third

hypothesis proposes that males use meat as a social tool to develop and maintain alliances with other males. Observations of a group of chimpanzees at Ngogo in Kibale National Park, Uganda, did not support the food availability or meat-for-sex hypotheses, but did support the male social bonding hypothesis. Hunting occurred primarily during periods of food abundance rather than scarcity. The presence of oestrous females did not predict the tendency of males to hunt, and meat-for-sex exchanges rarely occurred. Males shared meat non-randomly and reciprocally among themselves, and males exchanged meat for support in conflicts.

Source: Mitani, J.C. & Watts, D.P. (2001) Why do chimpanzees hunt and share meat? *Animal Behaviour*, 61, 915-924.

National parks threatened by demand for cell phone materials

The growing demand for the mineral colombo-tantalit, a material used in mobile phone technology, is threatening World Heritage Sites and threatened species, including the gorilla. With the world-wide use of mobile phones rocketing – over 500 million are expected to be sold in 2001 – the price of colombo-tantalit, known as coltan or tantalum, has increased dramatically. In 1990 it was \$20 per pound, by 1997 this had risen to \$40, and in 2001 a pound of coltan is worth over \$350. The principal sources of coltan are the eastern Democratic Republic of Congo and Australia. Between 1995 and 1998 the mining concession for coltan in DRC was owned by a Canadian company, but this agreement was annulled when Kabila came to power. Since then there has been no regulation and thousands of opportunistic miners have come to the area to dig for the mineral. Many of these miners subsist on illegally hunted antelope, gorillas, monkeys, elephants and other wildlife. Recent success was achieved when park guards and military personnel stopped illegal mining of coltan in the Okapi Faunal Reserve, which is home to the okapi, a rare rainforest giraffe. Mining operations are, however, still threatening Kahuzi-Biega National Park, which contains one of the largest remaining populations of eastern lowland gorillas.

Source: <http://www.wcs.org>, contributed by Guillaume Chapron.

Over-collection threatens traditional medicinal plant

Buchu *Agathosma betulina*, a member of the citrus family, has for centuries been used by bushmen in South Africa to treat wounds and intestinal disorders. It is now threatened by over-collection fuelled by demand from Europe and the US. As well as being used to treat colds and rheumatism, it is used as a flavour enhancer in processed foods. The market for buchu is currently worth US\$ 1.3–1.6 million per year. In the wild the plants grow on south-facing mountain slopes in the Cape. Poachers often uproot plants under the cover of darkness. Cultivation has led to hybridization, which causes further problems as hybrids are infertile.

Source: *TRAFFIC Bulletin* (2000), **18**(3), 90.

Seychelles islands back from the brink of disaster

A three and a half month pest eradication programme by a New Zealand team has brought three Seychelles islands back from the brink of an ecological disaster. Rats, cats and mice have been eradicated from the islands of Denis and Curieuse and a neighbouring island. Endemic birds, reptiles and insects on these islands were being threatened with extinction by introduced pests. These included two high-profile bird species, the Seychelles magpie robin and the Seychelles fody.

It will take time to see whether the target pests have been fully eradicated, but if it has been successful, this will increase the area of rat-free habitat in the Seychelles from 280 to over 1000 ha.

Source: *Forest & Bird* (2001), **299**, 12.

South and South-east Asia

Trade in watersnakes may be unsustainable

A reported decline in fish harvests from Tonle Sap in Cambodia has created a new demand for an alternative inexpensive food source for people and for captive crocodiles reared commercially around the lake. Five species of homalopsine watersnakes have filled this need. The ova of one species are also sold as a delicacy, the skins of at least two species are exported to Thailand

and at least one species is exported live to Vietnam and China. During 1999 and 2000 the harvest in the peak of the wet season was estimated at upwards of 8500 watersnakes per day. This is thought to be the greatest exploitation of any single snake assemblage in the world. Of particular concern is the harvest of the Tonle Sap watersnake *Enhydryis longicauda*. This harvest is thought to be unsustainable, and management measures may be needed to bring it down to sustainable levels.

Source: *TRAFFIC Bulletin* (2000), **18**(3), 115–124.

Substantial rapid loss of rainforest results in heavy extinctions

Singapore has had 95 per cent of its native lowland rainforest cleared and most of this occurred in the mid- to late-nineteenth century. Recent comparisons of avifaunal checklists showed that, of 203 diurnal bird species, 65 were extirpated in Singapore in the past 75 years. Four of these were non-forest-dependent species, whereas 61 (94 per cent) were forest bird species dependent on the primary and secondary forest to survive. Twenty-six forest bird species became extinct between 1923 and 1949, whereas 35 forest species disappeared after 1949. Larger forest bird species went extinct between 1923 and 1949, but body size did not affect loss of forest birds between 1949 and 1998. High losses were observed among birds that were insectivorous and birds that fed in the canopy.

Source: Castelletta, M., Sodhi, N.S. & Subaraj, R. (2000) Heavy extinctions of forest avifauna in Singapore: lessons for biodiversity conservation in South-east Asia. *Conservation Biology*, **14**, 1870–1880.

Ninety-four new species found in Wapoga River Area of north-western Irian Jaya, Indonesia

In 1990, Conservation International launched the Rapid Assessment Program (RAP) – rapid, intensive surveys of ecosystems facing immediate threats. The purpose of these surveys is to quickly collect, analyse, and disseminate information on poorly known areas that are potentially important biodiversity conservation sites. Results have recently been published of a rapid assessment of the Wapoga River Area, a large area of pristine forest with very little evidence of human disturbance. The RAP scien-

tists discovered 94 new species, including frogs, aquatic insects, ants, fishes, lizards and plants. Range extensions and new records for Irian Jaya were found among aquatic insects, ants, frogs and birds. Strong populations of several frog species that are in decline in other parts of the world were found. The unique species composition of the Wapoga River Area suggests that the area straddles the boundary of two biogeographical subprovinces and as such may constitute a unique zoogeographic zone.

Source: Mack, A.L. & Alonso, L.E. (eds) (2000) *A Biological Assessment of the Wapoga River Area of North-western Irian Jaya, Indonesia*, 132 pp. University of Chicago Press, Chicago. ISBN: 1 881173 32 1.

New sighting of Philippine crocodile

The Critically Endangered Philippine crocodile *Crocodylus mindorensis* has been recorded in the Sierra Madre mountains of north-eastern Luzon. This raises hopes that this endemic species might yet survive in the wild. However, conversion of crocodile habitats into cultivated land continues, food resources are depleted through destructive fishing and hunting methods, and animals are killed or captured and sold. On a positive note, a 1-year Philippine Crocodile Conservation Project (PCCP) has begun and it is hoped to integrate this local project into the National Recovery Plan for the Philippine Crocodile. The PCCP has several components including alternative livelihood development, information, education and research and protected area management.

Source: *Crocodile Specialist Group Newsletter* (2000), **19**(4), 11–12.

Crocodile reintroduction in Vietnam

Vietnam is set to reintroduce crocodiles into the wild for the first time since they disappeared from the country's rivers and estuaries a decade ago. Twenty-five adult Siamese crocodiles *Crocodylus siamensis* have been transferred to Nam Cat Tien National Park, north-east of Ho Chi Minh City, in the hope that they will breed in the wild. Animals will later be introduced into Bau Sau, a 2500-ha lake. The crocodiles have been kept in captivity by the Ca Sau Hoa Ca Crocodile Company. The Siamese crocodile and its saltwater cousin, the estuarine crocodile,

have not been reported in Vietnam for at least 10 years, although there have been recent reports of crocodiles in the Mekong Delta area. These are thought to have escaped from farms during Vietnam's worst floods for 40 years.

Source: *Crocodile Specialist Group Newsletter* (2000), **19(4)**, 15–16.

East Asia

New wild camel species found by UNEP-backed expedition

A new species of wild bactrian or 'two humped' camel may have been discovered in salty sand dunes on the edge of the Tibetan mountains in China and Mongolia. Experts estimate that the total population in Asia numbers less than 1000, making them more endangered than the Giant Panda. Genetic tests on animal remains show significant variation between the newly discovered camels and their domesticated cousins, presenting the possibility that the wild camels are a separate species. The wild camels are adapted to survive on salt water bubbling up from beneath the desert. The area where the wild camels live was used by China for nuclear weapons testing and has been a no-go area for people since 1955. The tests ceased in 1996 and there has been an influx of miners and hunters who are thought to poach the wild camels, causing concern about their survival. The wild bactrian camel is currently ranked as Endangered on the IUCN Red List, but experts think that there may be an argument for listing the species as Critically Endangered, the highest ranking of threat for a species.

Source: *EarthVision Environmental News*, **6th February 2001**, Nairobi, <http://www.unep.org>, contributed by Guillaume Chapron.

Protected areas still at risk of ecological degradation

It is generally perceived that biodiversity is better protected from human activities after an area is designated as a protected area. However, this common perception is not true in Wolong Nature Reserve in south-western China, which was established in 1975 as a 'flagship' protected area for the threatened giant

pandas. A recent study showed that the reserve has become more fragmented and less suitable for giant panda habitation since the establishment of the protected area. Local people in the reserve were the direct driving force behind the destruction of the forest and of panda habitat. The reserve attracts thousands of tourists each year, stimulating the extraction of resources to produce marketable goods. After the forests with easy access or close proximity to people were exhausted, exploitation moved to forests in more remote areas at higher elevations, which are often high-quality panda habitat.

Source: Liu, J., Linderman, M., Ouyang, Z., An, L., Yang, J. & Zhang, H. (2001) Ecological degradation in protected areas: the case of Wolong Nature Reserve for giant pandas. *Science*, **292**, 98–101.

CITES controls improved in Hong Kong

From 16 November 2000 the importation, export and possession of specimens of artificially propagated CITES-listed plant species and medicines containing threatened animal species was subject to control in Hong Kong. Exemptions to these controls include artificially propagated CITES-listed plant species with valid export permits, the possession for commercial purposes of artificially propagated CITES-listed plant species subject to permission of the authorities, and the importation, export and possession of personal effects of artificially propagated plant species.

Source: *TRAFFIC Bulletin* (2000), **18(3)**, 96.

Oil spill pollutes National Park

Taiwan authorities and residents are working to rescue a protected area after probably the worst maritime oil spill in Taiwan since 1977. The oil spill from a grounded Greek bulk cargo ship, the *M.V. Amorgos*, has caused substantial damage to the marine area around Hengchun in south Taiwan. The *Amorgos* ran aground on submerged reefs resulting in 1150 tons of fuel oil to leak out and contaminate the pristine coastline that constitutes part of the Kenting National Park. More than 3 km of coastline have so far been polluted, of which 2 km of coral are heavily contaminated. The reef shelf along the

Kenting coast is a traditional shellfish and seaweed harvesting area and it is estimated that the oil contamination has destroyed marine life and corals not only along the coast, but also on the seabed. National Park officials estimate that it will take at least a year to clear all traces of oil from the coral habitat and it will take several decades for the environment to fully recover and resume productivity.

Source: *International Conservation Newsletter*, **March 2001**, **9(1)**, 1–2.

Japan continues whaling in Southern Ocean Whale Sanctuary

Japan is to continue its scientific whaling hunt in the 2000–2001 season, with plans to take 440 minke whales in the Southern Ocean Whale Sanctuary. Since the Sanctuary was established in 1994, Japan has exploited a loophole that allowed the taking of whales for scientific research. The International Whaling Commission (IWC) has argued that research can be undertaken without killing the animals, although this is disputed by Japan, who also argue that minke whale numbers are increasing rapidly. In July 2000 the IWC announced that the actual number of minke whales was likely to be much lower than previously estimated.

Source: *The Antarctica Project* (2000), **9(3/4)**, 4.

North America

Rarest marmot continues to decline

The population of Vancouver Island marmots *Marmota vancouverensis* continues to decline, with a count in summer 2000 recording only 41 animals. This species is now recognized as the rarest of the world's 14 species of marmot and one of North America's most Critically Endangered mammals. The species' numbers have now fallen below the level necessary to maintain long-term evolutionary potential. It is now unlikely that the species can recover without human intervention. Captive breeding and reintroduction now form a major part of the recovery programme. At present there are 45 marmots in captivity.

Source: *The Open Country* (2000), **2**, 44–46.

Allee effect demonstrated in American ginseng

A basic tenet of conservation biology is that population size is inversely proportional to the probability of extinction. At small sizes populations are more vulnerable to elimination by some stochastic environmental event. An additional effect, described by Allee, is that fertility and survival of individuals may be diminished once the population size descends below a critical threshold. At low population densities reproductive opportunities are reduced because individuals are mate-limited. In plants, small populations may weaken important mutualisms such as plant–pollinator interactions, thereby resulting in lowered seed set. Experimentally created plots demonstrated that fruit production (per flower per plant) in American ginseng *Panax quinquefolius*, which is harvested from the wild for the herbal trade, was proportional to population size. This result strongly suggests that an Allee effect occurs. Knowledge of the presence as well as the mechanism underlying this Allee effect may be especially useful for management and for determination of the minimum viable population size of the species in the wild.

Source: Hackney, E.E. & McGraw, J.B. (2000) Experimental demonstration of an Allee effect in American ginseng. *Conservation Biology*, **15**, 129–136.

Bias in protected area policy in the US

Protected areas in the US are biased towards high elevation and least productive lands. That is the conclusion of a survey which shows that of the 400,000 sq km in conservation areas, 25 per cent are on the least productive soils and almost 50 per cent are at the highest elevations. These areas are in no way representative of the natural habitats in the US, and in fact cover less than 50 per cent of the mapped ecosystems in the country. This bias is apparent in other countries such as Sweden, Nepal, Australia, New Zealand and Canada. The key to shifting the balance to other more diverse areas may rest with private landowners. In the US, more than 60 per cent of the country's federally listed threatened and endangered species occur on private land.

Source: *Conservation Biology in Practice* (2001), **2**(1), 18–19.

Progress made on research into bird brain disease

Avian Vacuolar Myelinopathy (AVM) is a brain disease that affects birds, causing disorientation, lethargy and partial paralysis. The disease was first identified in bald eagles and American coots in Arkansas, but it has since been confirmed in other species of migratory waterfowl and in other states. Although a specific cause has not yet been isolated, it has been determined that AVM is not a prion-related disease, like 'mad-cow disease', but is more likely the result of exposure to a synthetic or naturally occurring toxicant. It is suspected that AVM is acquired at specific sites and that onset of the disease is fairly rapid. Source: *Endangered Species Bulletin*, September/October 2000, **XXV**(5), 4–5.

Cleanup of the Hudson River

One of the most famous rivers in the US, the Hudson, is to undergo a major cleanup operation to remove polychlorinated biphenyls (PCBs). In the 30 years since 1977, the General Electric Company discharged as much as 590,000 kg of PCBs directly into the river. Scientific studies have shown that the natural breakdown of PCBs is not enough to reduce risks to humans and wildlife and that targeted dredging of sediments is needed. The most contaminated portions of the river between Fort Edward and Federal Dam at Troy will be dredged, removing about 2 million cubic metres, which will then be replaced by clean material. After treatment the dredged material will be transported away from river communities for disposal. The plan is expected to be finalized by June 2001.

Source: *Marine Pollution Bulletin* (2001), **42**(2), 85.

Clinton's final boost for protected areas

The last days of the Clinton Presidency saw the creation of several national monuments and expansion of two national parks. Despite initial opposition the plan for the expansion of Great Sand Dunes National Park by 40,000 ha was signed in November 2000. In south-central Idaho, President Clinton expanded the Craters of the Moon National Monument, adding almost 270,000 ha. This site has a unique volcanic landscape, and the new area will include the entire 104 km long Great Rift, a basaltic

lava field. The newly created 118,000 ha Vermilion Cliffs National Monument in Arizona is an important area for rare species such as the desert bighorn sheep and the California condor.

Source: *National Parks* (2001), **75**(1–2), 20–21.

US National Park Service gets \$1.4 billion

In the last days of the 106th Congress, the National Park Service budget for 2001 was set at \$1.4 billion, the same as in 2000. The Park Service consider this inadequate, claiming that it needs an extra \$500 million in additional operating dollars each year. A revised version of the Conservation and Reinvestment Act was also agreed. This will establish a 6-year fund totalling \$12 billion for state and federal land acquisition. The park system currently includes more than 400,000 ha that is in private hands and unprotected. The cost of acquiring these lands is estimated to be \$1.3 billion. A major victory was achieved when Congress passed the Everglades Restoration Bill that will spend \$7.8 billion over the next 30–40 years to restore freshwater flows to the national park and surrounding ecosystem.

Source: *National Parks* (2001), **75**(1–2), 23–24.

Concern over released aquarium fish

There is a rising concern over the number of introduced species of tropical fish being caught in US waters. At least 185 different species of exotic fish have been caught and 75 species have established breeding populations. Over half of these introductions are because of release or escape of aquarium fishes. Such releases have included cichlids, livebearers and armoured catfishes. Each year more than 2000 non-native fish species, representing nearly 150 million exotic freshwater and marine fishes are imported into the US for use in the aquarium trade. If species are dumped into local water bodies they can have adverse impacts on native species. In some cases, there may be a physical threat to humans from species such as piranhas and freshwater stingrays.

Source: *Marine Pollution Bulletin* (2001), **42**(3), 167–168.

Overfishing threatens Steller sea lion

A recent report by the US National Marine Fisheries Service concluded that competition with fisheries is a significant factor in the decline of the threatened Steller sea lion. The agency has proposed a new approach to the management of fishing in the Gulf of Alaska, the Bering Sea and along the Aleutian Islands. From 8 August 2000, fishing grounds within the sea lion's critical habitat have been closed to trawl fishing. The Fisheries Service is working with fishermen, the states of Alaska and Washington and other stakeholders to minimize the impacts of the new rules on the fishing industry and to develop options for mitigation.

Source: *Marine Pollution Bulletin* (2001), 42(1), 5.

Genetic evidence of habitat corridor use in voles

Genetic techniques have shown that red-backed voles *Clethrionomys gapperi* use habitat corridors to travel between patches of unlogged forest. Microsatellites – highly variable pieces of DNA – were used to determine the relatedness of various populations of voles in coniferous forests managed for timber production in north-eastern Washington.

Populations of voles living in unbroken forest tracts were, unsurprisingly, the most closely related. However, populations in areas connected by a corridor of unlogged habitat were significantly more related than isolated populations, demonstrating that the voles use the corridors to move between areas and find mates. The study also looked at populations of deer mouse *Peromyscus maniculatus*, which is known to cross logged areas, and in this species there was no genetic variation between connected and isolated populations. These results demonstrate that habitat corridors are very important for some species and irrelevant for others.

Source: Mech, S.G. & Hallett, J.G. (2001) Evaluating the effectiveness of corridors: a genetic approach. *Conservation Biology*, 15, 467–474.

Cactus poaching on the increase

The Wright fishhook cactus is suffering from a variety of threats including the impacts of beetles and grazing. In addition to this, cactus poaching is on the increase. Scientists estimate that

between 50,000 and 100,000 plants remain in an area of southern Utah, including a small section of the Capitol Reef National Park. In the past 7 years a 67 per cent population decline has been recorded in plots near Capitol Reef. Plants have been advertised for purchase on websites. Poaching affects parks throughout this region, and at Lake Mead National Recreation Area in Nevada small transponders have been implanted in coveted plants to track them if they are stolen. The Endangered Species Act does not protect plants in the same way as animals. Some states are enacting laws to tackle the issue of collection or destruction of endangered plants.

Source: *National Parks* (2001), 75(1–2), 48.

First adult California condors released into the wild

In November 2000, 13 California condors were moved from holding pens at Vermilion Cliffs, Arizona, as a precursor to their release into the wild. Several of the birds hatched at The Peregrine Fund's breeding facility in Idaho. The Peregrine Fund has been leading the project with assistance from the US Fish and Wildlife Service and the Bureau of Land Management. Two adult pairs hatched in 1991 and 1992 will be the first adult condors of breeding age to be released into the wild. With this release, the number of condors in the wild will be 28.

Source: *National Parks* (2001), 75(1–2), 25.

Giant chemical ponds may be the answer to the earth's CO₂ production

Research by a group in New Mexico has shown that artificial ponds that sequester carbon dioxide from the atmosphere have the potential to adsorb CO₂ as fast as humans are producing it. A 200,000 sq km 'superforest' of carbon dioxide scrubbers, essentially a collection of calcium hydroxide ponds, could remove about 7 gigatonnes of CO₂ per year – equal to the amount that people produce.

Source: *New Scientist*, 2284, 14. Reported from *Geophysical Research Letters*, 28, 1235.

Clams threatened by water extraction

Colorado Delta clams *Mulinia colouradoensis* are threatened with extinction as a result of water extraction in Mexico's

Colorado River Delta. This species was once the most common at the mouth of the Colorado, but fewer than 30 live clams have been collected since 1992. Since the 1930s there have been gradual changes in the salinity of water in the delta. The Colorado River once delivered all of its fresh water to its delta in the northern Gulf of California. The river is now dry before it gets to the delta as a result of near complete diversion of river water for irrigation and domestic use in the US and Mexico. Reductions in shellfish also have a knock-on effect on bird populations.

Source: *Marine Pollution Bulletin* (2001), 42(3), 168.

Central America and Caribbean

Sea urchins provide hope for recovery of highly degraded coral reefs

A recent study in the Caribbean has provided hope for the recovery of highly degraded coral reefs. Many coral reefs throughout the western Atlantic region have undergone dramatic changes in community structure over the past two decades. The best-known examples of these changes are found in the Caribbean, where reefs that were formerly dominated by scleractinian corals and diminutive algal turfs have become overgrown by macroalgae. However, this state seems to be reversing on some reefs, and in shallow sites large areas are forming that are free from macroalgae and have high densities of juvenile corals. This change appears to be associated with increased densities of the sea urchin *Diadema antillarum*, which feeds on algae. The present densities of *D. antillarum* and juvenile corals are close to those recorded in the late 1970s and early 1980s and are in striking contrast to the decade-long recruitment failure of both. If these trends continue and expand spatially, reefs throughout the Caribbean may again become dominated by coral and algal turf.

Source: Edmunds, P.J. & Carpenter, R.C. (2001) Recovery of *Diadema antillarum* reduces macroalgal cover and increases abundance of juvenile corals on a

Caribbean reef. *Proceedings of the National Academy of Sciences*, 98, 5067–5071.

Golden lion tamarin population reaches 1000

The golden lion tamarin *Leontopithecus rosalia* is pulling back from the brink of extinction. From a low of 200 animals in the early 1970s the estimated population has now reached 1000 individuals following a birth in March this year. The species lives only in the lowland coastal Atlantic forest in the state of Rio de Janeiro, Brazil.

Source: WWF website <http://www.panda.org/species/tamarin>, contributed by Guillaume Chapron.

Endangered species to appear on Brazilian bank notes

After a popular poll in several Brazilian cities, the Central Bank of Brazil has selected three threatened species to appear on future bank notes. These are the green turtle *Chelonia mydas*, golden lion tamarin *Leontopithecus rosalia* and maned wolf *Chrysocyon brachyurus*.

Source: Brasilia, J. (2001), 10th February. Contributed by Prof. Milton Thiago de Mello, Sociedad Latino Americana de Primatologia, Brasilia, Brazil.

Mangroves protected in Ecuador

The purchase and destruction of mangrove forests for aquaculture exploitation has been declared illegal by the President of the Constitutional Tribunal of Ecuador. In the past 30 years about half of Ecuador's mangroves have been destroyed by the shrimp aquaculture industry. There are currently thought to be 207,000 ha of shrimp ponds in Ecuador, nearly 75 per cent of which are illegal. The decision is a landmark, the first time in 10 years that coastal communities have received a favourable legal decision in their struggle to defend the mangroves.

Source: *Marine Pollution Bulletin* (2001), 42(2), 84.

Narrow escape for the Galapagos Islands

There were fears of a major ecological disaster in January this year when the tanker *Jessica* ran aground off the island of San Cristobel in the Galapagos, spilling 900 tonnes of oil. By a stroke of luck, wind and currents carried the bulk of

the oil away from the shoreline. Most of the diesel that was spilled evaporated. However, patches of bunker oil drifted throughout the islands and some were found on Floreana, 90 km from San Cristobel, and 130 km away on Isabella. There were very few casualties amongst the wildlife and no evidence that any of the rare species had been affected. The spill has highlighted the fragility of the Galapagos as well as the inadequacy of some of the current conservation legislation.

Source: *Marine Pollution Bulletin* (2001), 42(3), 165.

Candamo valley in Peru is protected

Peru has decided to declare the Candamo Valley a national park. The area is home to more than 600 species of birds, 1000 species of butterflies, 14 species of primates and significant populations of jaguars, cougars, tapirs and giant otters. In September 2000 the then President Fujimori signed a decree that more than doubles the existing Bahuaja-Sonene National Park in south-western Peru and includes the 142,000 ha Candamo Valley. The decision came less than two weeks after Exxon-Mobil withdrew from oil exploration in Block 78, which included the Candamo Valley and other parts of the Tambopata-Candamo Reserved Zone.

Source: *Wildlife Conservation* (2001), January/February, 16.

Bushmeat hunting threatens forest structure

A recent study has revealed, as many people had feared, that hunting of wild forest animals has consequences beyond the loss of the animals themselves. Researchers in Bolivia have shown that the genetic structure of a Neotropical tree *Inga ingoides* is affected by the loss of its main seed disperser, the spider monkey *Ateles paniscus*. In sites where the spider monkey has been eliminated by subsistence hunting, seedlings under adult trees were more related to that adult than in sites where the monkey is still present. Large mammals and birds are the main target of subsistence hunters in the Neotropics. Extinction of seed-dispersing frugivores may result in pronounced changes in the demographic and genetic structure of tree species in Neotropical forests.

Source: Pacheco, L.F. & Simonetti, J.A. (2000) Genetic structure of a Mimosoid tree deprived of its seed disperser, the spider monkey. *Conservation Biology*, 14, 1766–1775.

Australia/Antarctica/ New Zealand

Call for moratorium of all toothfish fisheries rejected

The Antarctic and Southern Ocean Coalition has called for a moratorium on all toothfish fisheries. The case for such a scheme was presented at the 19th meeting of the Convention on the Conservation of Antarctic Living Marine Resources (CCALMR) held in Tasmania in late 2000. The proposal was not supported, although New Zealand agreed to look at a moratorium proposal within a year if no progress was made. The bycatch threat to seabirds continues to cause concern. The Scientific Committee of CCALMR estimated that 21,900–68,000 albatrosses, 5000–11,000 giant petrels and 79,000–178,000 white-chinned petrels have been killed in the toothfish fishery in the CCALMR area over the past 4 years. Conservation measures aimed at reducing the seabird bycatch continue to be poor amongst licensed fishers.

Source: *The Antarctica Project* (2000), 9(3/4), 1, 4–5.

Australia tackles issue of marine pests

The Australian Government has provided over \$500,000 funding for projects aiming to improve Australia's capacity to protect its oceans and coastal environments from introduced marine pests. Three projects have received support: the implementation of a National Ballast Water Management Regime, the establishment of a National Marine Response System for Marine Pests, and the development of a GIS model for shipping vessels and other likely carriers with a potential to introduce and spread marine pests into Australia. The Introduced Marine Pests Program is part of the Natural Heritage Trust's \$125 million Coasts and Clean Seas Initiative.

Source: *Marine Pollution Bulletin* (2001), 42(2), 84.

Protection for spectacular sponge gardens

The Australian government has announced further protection for sponge gardens in the Australian Coral Sea. The Coringa-Herald and Lihou Reef National Nature Reserves will be further protected in a new draft management plan. As well as the sponge gardens, the areas are important for nesting green turtles and tropical seabird species such as the red-footed booby, least frigatebird, great frigatebird and red-tailed tropic bird. The draft plan proposes prohibiting extractive commercial activities, such as mineral and petroleum exploration and development, commercial fishing and bio-prospecting.

Source: *Marine Pollution Bulletin* (2001), 42(1), 4.

The effects of nutrient enrichment on coral reefs

The degradation of coral reefs through nutrient enrichment of coastal waters is of increasing global concern. Enrichment effects have been demonstrated in the laboratory, but until now there has been little direct evidence of effects *in situ*. Enrichment of Nutrients on a Coral Reef Experiment (ENCORE) was initiated in 1991 to investigate the responses of coral reef organisms and processes to controlled additions of dissolved organic nitrogen and/or phosphorous on an offshore reef at the southern end of the Great Barrier Reef in Australia. Results show that reef organisms and processes were affected by elevated nutrients. Impacts depended on dose levels, were often species-specific, and generally sublethal and subtle. The study highlighted the need for sensitive and quantifiable bioindicators and a better understanding of the sublethal and subtle effects noted in the ENCORE work.

Source: *Marine Pollution Bulletin* (2001), 42(2), 91–120.

New weapon to tackle invasive weed species in New Zealand

Scientists in New Zealand have developed a new weapon to tackle the problem of invasive weed species in ecologically sensitive areas. The herbi-

cide is in the form of a gel that can be directly applied to plants, avoiding problems of spray drift and contamination of soil and adjacent plants. The Department of Conservation has undertaken trials that resulted in a near 100 per cent kill rate, with no regrowth after 2 years. More importantly, there was no damage to surrounding native trees. The gel is known commercially as Vigilant, and contains 5 per cent picloram as an active ingredient. This level ensures that it is effective but has a low toxicity.

Source: *Forest & Bird* (2001), 299, 8.

New foundation to help national parks and conservation

A former Minister of Conservation in the New Zealand government, Dennis Marshall, has set up a foundation to support conservation programmes in the country. The National Parks and Conservation Foundation is aiming to raise at least \$2 million to establish an endowment fund. The Foundation has already raised more than \$250,000 and has begun allocating grants to various conservation projects. These have included mistletoe restoration in Tongariro, a grant to the Limestone Island Restoration Committee and funding for the first stage of a buff weka translocation project in Wanaka.

Source: *Forest & Bird* (2001), 299, 10.

Magneta petrel on road to recovery

The magneta petrel or taiko is one of the world's most endangered seabirds. It is endemic to the Chatham Islands and there are thought to be fewer than 120 birds in the wild. The species was thought to have been extinct for more than a century until it was rediscovered in 1978. A new nesting area for the species has been found, potentially adding another three breeding pairs to the seven monitored by the New Zealand Department of Conservation. The survival on the Chatham Islands of this and other threatened species, such as the black robin, Chatham's petrel and Forbes' parakeet, was given a boost by almost \$100,000 of new funding announced in October 2000 destined for restoring biodiversity in the islands.

Source: *Marine Pollution Bulletin* (2001), 42(3), 166.

People

Dr Grahame Webb, Director, Wildlife Management International Pty Ltd, Darwin, Australia, has received the Ian Clunies Ross 6th National Science and Technology Award for his outstanding commitment and contribution to the application of science and technology in Australia and for inspirational leadership of future scientists. He has shown that conservation and farming can succeed side by side. His life's work with crocodiles and other reptiles has led to a new vision for wildlife conservation. In the 1970s, although crocodiles were endangered in the Northern Territory, the community viewed them as dangerous pests. Grahame Webb's pioneering work on crocodile conservation has not only seen the NT population of these reptiles recover to its past numbers, but has also changed community attitudes. Crocodiles are now treated as valuable wild animals that underpin tourism and crocodile meat and leather industries. Crocodylus Park, a crocodile research and education centre in Darwin, serves as the base for Webb's global activities. His company has provided assistance to more than 50 conservation management programmes around the world, helping to protect crocodiles, turtles and other species. Grahame Webb has demonstrated to the world that indigenous communities will readily support conservation when it is linked to a secure economic future. *Further details:* http://www.cluniesross.org.au/2001_award.htm

The *Briefly* section in this issue was written and compiled by Simon Mickleburgh, Josephine Morley 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 E-mail to: martin.fisher@fauna-flora.org